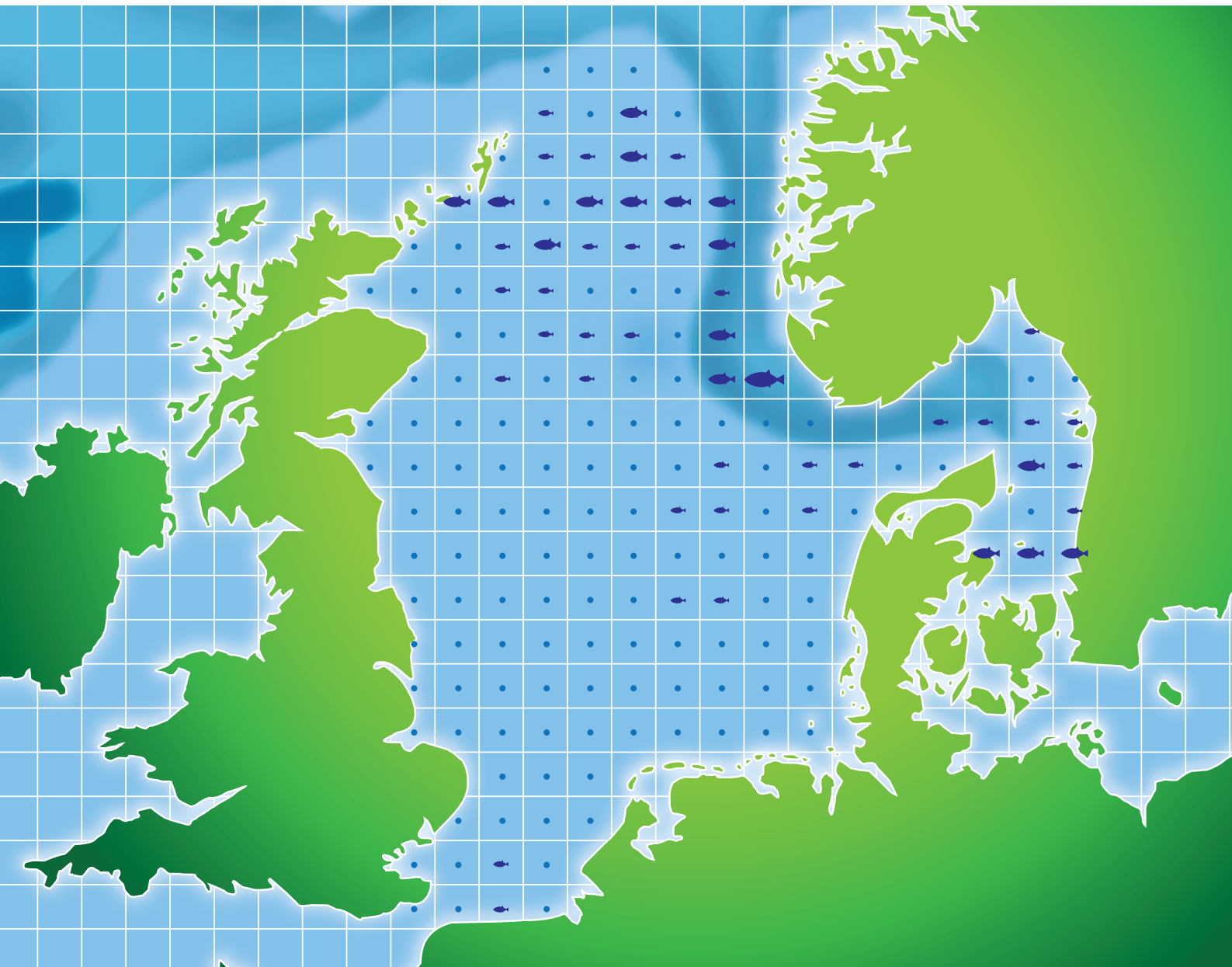




Towards Sustainable Fisheries Law

A Comparative Analysis

Gerd Winter
Editor



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Edited by Gerd Winter

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Foreword

Ensuring sustainable and equitable management of biodiversity from local to global levels is the heartland of work for the International Union for the Conservation of Nature (IUCN). Conservation of marine biodiversity in general and fish resources in particular has been high on the agenda of IUCN and its Environmental Law Programme (ELP) since the early 1980s. One example of IUCN's commitment to this area of conservation can be demonstrated by its input to the development of Part XII of the Law of the Sea Treaty which inaugurates an environmental law of the sea.

The ELP has also contributed significantly to the development of a number of important international conventions on the conservation and sustainable use of species and ecosystems, and biodiversity per se (Convention on Migratory Species, Convention on International Trade in Endangered Species of Wild Fauna and Flora, or Convention on Biological Diversity). All of these are very relevant for the conservation of marine fish resources.

Only recently, the ELP identified and summarized regulatory and governance gaps in the international regime for the conservation and sustainable use of marine biodiversity in Areas Beyond National Jurisdiction (ABNJ), a crucial topic to be considered by the United Nations Ad Hoc Open-ended Informal Working Group to study issues relating to the conservation and sustainable use of marine biological diversity beyond areas of national jurisdiction.

In addition to contributing to the discussions on the further development of the international legal regime concerning marine biodiversity (including fishing activities as a widely recognized and significant threat to marine biodiversity), the ELP has a strong interest in supporting its current implementation at the regional and national level. In this context, this book promises to be a great tool which will, among other things

- Help the reader to learn more about the international legal regime for fisheries management which is currently in place;
- Improve the understanding of the institutional and legal problems related to fisheries management which countries face at the national level; and
- Provide guidance for sustainable use of fish resources through a 'legal clinic' for fisheries management.

Importantly, the book fits perfectly in the IUCN Environmental Law Programme Plan 2009-2012, 'Environmental Law for a Just and Sustainable Future', which will continue to focus on:

- The conceptual development of environmental law;
- The generation of knowledge and the dissemination of information;
- Capacity building and training; and
- Technical 'on-the-ground' legal assistance.

I would like to congratulate the editor Gerd Winter, a long standing member of the IUCN Commission on Environmental Law, as well as the authors of this volume for developing a practical tool towards sustainable fisheries law. The lessons presented here in the case studies, and especially in the legal clinic, provide valuable insights not only for the six states analyzed, but also for any other state aiming for sustainable fisheries management.

Alejandro Iza

Head, Environmental Law Programme
Director, Environmental Law Centre

Bonn, February 2009

Preface

With the growing scarcity of fish resources, instruments of fisheries management become crucial. While current literature focusses on modelling and technical crafting of management tools this volume suggests a legal approach. Taking the law seriously can make a contribution to better management. Good laws create legal certainty, integrate higher rank human rights and resource protection obligations, clarify objectives, lay out rights and duties of fishers, design the appropriate mix of instruments, determine governmental competences, limit administrative discretion, provide enforcement tools and allow for judicial review of administrative measures. Besides formal quality laws must of course produce good policy. As elaborated in this book fisheries law should, for instance, accord the often found antagonism between the fostering of fishing capacity and the restriction of fishing activities, reserve coastal resources for self-regulated exploitation by artisanal fishers, establish a more centralised (albeit participatory) regime for off-shore fisheries, etc.

The book consists of six case studies including Indonesia, Kenya, Namibia, Brazil, Mexico, and the EU. These states border the main oceans of the earth: the East Pacific, the South and North Atlantic, and the West and East Indian Ocean. Besides geographical distribution the cases represent different institutional factors of fisheries management such as the wealth of resources, the size and thus fishing pressure of fishing capacity, the choice of instruments, the degree of centralization within states, and the professionalism of the administration. The six studies follow a common structure including information on the state of fisheries and fish resources, fisheries issues debated in the country, domestic law and institutions promoting fisheries and managing resource use, external relations concerning fisheries, and a case study highlighting a characteristic legal problem of the country.

The case studies are preceded by an analysis of the international law requirements concerning fisheries management, with a focus on fisheries in Exclusive Economic Zones. It shows that international law already provides a useful range of norms for national fisheries management, if carefully interpreted.

The final part of the book summarises the case studies. Building on this material, a proposal on a 'legal clinic' for fisheries management is developed, creating a methodology for diagnosing problems in existing management systems and developing proposals for reform. Twelve rules of good fisheries governance are suggested as a guide for the legal clinic exercise.

The project here presented was elaborated as workpackage no 10 (legal instruments) of the Incofish project. This project was an interdisciplinary endeavour with worldwide participation studying multiple demands on coastal zones and viable solutions for resource use with emphasis on fisheries. It was funded by the European Union and directed by the Leibniz Institut für Meeresforschung (IfM-GEOMAR) Kiel. The complete results of the project are available at www.incofish.org.

I very much welcome the opportunity to publish the legal studies in the IUCN Environmental Law and Policy series. This series has established itself as an important forum for studies striving both for thorough analysis and practical utility. It is a unique stimulus of worldwide discussions and mutual learning. May the present work be found to meet these standards.

The authors of this volume express their sincere thanks to all project partners. It was a great experience to communicate with and learn from persons of so many different characters, disciplines and origins. Particular thanks are due to Dr. Rainer Froese, the inspiring project leader, Dr. Silvia Opitz and Antje Spalink, the

understanding project managers, and Dr. Cornelia Nauen, the demanding project supporter. The linguistic assistance and editorial work of Anna-Maria Hubert, Tiina Rajamets and Ann DeVoy is also gratefully acknowledged.

Gerd Winter

Bremen, February 2009

PART A

The International Law Framework

The International Legal Standard for Sustainable EEZ Fisheries Management

Marion Markowski

I. Introduction

After centuries of extensive high seas freedom of fishing, the introduction of exclusive economic zones (EEZs) and the adoption of the 1982 United Nations Convention on the Law of the Sea¹ (UNCLOS or ‘the Convention’) sought to provide a more effective framework for the management and conservation of marine living resources.² In the EEZ, extending up to 200 nm, the coastal state enjoys sovereign rights and jurisdiction for the purpose of exploring, exploiting, conserving and managing the natural resources, and the protection and preservation of the marine environment.³ Over 90 percent of commercially important fish stocks are found within EEZs.⁴ However, exclusive coastal state jurisdiction has not subsequently put an end to the decline of fish stocks.⁵ In fact, it has been suggested that even the most developed states have failed in managing and conserving fisheries in their EEZs effectively.⁶

The FAO Fisheries and Aquaculture Department estimates that in 2005 one quarter of the global marine capture fish stocks were overexploited, depleted, or recovering from depletion, while about another half

of the stocks were fully exploited and producing catches at or close to their maximum sustainable limits. Most stocks of the top ten species that account for about 30 percent of the global catch are considered to be fully exploited or overexploited.⁷ In 2004, FAO further observed in some areas a ‘recurring pattern... [of] long-term change in catch composition following the depletion of more traditional stocks and the targeting of other less valuable and previously lightly exploited or non-exploited species’.⁸ The average trophic levels of marine capture fisheries production were declining in most regions of the world, a phenomenon also labelled ‘fishing down the food chain’.⁹ FAO concluded that ‘[o]bserved trends of many exploited stocks suggest a grim picture, yet the pressure on fishery resources continues to intensify’.¹⁰

The present paper undertakes to identify the international environmental norms that govern EEZ fisheries management. It is here proposed that international law already provides a useful range of norms for national fisheries management, if carefully interpreted.

1 United Nations Convention on the Law of the Sea, Montego Bay, 10 December 1982, in force 16 November 1994, UN Doc. A/CONF.62/122; (1982) 21 ILM 1261.

2 FAO. (1995). *Code of Conduct for Responsible Fisheries*, p.v. Rome: FAO; Birnie, P.W. and Boyle, A.E. (2002). *International law and the environment*, p.660. 2nd Edition. New York: Oxford University Press.

3 Articles 56(1)(a), (b)(iii), 57 UNCLOS.

4 Barnes, R. (2006). ‘The Convention on the Law of the Sea: An Effective Framework for Domestic Fisheries Conservation?’ In: Freestone, D., Barnes, R. and Ong, D.M. (Eds). *The Law of the Sea: Progress and Prospects*, p.233. Oxford: Oxford University Press; Christie, D.R. (1999). ‘The conservation and management of stocks located solely within the exclusive economic zone’. In: Hey, E. (Ed.). *Developments in international fisheries law*, pp.395-419. at 397. The Hague: Kluwer Law International.

5 Birnie and Boyle, supra, note 2, p.648; Christie, D.R. (2004). ‘It don’t come EEZ: The failure and future of coastal state fisheries management’. *Journal of Transnational Law and Policy* 14: 1-36, at 3, 5, 34.

6 Birnie and Boyle, supra, note 2, p.660; Christie, supra, note 4, p.396; Christie, supra, note 5, pp.4-5.

7 FAO Fisheries and Aquaculture Department. (2007). *The State of World Fisheries and Aquaculture 2006*, p.29. Rome: FAO.

8 FAO Fisheries Department. (2004). *The State of World Fisheries and Aquaculture 2004*, p.32. Rome: FAO.

9 Ibid., p.143.

10 Ibid., p.142.

II. International legal requirements on EEZ fisheries management

The sovereign right of states to exploit their own resources pursuant to their own environmental policies, which is expressed in Principle 21 of the 1972 Declaration of the United Nations Conference on the Human Environment,¹¹ Principle 2 of the 1992 Rio Declaration on Environment and Development¹² ('Rio Declaration') and Article 193 UNCLOS, has long been established as a rule of international custom.¹³ Moreover, according to Article 56(1)(a) UNCLOS, coastal states have 'sovereign rights for the purpose of exploring and exploiting, conserving and managing' the living resources in the 200 nm EEZ. Besides, they exercise jurisdiction with regard to the protection and preservation of the marine environment in their EEZs.¹⁴ The allocation of rights in the EEZ as set out in Article 56 UNCLOS is also part of international customary law.¹⁵

However, the sovereignty of states over their natural resources is not absolute. It is qualified by treaties and customary international law relating to the conservation of natural resources and environmental protection.¹⁶ Article 2(3) UNCLOS states accordingly that '[t]he sovereignty over the territorial sea is exercised

subject to this Convention and to other rules of international law'. Similarly, in exercising its rights and duties in the EEZ, the coastal State must have 'due regard' to the rights and duties of other states and act in a manner compatible with the provisions of UNCLOS.¹⁷

First and foremost, the conservation and management of fisheries resources in the EEZ is the subject of Part V of UNCLOS. Besides, offshore fisheries management is also affected by the 1995 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 Stocks¹⁸ ('UN Fish Stocks Agreement' or 'the Agreement'). In addition to specific treaty provisions, environmental standards for national fisheries management may emanate from other sources of international law, such as international custom or general principles of law. The environmental requirements on EEZ fisheries management deriving from any of these sources will be analyzed in the following sections.

1. Conservation and sustainable use of fisheries resources

While older agreements refer to the 'conservation' of living resources or 'maximum sustainable yield' (MSY),¹⁹ later agreements speak also of 'sustainable utilization' or 'sustainable use'.²⁰ The idea of sustainable use is common to all of these terms.²¹ Although

sustainable use represents one element of the notion of sustainable development, it is first and foremost an independent concept, whose legal status and implications must be considered separately.²²

11 UN Doc. A/CONF/48/14/REV.1.

12 Rio Declaration on Environment and Development, UN Doc. A/CONF.151/26 (Vol. I).

13 Cf. Birnie and Boyle, *supra*, note 2, pp.137-9; Sands, P. (2003). *Principles of International Environmental Law*, pp.235-7. 2nd Edition. Cambridge: Cambridge University Press.

14 Article 56(1)(b)(iii) UNCLOS.

15 Attard, D.J. (1987). *The Exclusive Economic Zone in International Law*, pp.150-2, 290. Oxford Monographs in International Law. Oxford: Clarendon Press; Burke, W.T. (1994). *The New International Law of Fisheries: UNCLOS 1982 and Beyond*, p.40. Oxford: Clarendon Press; Churchill, R.R. and Lowe, A.V. (1999). *The law of the sea*, p. 161. Melland Schill Studies in international law, Third edition. Manchester: Manchester University Press.

16 Cf. Birnie and Boyle, *supra*, note 2, p.138.

17 Article 56(2) UNCLOS.

18 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, New York, 4 August 1995, in force 11 December 2001, A/CONF. 164/37; (1995) 34 ILM 1542.

19 E.g., Article 61 UNCLOS.

20 E.g., UN Fish Stocks Agreement, *supra*, note 18, Article 5(h).

21 Birnie and Boyle, *supra*, note 2, p.88.

22 Cf. also *ibid*.

1.1 The 1982 UNCLOS

Article 61 UNCLOS sets out the obligations of coastal states with regard to the conservation of the living resources in their EEZs.

a) *Primary obligations*

The primary substantive obligation on coastal states is contained in Article 61(2) UNCLOS, according to which '[t]he coastal state... shall ensure through proper conservation and management measures that the maintenance of the living resources in the exclusive economic zone is not endangered by over-exploitation'. 'Proper' conservation and management measures can be understood as measures appropriate within the overall context of the fishery in question, i.e., as environmentally sound and consistent with international law.²³

Nonetheless, the coastal state has a wide discretion in determining the 'proper conservation and management measures' in each individual case.²⁴ Article 62(4) UNCLOS contains a non-exhaustive catalogue of conservation measures and 'other terms and conditions' that the coastal state may establish. It includes the licensing of fishermen and vessels; fees; catch quotas; area, time and gear restrictions; minimum fish sizes; monitoring requirements; and enforcement procedures.

Over-exploitation in itself is not prohibited by Article 61(2), unless it presents a danger to the maintenance of the living resources in the EEZ.²⁵ The provision has also been criticized for not specifying the unit to be maintained ('stock, species, or biomass'), nor the precise level at which it is to be maintained.²⁶

However, Article 61(2) UNCLOS is in fact concretized by paragraph 3. According to this paragraph, proper conservation and management measures shall be 'designed to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield'. The term 'populations' is not defined by the Convention, but is generally understood to refer to a group of fish of one species sharing common ecological and genetic features and more likely to breed with one another than with individuals from another such group.²⁷

MSY is also not defined by UNCLOS, but is 'generally defined as the largest annual catch or yield of a fishery that can be taken continuously from the stock, based on the renewability of the resource'.²⁸ The concept is, however, widely criticized because of the difficulties in determining MSY in practice, due to the natural variability of stocks and other uncertainties. Besides, it is seen as largely inadequate to the task of managing an already fully exploited or even declining resource and ignores the effects of fishing on non-target species.²⁹

The non-exhaustive list of environmental and economic factors to be taken into account in determining MSY includes the economic needs of coastal fishing communities, the special requirements of developing states, fishing patterns, the interdependence of stocks, and any generally recommended international minimum standards, whether subregional, regional or global.³⁰ The last clause in particular opens the UNCLOS provisions to subsequent agreements as well as soft law instruments

23 Applebaum, B. and Donohue, A. (1999). 'The role of regional fisheries management organizations'. In: Hey, E. (Ed.). *Developments in International Fisheries Law*, pp.217-49, at 226. The Hague: Kluwer Law International.

24 Lagoni, R. and Proelß, A. (2006). 'Kapitel 3. Festlandsockel und ausschließliche Wirtschaftszone'. In: Vitzthum, W. Graf von (Ed.). *Handbuch des Seerechts*, pp.161-286, at 235. München: C.H. Beck; cf. also Barnes, supra, note 4, p.241.

25 Barnes, *ibid.*, p.242. In contrast Christie, supra, note 5, p.10, who suggests that 'the clearest obligation created for coastal states by article 61 is the duty to prevent overexploitation'.

26 Barnes, *ibid.*, p.242; also Burke, supra, note 15, p.51.

27 Incofish ICZM Glossary, <http://www.incofish.org/>; FAO Fisheries Glossary, <http://www.fao.org/fi/glossary/> (accessed 20 February 2008).

28 Christie, supra, note 4, p.402; Christie, supra, note 5, p.11; cf. also Barnes, supra, note 4, p.243; Birnie and Boyle, supra, note 2, p.552. For background of the concept see Kaye, S.M. (2001). *International Fisheries Management*, pp.49-53. International Environmental Law and Policy Series. The Hague: Kluwer Law International.

29 E.g. Barnes, *ibid.*, p.243; Birnie and Boyle, *ibid.*, p. 552; Christie, supra, note 4, pp.402-4; Christie, supra, note 5, pp.11-14; Churchill and Lowe, supra, note 15, p.282; Schram, G.G. and Tahindro, A. (1999). 'Developments in principles for the adoption of fisheries conservation and management measures'. In: Hey, E. (Ed.). *Developments in international fisheries law*, pp.251-86, at 257-8. The Hague: Kluwer Law International.

30 Article 61(3) UNCLOS.

relating to fisheries management.³¹ The essential question, however, remains whether such ‘qualification’ of MSY allows coastal states to set catch limits *beyond* the actual MSY level.

The wording of Article 61(3) UNCLOS lacks clarity in this respect. However, MSY is a biological concept defined as the largest annual catch that can be taken continuously from the stock. It thus marks the upper limit beyond which harvesting levels are no longer sustainable. If this strict biological limit is to be ‘qualified’ by environmental and economic factors, this can only be in terms of lower catch levels than the concept of MSY would actually permit. Higher catch levels are *per se* contrary to the concept and cannot pass for a qualification.

Besides, catch levels beyond MSY would naturally prevent the maintenance or restoration of populations ‘at levels which *can* produce the maximum sustainable yield’.³² By definition, a stock or population that is exploited beyond the MSY level cannot continue to produce the same catch levels. Levels of harvesting beyond MSY are therefore contrary to the primary obligation contained in Article 61(3).³³

What is more, continuous catch levels beyond MSY would inevitably lead to over-exploitation and eventually contradict the general obligation under Article 61(2) UNCLOS, once populations become endangered.³⁴ Moreover, the UN Fish Stocks

Agreement must be taken into account in the interpretation of the Convention as a ‘subsequent agreement between the parties regarding the interpretation of the treaty or the application of its provisions’ within the meaning of Article 31(3)(a) of the 1969 Vienna Convention on the Law of Treaties.³⁵

³⁶ The Agreement does not allow MSY to be exceeded for economic or other reasons.³⁷ Consequently, the concept of qualified MSY allows states to set catch limits below, but not above the biological MSY level.³⁸

It has further been criticized that the conservatory obligations of Article 61 UNCLOS are undermined by the requirement of Article 62(1) that coastal states shall promote the objective of optimum utilization of the living resources in the EEZ.³⁹ However, optimum utilization does not require the maximum or full utilization of the resource.⁴⁰ Moreover, Article 62(1) must be read ‘without prejudice to article 61’.⁴¹ Hence, Article 62(1) UNCLOS cannot serve coastal states as an argument for exceeding the MSY level.⁴²

b) The determination of total allowable catch

According to Article 61(1) UNCLOS, the coastal state ‘shall determine the total allowable catch of the living resources in its exclusive economic zone’. While Burke suggests that the purport of this provision is to enable only the coastal state, to the exclusion of other entities, to determine the allowable catch in its EEZ,⁴³ the language is clearly mandatory. Besides, as Article 56(1)(a) UNCLOS attributes to the coastal state

31 Cf. also Christie, *supra*, note 5, p.18.

32 Article 61(3) UNCLOS (emphasis added).

33 Cf. also Kaye, *supra*, note 28, p.100.

34 Cf. also Der Rat von Sachverständigen für Umweltfragen (SRU). (2004). *Meeresumweltschutz für Nord- und Ostsee, Sondergutachten*, p.120. Baden-Baden: Nomos.

35 Vienna Convention on the Law of Treaties, Vienna, 23 May 1969, in force 27 January 1980, (1969) 8 ILM 679.

36 Anderson, D.H. (1996). ‘The Straddling Stocks Agreement of 1995: an initial assessment’. *International and Comparative Law Quarterly* 44: 463-75, at 468; cf. also Freestone, D. (1999). ‘Implementing Precaution Cautiously: The Precautionary Approach in the Straddling and Highly Migratory Fish Stocks Agreement’. In: Hey, E. (Ed.). *Developments in International Fisheries Law*, pp.287-325, at 318. The Hague: Kluwer Law International; Freestone, D. (1999). ‘International Fisheries Law Since Rio: The Continued Rise of the Precautionary Principle’. In: Boyle, A. and Freestone, D. (Eds). *International Law and Sustainable Development: Past Achievements and Future Challenges*, pp.135-64, at 159. New York: Oxford University Press.

37 See 2.a) below.

38 Cf. also Kaye, *supra*, note 28, p.100. To the contrary Barnes, *supra*, note 4, p.243; Christie, *supra*, note 4, pp.402-3; Christie, *supra*, note 5, p.12.

39 Birnie and Boyle, *supra*, note 2, p.660.

40 Cf. also *ibid.*; Burke, *supra*, note 15, p.60; Christie, *supra*, note 4, p.398, n.11; Nordquist, M.H. (Ed.). (1993). *United Nations Convention on the Law of the Sea 1982: a commentary*, 5, II, p.635. Dordrecht: Martinus Nijhoff Publishers.

41 Article 62(1) UNCLOS.

42 Cf. also Christie, *supra*, note 4, p.398; Kaye, *supra*, note 28, pp.104-5; Nordquist, *supra*, note 40, II, p.636.

43 Burke, *supra*, note 15, p.46.

exclusive sovereign rights for the conservation and management of natural resources in its EEZ, Burke's interpretation would render Article 61(1) meaningless.

Burke further argues against a legal obligation to determine the total allowable catch (TAC) that especially developing countries may not be able to establish the requisite scientific basis.⁴⁴ However, Article 61(1) UNCLOS is only concerned with the basic duty to limit resource exploitation, not with pertinent data requirements. The latter issue is left to Article 61(2), calling on the coastal state to 'take into account the best scientific evidence available to it' in taking conservation and management measures, which seems but a small burden.⁴⁵

The wording of Article 61(1) UNCLOS appears to suggest that a TAC must be established for every fish stock within the EEZ.⁴⁶ However, the use of the term 'resources', rather than 'stocks' or 'species', may imply that the obligation applies only to such stocks or species that are affected by exploitation.⁴⁷

On the other hand, the determination of TAC is requisite for the identification of the potential surplus that exceeds the coastal state's own harvesting capacity and must be made available to foreign fishing vessels.⁴⁸ When it is alleged that a coastal state has arbitrarily refused to determine the TAC and its harvesting capacity at the request of another state with respect to stocks which that other state is interested in fishing, the dispute is subject to conciliation.⁴⁹ This implies that a coastal state would have to determine the TAC for a stock that is of interest to other states, even though it is not harvested by the coastal state itself. Yet the conciliation provision supports the view that the obligation to establish a TAC does not apply to *all*

living resources in the EEZ, as it appears 'highly unlikely that a dispute would arise over a failure of the coastal state to determine an allowable catch for a species or population that is only of theoretical interest for harvesting'.⁵⁰ This interpretation is also supported by practical considerations.⁵¹

In summary, whereas it appears unreasonable to require for the purpose of Article 61(1) UNCLOS the determination of TAC for stocks that are not at all affected, nor of any interest to exploitation, the obligation indeed applies to stocks actually or potentially affected by exploitation, whether as target species or bycatch.⁵²

In any event, the determination of the actual TAC level in each individual case is subject to the discretion of the coastal state.⁵³ Nevertheless, in setting TAC levels the coastal state remains bound by the primary obligations to ensure that the living resources in the EEZ are not endangered by overexploitation, and to maintain populations of target species at, or restore them to, sustainable levels. The obligation to establish TACs does not exclude other management measures.⁵⁴

c) *Non-target species*

According to Article 61(4) UNCLOS, in taking conservation and management measures the coastal state must consider the effects on associated or dependent species, 'with a view to maintaining or restoring populations of such... species above levels at which their reproduction may become seriously threatened'. It has been criticized that it was not clear from the wording or background of this paragraph what kinds of effects on non-target species it precisely refers to.⁵⁵

44 Ibid., p.45.

45 On the role of scientific evidence see (d) below.

46 Cf. Churchill and Lowe, *supra*, note 15, p.289; Kaye, *supra*, note 28, p.102.

47 Burke, *supra*, note 15, p.46; Wolff, N. (2002). *Fisheries and the environment: public international and European Community law aspects*, p.57. Schriften des Europa-Instituts der Universität des Saarlandes – Rechtswissenschaft, vol. 40. Baden-Baden: Nomos Verlagsgesellschaft.

48 Cf. Article 62(2) UNCLOS; Christie, *supra*, note 4, p.399; Christie, *supra*, note 5, p.8.

49 Article 297(3)(b)(ii) UNCLOS.

50 Burke, *supra*, note 15, p.47.

51 Cf. *ibid.*

52 Cf. also Christie, *supra*, note 4, p.398; Christie, *supra*, note 5, p.7.

53 Cf. Article 297(3)(a) UNCLOS; cf. also Burke, *supra*, note 15, pp.44, 47-8; Churchill and Lowe, *supra*, note 15, p.289.

54 Cf. Article 61(2) UNCLOS ('proper conservation and management measures'); cf. Burke, *ibid.*, pp.45-6, 47.

55 Burke, *supra*, note 15, p.58; Christie, *supra*, note 4, p.404; Christie, *supra*, note 5, p.14. Similar Attard, *supra*, note 15, p.154.

Christie seems to suggest that the obligation does not extend to complex biological relationships or 'ecosystem management', but is limited to the direct effects of fishing on non-target species in the form of incidental catch or bycatch.⁵⁶ However, Article 61(4) does not expressly refer to bycatch and incidental catches, but to the more general 'effects on species associated with or dependent upon harvested species', thus implying that some biological relationships of stocks beyond the occurrence of bycatch and incidental catches need to be taken into account.

Christie argues that '[b]ecause states generally lacked the capacity, it seems unlikely that the LOS Convention's drafters envisioned states' obligations under this section to extend to ecosystem management'.⁵⁷ This argument, however, appears doubtful in the face of Articles 61(3) and 192 *et seq.* The former provision indeed calls on coastal states to take into account the 'interdependence of stocks' in determining MSY for harvested species. Article 192 provides that '[s]tates have an obligation to protect and preserve the marine environment', while Article 194(5) requires that states take the measures necessary to 'protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life'.

Therefore, the biological relationships between stocks need to be considered beyond the occurrence

1.2 The UN Fish Stocks Agreement

The 1995 UN Fish Stocks Agreement must be interpreted and applied in the context of and in a manner consistent with UNCLOS,⁶³ but in turn informs the interpretation of the relevant UNCLOS provisions as a 'subsequent agreement between the

of incidental catch and bycatch. Nonetheless, Article 61(4) UNCLOS merely seeks 'to maintain the viability of such species, not to protect their role within the food web or the functioning of the marine ecosystem as a whole'.⁵⁸

d) *The role of scientific evidence*

Article 61(2) UNCLOS requires the coastal state to take 'into account the best scientific evidence available to it' in determining conservation and management measures, albeit not to base its action solely on such evidence.⁵⁹ Limited data suffice, as long as they are the best available to the coastal state. There is thus no express positive duty on coastal states to undertake scientific research.⁶⁰

However, the primary obligation to conserve the living resources in the EEZ 'reasonably imposes the burden of acquiring data that make this obligation achievable' within the limits of the coastal state's financial resources.⁶¹ In any case, 'available' data is not only data generated by the coastal state, but includes data from other sources, such as other states involved in the fishery and international organisations, that can reasonably be obtained.⁶² Article 61(5) UNCLOS places a positive duty on all states participating in a given fishery 'where appropriate' to exchange a range of scientific information and data relevant to the conservation of fish stocks on a regular basis through competent international organizations.

parties regarding the interpretation of the treaty or the application of its provisions' within the meaning of Article 31(3)(a) of the Vienna Convention on the Law of Treaties.⁶⁴ Its objective is 'to ensure the long-term conservation and sustainable use of straddling fish

56 Christie, *supra*, note 4, pp.404-6; Christie, *supra*, note 5, pp.14-16.

57 Christie, *supra*, note 4, p.405.

58 Broadus, J.M. and Vartanov, R.V. (Eds). (1994). *The Oceans and Environmental Security: Shared U.S. and Russian Perspectives*, p.235. Washington, DC: Island Press; cf. also Freestone, D. (1996). 'The Conservation of Marine Ecosystems under International Law'. In: Bowman, M.J. and Redgwell, C.J. (Eds). *International Law and the Conservation of Biological Diversity*, pp.91-107, at 104. London: Kluwer Law International.

59 Cf. also Barnes, *supra*, note 4, p.242; Burke, *supra*, note 15, p.56; Kaye, *supra*, note 28, p.103; Nordquist, *supra*, note 40, II, p.609.

60 Cf. also Barnes, *ibid.*, p.242; Burke, *ibid.*, p.57; Kaye, *ibid.*, pp.102-3.

61 Burke, *ibid.*, p.57; cf. also Kaye, *ibid.*, pp.103-4.

62 Cf. Article 61(5) UNCLOS; Burke, *ibid.*, p.57.

63 UN Fish Stocks Agreement, *supra*, note 18, Article 4.

64 Anderson, *supra*, note 36, p.468; cf. also Freestone, *supra*, note 36, 'Implementing Precaution Cautiously', p.318; Freestone, *supra*, note 36, 'International Fisheries Law Since Rio', p.159.

stocks and highly migratory fish stocks through effective implementation of the relevant provisions of [UNCLOS].⁶⁵

The UN Fish Stocks Agreement as a whole applies only to the conservation and management of straddling and highly migratory fish stocks on the high seas. Only a few of its provisions apply also to straddling and highly migratory stocks *within* areas under national jurisdiction. In particular, the coastal state must apply the general principles of Article 5 in the exercise of its sovereign rights for the purpose of exploring and exploiting, conserving and managing straddling and highly migratory stocks within its EEZ.⁶⁶

a) *Primary obligations*

Article 5 of the Agreement provides that, in order to conserve and manage straddling and highly migratory fish stocks, coastal states and states fishing on the high seas shall 'adopt measures to ensure [their] long-term sustainability... and promote the objective of their optimum utilization'.⁶⁷ They shall in particular 'ensure that such measures... are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global'.⁶⁸

Although the UN Fish Stocks Agreement thus continues to refer to the concept of qualified MSY, it goes beyond UNCLOS in requiring the application of the precautionary approach in Articles 5(c) and 6. Its Annex II on Guidelines for the Application of Precautionary Reference Points in Conservation and

Management of Straddling Fish Stocks and Highly Migratory Fish Stocks elucidates the role of MSY under the Agreement. The Annex distinguishes (i) conservation, or limit, reference points, which identify safe biological limits for harvesting, and (ii) management, or target, reference points, which define management objectives *within* safe biological limits.⁶⁹ MSY is to be regarded as a 'minimum standard for limit reference points', rather than a management objective.⁷⁰ It is thus clarified that MSY 'as qualified by relevant environmental and economic factors' would have to operate within the limits of conservation reference points. In other words, states must not exceed the MSY level for economic reasons.⁷¹

What is more, because MSY serves as a minimum standard for limit reference points under the Agreement, management objectives will have to be set below MSY and thus at a lower level than was previously required under UNCLOS.⁷²

The reference to 'stocks' in Article 5(b) UN Fish Stocks Agreement indicates that the conservation obligation applies to each single stock. It is therefore not sufficient to maintain or restore only some stocks of a given species in order to conserve the species. However, the term 'stock' is not defined in the Agreement, and scientific definitions vary and cannot clearly be distinguished from those of 'population'. Recurring elements are, however, that a stock is a group of individuals reproducing independently of other stocks, and is defined by a certain area or range.⁷³

The measures to be taken according to Article 5 UN Fish Stocks Agreement further include the development and use of selective and environmentally safe fishing gear,⁷⁴ the prevention or elimination of overfishing and excess capacity, and the limitation of

65 UN Fish Stocks Agreement, *supra*, note 18, Article 2.

66 *Ibid.*, Article 3(2).

67 *Ibid.*, Article 5(a).

68 *Ibid.*, Article 5(b).

69 *Ibid.*, Para. 2, Annex II.

70 *Ibid.*, Para. 7, Annex II.

71 Cf. Rayfuse, R. (1999). 'The interrelationship between the global instruments of international fisheries law'. In: Hey, E. (Ed.). *Developments in International Fisheries Law*, pp.107-58, at 129. The Hague: Kluwer Law International; Wolff, *supra*, note 47, p.74.

72 Nelson, D. (1999). 'The Development of the Legal Regime of High Seas Fisheries'. In: Boyle, A. and Freestone, D. (Eds). *International Law and Sustainable Development: Past Achievements and Future Challenges*, pp.113-34, at 126. New York: Oxford University Press; Rayfuse, *ibid.*, p.129.

73 Cf. Incofish ICZM Glossary, *supra*, note 27; FAO Fisheries Glossary, .

74 UN Fish Stocks Agreement, *supra*, note 18, Article 5(f).

fishing effort to levels commensurate with the sustainable use of fishery resources,⁷⁵ as well as monitoring, control and surveillance measures.⁷⁶

b) Non-target species

Under the UN Fish Stocks Agreement, states must ‘assess the impacts of fishing, other human activities and environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stocks’.⁷⁷ Where ‘necessary’, conservation and management measures must be adopted for dependent and associated species as well as other species belonging to the same ecosystem as target stocks, with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened.⁷⁸ Article 5(f) specifically requires the minimisation of catch of non-target species and impacts on associated

or dependent species. Moreover, *lit. g* calls for the protection of marine biodiversity. Thus, Article 5 UN Fish Stocks Agreement clearly adds substance to the requirement of Article 61(4) UNCLOS to merely consider the effects on associated or dependent species.⁷⁹

c) The role of scientific evidence

In contrast to Article 61(2) UNCLOS, Article 5(b) UN Fish Stocks Agreement requires that conservation and management measures are *based* on the best scientific evidence available to the coastal state. Under the Agreement, coastal states must further assess the impacts of fishing, other human activities and environmental factors on target stocks, dependent and associated species, and other species belonging to the same ecosystem,⁸⁰ promote and conduct scientific research,⁸¹ and collect and share data and information.⁸²

1.3 Obligations under customary international law

A number of states have so far abstained from UNCLOS and the UN Fish Stocks Agreement. Hence, the question arises if and to what extent these states are equally obliged under customary international law to conserve the fisheries resources within their EEZs. In the *North Sea Continental Shelf* cases the International Court of Justice (ICJ) identified the following conditions for a treaty rule to acquire customary status:

- (i) a fundamentally norm-creating character such as could be regarded as forming the basis of a general rule of law;
- (ii) a very widespread and representative participation in the convention, including that of states whose interests were specially affected;
- (iii) extensive and virtually uniform state practice,

including that of states whose interests are specially affected; and

- (iv) the passage of some time, short though it may be.⁸³

a) Propositions of norm-creating character

The primary obligation under UNCLOS Part V, requiring the coastal state to ensure through proper conservation and management measures that the maintenance of the living resources in the EEZ is not endangered by overexploitation, is certainly norm-creating. This finding is supported by the fact that the alleged failure of a coastal state to ensure the maintenance of the living resources in its EEZ through proper conservation and management measures is subject to conciliation under UNCLOS,⁸⁴ and is thus made justiciable.

75 Ibid., Article 5(h).

76 Ibid., Article 5(l).

77 Ibid., Article 5(d).

78 Ibid., Article 5(e).

79 Cf. also Schram and Tahindro, *supra*, note 27, p.259; Wolff, *supra*, note 47, p.70.

80 UN Fish Stocks Agreement *supra*, note 18, Article 5(d).

81 Ibid., Article 5(k).

82 Ibid., Article 5(j).

83 *North Sea Continental Shelf*; Judgement, [1969] ICJ Rep. 3, at paras 72-4; cf. also Lee, L.T. (1983). ‘The Law of the Sea Convention and Third States’. *The American Journal of International Law* 77: 541-68, at 561-2.

84 Article 297(3)(b)(i) UNCLOS.

The case is more difficult with regard to the requirement to maintain or restore populations of harvested species at levels which can produce MSY. The concept of MSY describes the annual catch that can be taken continuously from the stock on the basis of its reproduction rate.⁸⁵ In effect, the basic obligation contained in Article 61(3) UNCLOS is thus to maintain or restore populations of harvested species at sustainable levels. This finding is supported by the formulation in Article 5(a) UN Fish Stocks Agreement, obliging states to ‘adopt measures to ensure long-term sustainability’ of straddling and highly migratory fish stocks. Such obligation is of a norm-creating character.

On the other hand, the actual level of qualified MSY for a particular fish population can only be determined by applying biological and other criteria in the concrete case. This process of determining the actual MSY level is merely a practical or technical method applied in order to discharge the basic obligation.⁸⁶

A similar distinction must be made with regard to the determination of TAC for stocks actually or potentially affected by exploitation. The establishment of the actual TAC level is subject to the discretion of states.⁸⁷ However, the underlying proposition that some upper limit for the exploitation of fish stocks must be determined represents a minimum management requirement. It appears to forbid completely unregulated open access regimes, and insofar does create a norm.

On the other hand, the UNCLOS requirements to ‘tak[e] into account the best scientific evidence available’⁸⁸ and to ‘take into consideration the effects’ on associated and dependent species ‘with a view to

maintaining or restoring populations of such species... above levels at which their reproduction may become seriously threatened’⁸⁹ are hardly justiciable. It is therefore difficult to view them as norm-creating provisions. The UN Fish Stocks Agreement tightens the respective requirements. However, the Agreement in itself lacks the capacity of UNCLOS to generate norms of customary international law, as will become evident in the following paragraph.

b) Opinio juris

In terms of *opinio juris*, the ICJ requires in particular ‘a very widespread and representative participation in the convention..., includ[ing] that of States whose interests were specially affected’.⁹⁰ The 1982 UNCLOS was accepted by consensus at a global conference and has been ratified by a large number of states.⁹¹ Attard shows that the conservation objectives of Article 61 UNCLOS received widespread support at the Third United Nations Conference on the Law of the Sea and remained the same throughout the Conference’s texts ever since they appeared in the 1975 Informal Single Negotiating Text.⁹²

The number of states that have so far ratified the UN Fish Stocks Agreement is considerably smaller.⁹³ Albeit its rules have therefore not yet entered into customary law *per se*, the Agreement illustrates the *opinio juris* of the signatory states. Subsequent ‘soft law’ documents, only some of which can here be addressed, also add to the evidence of *opinio juris*.

Chapter 17 of the non-binding Agenda 21⁹⁴ addresses the protection of the oceans, all kinds of seas, and the protection, rational use and development of their living resources, and refers to UNCLOS as the ‘basis upon which to pursue the protection and

85 See Section 1.1.a) above.

86 Cf. Kwiatkowska, B. (1988). ‘Conservation and optimum utilization of living resources’. In: Clingan, T.A. Jr (Ed.). *The Law of the Sea: What Lies Ahead? Proceedings of the 20th Annual Conference of the Law of the Sea Institute, July 21-24, 1986, Miami, Florida*, pp.245-275, at 261. Honolulu: University of Hawaii.

87 Cf. Article 297(3)(a) UNCLOS; Kwiatkowska, *ibid.*, p.261.

88 Article 61(2) UNCLOS.

89 *Ibid.*, Article 61(4).

90 *North Sea Continental Shelf*, *supra*, note 83, para. 73.

91 UNCLOS has 151 parties as of 3 April 2007.

92 Attard, *supra*, note 15, p.154, see also p.290.

93 The UN Fish Stocks Agreement has 61 parties as of 14 April 2007.

94 Agenda 21, adopted at the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro, Brazil, 3-14 June, 1992.

sustainable development of the marine and coastal environment and its resources'.⁹⁵ Moreover, Agenda 21 calls on states to 'maintain or restore populations of marine species at levels that can produce the maximum sustainable yield as qualified by relevant environmental and economic factors' for the conservation and sustainable use of marine living resources under their national jurisdiction,⁹⁶ and to '[i]mplement strategies for the sustainable use of marine living resources'.⁹⁷

Article 6 is the core provision of the non-legally binding 1995 FAO Code of Conduct for Responsible Fisheries⁹⁸ ('FAO Code of Conduct' or 'the Code'). It sets out 19 'general principles' from which the remaining provisions of the Code are derived.⁹⁹ Article 6.1 asserts that '[t]he right to fish carries with it the obligation to do so in a responsible manner so as to ensure effective conservation and management of the living aquatic resources', and calls upon states and individual users to conserve aquatic ecosystems. According to Article 6.2, '[f]isheries management should promote the maintenance of the quality, diversity and availability of fishery resources in sufficient quantities for present and future generations in the context of food security, poverty alleviation and sustainable development'.

The elaborate provisions under Article 7 FAO Code of Conduct specifically address fisheries management and include areas under national jurisdiction.¹⁰⁰ Their overriding objective is the long-term conservation and sustainable use of fisheries resources.¹⁰¹ In particular, states 'should ensure that

levels of fishing effort are commensurate with the sustainable use of fishery resources'.¹⁰² The Code, once again, envisages conservation and management measures 'designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors'.¹⁰³ At the same time, however, a central role is accorded to the precautionary approach to fisheries conservation and management.¹⁰⁴ Although MSY is not explicitly defined as the minimum standard for limit reference points in the Code, it must be so interpreted in the light of precaution.¹⁰⁵

The Plan of Implementation of the World Summit on Sustainable Development (JPoI), adopted by the World Summit on Sustainable Development held in Johannesburg in 2002, addresses the 'sustainable development of the oceans' in paras 30-37. Paragraph 30(a) endorses UNCLOS as the overall legal framework for ocean activities and promotes its implementation. Actions asked for 'at all levels' to achieve sustainable fisheries include the maintenance at or restoration of stocks to levels that can produce MSY, 'with the aim of achieving these goals for depleted stocks on an urgent basis and where possible not later than 2015'.¹⁰⁶

The recent UN General Assembly Resolution on sustainable fisheries¹⁰⁷ once again '[r]eaffirms the importance [the General Assembly] attaches to the long-term conservation, management and sustainable use of the marine living resources of the world's oceans and seas and the obligations of States to cooperate to this end, in accordance with international law, as reflected in the relevant provisions of [UNCLOS]'.¹⁰⁸

95 Ibid., S. 17.1.

96 Ibid., S. 17.74(c).

97 Ibid., S. 17.79(b).

98 FAO, *supra*, note 2.

99 Moore, G. (1999). 'The Code of Conduct for Responsible Fisheries'. In: Hey, E. (Ed.). *Developments in international fisheries law*, pp.85-105, at 89. The Hague: Kluwer Law International.

100 Cf. e.g., FAO, *supra*, note 2, Article 7.1.1, 2.

101 Ibid., Article 7.1.1, 7.2.1.

102 Ibid., Article 7.1.8, cf. also Article 7.6.3.

103 Ibid., Article 7.2.1.

104 Ibid., Article 7.5; cf. Moore, *supra*, note 99, p.96.

105 Cf. also Christie, *supra*, note 5, p.28.

106 Para. 31(a) JPoI.

107 Sustainable fisheries, including through the 1995 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, and related instruments, 8 December 2006, A/RES/61/105.

108 Ibid., Para. 1.

Besides expressly endorsing the 1982 UNCLOS, all these subsequent 'soft law' documents restate, or embrace within more far-reaching provisions, a similar set of obligations as first stated in the Convention. In fact, it has been observed that '[m]ost states, including the United States, now regard the fisheries provisions of the Convention as reflective of customary international law'.¹⁰⁹

c) *State practice*

A further requirement is that 'State practice, including that of States whose interests are specially affected, should have been both extensive and virtually uniform'.¹¹⁰ Burke finds reference to catch limits in a large number of states, while '[m]any countries explicitly refer to "total allowable catch"'.¹¹¹ Kwiatkowska also names a number of states whose legislative practice 'shows a good deal of similarity to the relevant provisions of the LOS Convention, including those on the determination of the TAC'.¹¹² According to Attard, the stability of Article 61 UNCLOS throughout the treaty negotiations 'has encouraged a considerable number of States to bring

their legislation into conformity with the UNCLOS III conservation measures'.¹¹³ He observes that the main conservation goals of Article 61 UNCLOS 'generated a widespread general practice which conformed with the said goals well before the 1982 Convention'.¹¹⁴

d) *The time element*

Attard denotes that state practice as well as *opinio juris* existed even 'well before the 1982 Convention'.¹¹⁵ In any case, the time that has elapsed since UNCLOS entered into force in 1994 should fulfil the requirement of the passage of some time, 'short though it might be'.¹¹⁶

Consequently, the UNCLOS obligations to ensure through proper conservation and management measures that the maintenance of the living resources in the EEZ is not endangered by overexploitation, to maintain or restore populations of harvested species at sustainable levels, and to determine the TAC seem to have entered into the body of customary international law.

1.4 General principles of law

We have seen that the somewhat elusive wording of UNCLOS provides no basis for the protection of associated and dependent species, nor for the requirement to base conservation and management measures on scientific evidence and to conduct fisheries research, under customary international law. Whether obligations to this effect have nevertheless emerged under customary law appears difficult to establish. However, such norms may exist as general principles of law within the meaning of Article 38(1)(c) of the Statute of the International Court of Justice ('ICJ Statute').

In contrast to customary law, which is established through both state practice and *opinio juris*, recognition as law, i.e., the subjective element alone, is central to the existence of 'the general principles of law recognized by civilized nations'.^{117 118} Recognition by a majority of states representative of 'the main forms of civilization and of the principal legal systems of the world' (*cf.* Art. 9 ICJ Statute) will, however, suffice.¹¹⁹ Next to the general principles recognized by states in their municipal legal orders, Art. 38(1)(c) ICJ Statute includes principles originating at the international

109 Balton, D.A. (1996). 'Strengthening the Law of the Sea: The New Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks'. *Ocean Development & International Law* 27: 125-51, at 130.

110 *North Sea Continental Shelf*, supra, note 83, para. 74.

111 Burke, supra, note 15, pp.50-1.

112 Kwiatkowska, supra, note 86, p.248.

113 Attard, supra, note 15, p.152.

114 *Ibid.*, pp.154, 290, cf. also pp.152-6.

115 *Ibid.*, p.154.

116 *North Sea Continental Shelf*, supra, note 83, para. 74.

117 Article 38(1)(c) ICJ Statute.

118 Maurmann, D. *Rechtsgrundsätze im Völkerrecht am Beispiel des Vorsorgeprinzips*, Teil 1, 6. Kapitel, A. [In press]; Weiss, W. (2001). 'Allgemeine Rechtsgrundsätze des Völkerrechts'. *Archiv des Völkerrechts* 39: 394-431, at 397, 403.

119 Lammers, J.G. (1980). 'General Principles of Law Recognized by Civilized Nations'. In: Kalshoven, F., Kuyper, P.J. and Lammers, J.G. (Eds). *Essays on the Development of the International Legal Order*, pp.53-75, at 62-3. Alphen aan den Rijn: Sijthoff & Noordhoff; Mosler, H.

level.¹²⁰ International general principles derive in particular from international treaties and so-called ‘soft law’ documents, such as conference declarations and declarations of international organizations.¹²¹

According to Article 5(b) UN Fish Stocks Agreement, conservation and management measures must be ‘based on the best scientific evidence available’, a clearly normative requirement. With regard to associated and dependent species and other species belonging to the same ecosystem as target stocks, states must assess the impacts of fishing and other factors on such species,¹²² ‘adopt, where necessary, conservation and management measures’ for such species ‘with a view to maintaining or restoring populations... above levels at which their reproduction may become seriously threatened’,¹²³ and minimize bycatch.¹²⁴

The UN Fish Stocks Agreement itself expressly applies only to straddling and highly migratory stocks. However, the recognition of such propositions as law is further supported by a number of non-binding instruments that have secured widespread participation.

Agenda 21 calls for the protection and restoration of endangered marine species,¹²⁵ and the preservation of rare or fragile ecosystems, habitats, and other ecologically sensitive areas.¹²⁶ In maintaining or restoring populations of marine species at levels that can produce MSY, states should ‘take into consideration relationships among species’.¹²⁷ Section 17.86 sets out certain requirements relating to data and information. States should, *inter alia*, promote ‘enhanced collection and exchange of data necessary for the conservation and sustainable use of the marine living resources under

national jurisdiction’. In addition, one programme area under Chapter 17 specifically relates to ‘addressing critical uncertainties for the management of the marine environment and climate change’. Research and impact assessment requirements are present throughout Chapter 17.

The FAO Code of Conduct was adopted by consensus at the Twenty-eighth Session of the FAO Conference on 31 October 1995. According to its Article 6.2, fisheries management measures ‘should not only ensure the conservation of target species but also of species belonging to the same ecosystem or associated with or dependent upon the target species’. Critical fisheries habitats should be protected and rehabilitated.¹²⁸ Conservation and management decisions should be based on the best scientific evidence available.¹²⁹ According to Article 12.1, ‘States should ensure that appropriate research is conducted into all aspects of fisheries’, so as to provide a sound scientific basis for decision making. In particular, ‘[i]n the absence of adequate scientific information, appropriate research should be initiated as soon as possible’.¹³⁰ The actions required to promote such research, as well as the collection and efficient use of data, are concretized through Article 12.2-20. Paragraphs 5 and 6 of Article 12 call on states to establish the necessary research capacity, with special provisions on support to developing countries in paragraphs 18 and 20.

JPoI also calls for the improvement of ‘the scientific understanding and assessment of marine and coastal ecosystems as a fundamental basis for sound decision making’, *inter alia* through cooperation and promotion of ‘the use of environmental impact assessments and

(1995). ‘General principles of law’. In: Bernhardt, R. (Ed.). *Encyclopedia of Public International Law*, II, pp.511-27, at 517. Amsterdam: North-Holland; Weiss, *ibid.*, p.408.

120 Lammers, *ibid.*, pp.66-8; Maurmann, *supra*, note 118, Kapitel, C.II.2; Mosler, *ibid.*, p.517; Verdross, A. and Simma, B. (1984). *Universelles Völkerrecht: Theorie und Praxis*, pp.386-7. 3rd Edition. Berlin: Duncker & Humblot; Weiss, *ibid.*, pp.400-3. To the contrary Doebling, K. (2004). *Völkerrecht: Ein Lehrbuch*, p.179. 2nd Edition. Heidelberg: C. F Müller Verlag; Heintschel von Heinegg, W. (2004). ‘4. Kapitel: Die weiteren Quellen des Völkerrechts’. In: Ipsen, K. (Ed.). *Völkerrecht*, pp.210-56, at 231. 5th Edition. München: Beck; Sands, *supra*, note 13, p.150. For an overview of the doctrinal views see Lammers, *ibid.*, pp.53-9.

121 Maurmann, *ibid.*, Kapitel, C.III.2-6; Verdross and Simma, *ibid.*, p.386; Weiss, *ibid.*, pp.400-401, 402-3, 409-10.

122 UN Fish Stocks Agreement *supra*, note 18, Article 5(d).

123 *Ibid.*, Article 5(e).

124 *Ibid.*, Article 5(f).

125 Agenda 21, *supra*, note 94, s. 17.74(e).

126 *Ibid.*, s. 17.74(f).

127 *Ibid.*, s. 17.74(c).

128 FAO, *supra*, note 2, Article 6.8.

129 *Ibid.*, Article 6.4.

130 *Ibid.*, Article 12.3.

environmental evaluation and reporting techniques'.¹³¹

It should further be noted that the requirements to maintain or restore stocks or populations at levels that can produce MSY in Agenda 21, the FAO Code of Conduct and JPoI are not restricted to target species, as in Article 61(3) UNCLOS, and therefore apply equally to non-target species directly affected by exploitation.¹³²

Consequently, general principles of law seem to require active conservation of non-target species above

2. The precautionary principle

Principle 15 of the Rio Declaration as the most frequently cited formulation provides that '[i]n order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall

levels at which their reproduction may become seriously threatened, or even, in the case of species directly affected by fishing activities, at sustainable levels. General principles further require that coastal states base conservation and management measures on the best scientific evidence available and conduct the research necessary to discharge their primary obligations, albeit this may only apply within the limits of the country's financial capacities.

not be used as a reason for postponing cost-effective measures to prevent environmental degradation'. In the fisheries management context, however, the precautionary principle or approach¹³³ has found specific recognition.

2.1 The 1982 UNCLOS

It has been suggested that UNCLOS, although it lacks any express reference to the precautionary principle, already implies a precautionary approach to fisheries conservation.¹³⁴ Freestone and Hey base their interpretation on Articles 61(2) and 119(1) UNCLOS, which require that states must take into account 'the best scientific evidence available' in determining fisheries conservation and management measures. This formulation would raise the question 'whether, in the absence of convincing scientific evidence (...), measures should be designed to ensure continued

exploitation or to ensure conservation'.¹³⁵ It is then argued that the UNCLOS provisions, by making conservation the primary obligation, place a presumption in favour of conservation on the potential exploiter. The scientific evidence must be adduced to show that the projected harvesting meets the requirement to maintain or restore populations at levels that can produce MSY, rather than the other way round. In other words, if adequate scientific evidence is not available, the primary conservative obligations of UNCLOS prevail.¹³⁶

131 Para. 36 JPoI.

132 Cf. Agenda 21, supra, note 94, s. 17.74(c); FAO, supra, note 2, Article 7.2.1; para. 31(a) JPoI.

133 The distinction between the two terms is of no legal significance, cf. Birnie and Boyle, supra, note 2, p.116; Sadeleer, N. de. (2002). *Environmental Principles: From Political Slogans to Legal Rules*, p.92. New York: Oxford University Press.

134 Cf. *Southern Bluefin Tuna Cases* (New Zealand v. Japan; Australia v. Japan), Provisional Measures, Order of 27 August 1999 (ITLOS, cases no. 3 and 4), Separate opinion of Judge Laing, at para 17; Freestone, supra, note 36, 'International Fisheries Law Since Rio', pp.141, 160; Freestone, supra, note 36, 'Implementing Precaution Cautiously', pp.299, 319.

135 Freestone, D. and Hey, E. (1996). 'Implementing the Precautionary Principle: Challenges and Opportunities'. In: Freestone and Hey (Eds). *The Precautionary Principle and International Law: The Challenge of Implementation*, pp.249-68, at 261. The Hague: Kluwer Law International; Freestone, *ibid.*, 'International Fisheries Law Since Rio', p.159; Freestone, *ibid.*, 'Implementing Precaution Cautiously', p.318; cf. also Ellis, J. (2001). 'The Straddling Stocks Agreement and the Precautionary Principle as Interpretive Device and Rule of Law'. *Ocean Development & International Law* 32(4): 289-311, at 291.

136 Freestone and Hey, *ibid.*, 'Implementing the Precautionary Principle', pp.261-2; Freestone, *ibid.*, 'International Fisheries Law Since Rio', pp.159-60; Freestone, *ibid.*, 'Implementing Precaution Cautiously', pp. 318-9. More cautious Ellis, *ibid.*, pp.295-6.

2.2 The UN Fish Stocks Agreement

Article 6 of the UN Fish Stocks Agreement, concerning the ‘application of the precautionary approach’, applies to the conservation and management of straddling and highly migratory fish stocks on the high seas as well as within areas under national jurisdiction.¹³⁷ Paragraph 1 provides that ‘[s]tates shall apply the precautionary approach widely to conservation, management and exploitation of straddling and highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment’. Paragraph 2 specifies the content of the precautionary approach by stating that ‘[s]tates shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures’.

The Agreement then goes on to set out the methodology for implementing the precautionary approach. States shall, *inter alia*, obtain and disseminate the best scientific information available;¹³⁸ improve knowledge on the impact of fishing on non-target species and their environment;¹³⁹ enhance monitoring of target and non-target species where their status is of concern, and revise conservation and management measures in the light of new information.¹⁴⁰

With regard to decision making, states must implement ‘improved techniques for dealing with risk and uncertainty’.¹⁴¹ These techniques are, however, not specified in the Agreement.¹⁴² Uncertainties must further be taken into account, relating, for instance, to the size and productivity of stocks, reference points, levels of fishing mortality, environmental and socio-

economic conditions, and the impact of fishing activities on non-target species.¹⁴³

The management measures set out in Article 6 include first and foremost the setting of stock-specific reference points.¹⁴⁴ Annex II to the Agreement provides guidelines for the application of such ‘precautionary reference points’. Precautionary reference points are so-called ‘target reference points’ defining management objectives, and ‘limit reference points’ identifying safe biological limits for harvesting.¹⁴⁵ The action to be taken if such reference points are exceeded must be determined in advance.¹⁴⁶ This means that conservation measures will automatically become applicable.¹⁴⁷ However, the Agreement itself does not specify what kind of measures these should be. In particular, it does not explicitly require fishing moratoria, and has been heavily criticized for not doing so.¹⁴⁸

Nonetheless, by way of interpretation the Agreement does give guidance in this respect. The mechanism which makes conservation measures automatically applicable (if not the precautionary approach *per se*) in effect results in a reversal of the burden of proof in favour of conservation. It requires the potential exploiter to demonstrate that exploitation of the concerned fish stock can be resumed or continued without endangering the stock.¹⁴⁹

This finding is supported by the fact that Annex II of the Agreement *inter alia* employs limit reference points (as opposed to management reference points), which place an absolute limit on exploitation. At least when limit reference points are exceeded, any action

137 UN Fish Stocks Agreement, *supra*, note 18, Article 3(1).

138 *Ibid.*, Article 6(3)(a).

139 *Ibid.*, Article 6(3)(d).

140 *Ibid.*, Article 6(5).

141 *Ibid.*, Article 6(3)(a).

142 Critical of this lack of specification Erben, C. (2005). *Das Vorsorgegebot im Völkerrecht*, p.128. *Schriften zum Völkerrecht*, 157. Berlin: Duncker & Humblot.

143 UN Fish Stocks Agreement, *supra*, note 18, Article 6(3)(c).

144 *Ibid.*, Article 6(3)(b).

145 *Ibid.*, Para. 2, Annex II.

146 *Ibid.*, Articles 6(3)(b), (4) and para. 4, Annex II.

147 Cf. also Freestone, *supra*, note 36, ‘Implementing Precaution Cautiously’, p.293.

148 Ellis, *supra*, note 135, p.300; Freestone, *supra*, note 36, ‘International Fisheries Law Since Rio’, p.161; Freestone, *ibid.*, ‘Implementing Precaution Cautiously’, p.321.

149 Freestone, *ibid.*, ‘Implementing Precaution Cautiously’, p.293; cf. also Ellis, *ibid.*

short of a halt to fishing would contradict the concept of limit reference points itself.

Moreover, when precautionary reference points are approached, ongoing fishing activities would have to be characterized as overfishing.¹⁵⁰ It may thus be argued that Article 61(2) UNCLOS itself, laying down the duty of coastal states to ensure that the marine living resources are not endangered by overexploitation, requires a halt to fishing in such instances.

Additionally, states are obligated under the Agreement to 'adopt plans which are necessary' to

conserve non-target species and protect habitats of special concern.¹⁵¹ Article 6(6) requires the adoption of cautious conservation and management measures, including catch and effort limits, for new or exploratory fisheries as soon as possible, which are to remain in force until sufficient data allow assessment of the long-term impact on the stocks. Besides, the Agreement provides for emergency measures to be taken where natural phenomena adversely affect straddling or highly migratory fish stocks, so as to ensure that fishing does not exacerbate such impacts. Notably, the same applies where fishing activities themselves seriously threaten the sustainability of such stocks.¹⁵²

2.3 General international law

As the UN Fish Stocks Agreement binds merely the contracting parties and applies to straddling and highly migratory fish stocks only, the question arises whether states are also obligated under general international law to apply the precautionary principle to fisheries conservation and management. First of all, this depends on whether the precautionary principle, by its structure and substance, represents a normative rather than a policy concept.¹⁵³

a) Normative quality

The overall connotation of the precautionary approach appears to be that regulatory inaction is unjustified where environmental risks are uncertain but non-negligible.¹⁵⁴ More precisely, the precautionary principle comes into play when there is a 'lack of full scientific certainty'¹⁵⁵ or, in the terms of the UN Fish Stocks Agreement, when 'information is uncertain,

unreliable or inadequate'.^{156 157} This distinguishes precaution from the principle of preventive action: while the latter is concerned with known or scientifically proven risks, the former comes in advance of prevention, requiring action before scientific proof of harm exists.¹⁵⁸

Garcia has observed that '[o]ne reason for the relative failure of fisheries management (among many others) is uncertainty and ignorance about important bio-ecological as well as socio-economic processes involved in fisheries. Scientists and managers have now recognised formally the amount of uncertainty and risk still involved in strategic assessment as well as day-to-day advice, decision-making and implementation'.¹⁵⁹ Nonetheless, it should not be overlooked that the critical state of many fisheries is indisputable. With regard to known factors, preventive rather than

150 Freestone, *ibid.*, 'Implementing Precaution Cautiously', p.321; Freestone, *supra*, note 36, 'International Fisheries Law Since Rio', p.161.
 151 UN Fish Stocks Agreement, *supra*, note 18, Article 6(3)(d).
 152 *Ibid.*, Article 6(7).
 153 Instructive Maurmann, *supra*, note 118, Teil 2.
 154 Cameron, J. and Abouchar, J. (1996). 'The Status of the Precautionary Principle in International Law'. In: Freestone, D. and Hey, E. (Eds). *The Precautionary Principle and International Law: The Challenge of Implementation*, pp.29-52, at 45. The Hague: Kluwer Law International; cf. also Birnie and Boyle, *supra*, note 2, p.120.
 155 Cf. Principle 15 Rio Declaration; Article 3(3) United Nations Framework Convention on Climate Change (UNFCCC), New York, 9 May 1992, in force 21 March 1994, (1992) 31 ILM 851; Preamble of the Convention on Biological Diversity, Rio de Janeiro, 05 June 1992, in force 29 December 1993, (1992) 31 ILM 818.
 156 UN Fish Stocks Agreement, *supra*, note 18, Article 6(2).
 157 Cf. Maurmann, *supra*, note 118, Teil 2, 13. Kapitel, A.I.
 158 E.g., Freestone, D. and Makuch, Z. (1996). 'The New International Environmental Law of Fisheries: The 1995 United Nations Straddling Stocks Agreement'. *YbIEL* 7: 3-51, at 13; Freestone, *supra*, note 36, 'International Fisheries Law Since Rio', p.139; Maurmann, *ibid.*, Teil 2, 7. Kapitel; Sadeleer, *supra*, note 133, p.158; Wolfrum, R. (2000). 'Precautionary Principle'. In: Beurrier, J.-P., Kiss, A. and Mahmoudi, S. (Eds). *New technologies and law of the marine environment*, pp.203-213, at 206-7. London: Kluwer Law International.
 159 Garcia, S.M. (2000). 'The precautionary approach to fisheries: progress review and main issues (1995-2000)'. In: Nordquist, M.H. and Moore, J.N. (Eds). *Current fisheries issues and the Food and Agriculture Organization of the United Nations*, pp.479-560, at 479. The Hague; Boston; London: Martinus Nijhoff Publishers.

precautionary measures must be taken. In respect of already depleted or even collapsed fish stocks, international obligations to conserve the marine living resources require remedial action (besides averting a further decline of stocks), without reliance on either precautionary or preventive arguments. Therefore, the obligation of a coastal state to take, or abstain from, action in a certain case may well arise without recourse to the precautionary principle.¹⁶⁰

The different manifestations of the precautionary principle at the international level set out varying thresholds of risk and potential harm.¹⁶¹ Sometimes 'threats of serious or irreversible damage' are required.¹⁶² The UN Fish Stocks Agreement as well as the FAO Code of Conduct specify neither the level of risk nor the potential damage. Hence, no such threshold appears to exist in respect of the precautionary approach as applied to fisheries conservation and management. Some residual, i.e., purely hypothetical risks, though, would not require precautionary action.¹⁶³

Some formulations of the precautionary principle moreover contain a proportionality test, to the effect that only cost-effective measures must be taken.¹⁶⁴ No such qualifications are made regarding the precautionary principle as applied to fisheries.

In effect, the precautionary principle lowers the standard of proof that is required before positive action

to protect the environment is demanded.¹⁶⁵ It thus determines, and actually brings forward, the point of time at which an obligation to take conservative action arises.¹⁶⁶ In some cases, application of the precautionary principle can take the effect of reversing the burden of proof of risk, so that the proposed activity is impermissible unless it can be shown that it will not cause unacceptable harm to the environment.¹⁶⁷

The 1989 UN General Assembly Resolution on driftnet fishing,¹⁶⁸ for instance, places the burden of proof on those who seek to continue driftnet fishing by recommending moratoria 'with the understanding that such measures will not be imposed in a region or... can be lifted, should effective conservation and management measures be taken based upon statistically sound analysis... to prevent unacceptable impact of such fishing practices on that region and to ensure the conservation of the living marine resources of that region'.¹⁶⁹ The 1994 Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea¹⁷⁰ is also frequently cited as an example, as it does not allow fishing for Aleutian Basin pollock unless its biomass is determined to exceed 1.67 million metric tonnes (albeit only in case the allowable harvest level cannot be established by consensus).^{171, 172}

Birnie and Boyle seem to doubt the normative character of the precautionary principle on the grounds that it:

160 On the remaining pertinence of the principle of prevention see also Sadeleer, supra, note 133, p.223.

161 Cf. Maurmann, supra, note 118, Teil 2, 13. Kapitel, A.II.

162 Principle 15 Rio Declaration; Article 3(3) UNFCCC.

163 Sadeleer, supra, note 133, pp.157-8, 159-60; Erben, supra, note 142, pp.202-3.

164 Cf. Principle 15 Rio Declaration; Article 3(3) UNFCCC. Cf. Maurmann, supra, note 118, Teil 2, 13. Kapitel, A.IV.

165 Birnie and Boyle, supra, note 2, p.117; Freestone, D. and Hey, E. (1996). 'Origins and Development of the Precautionary Principle' In: Freestone and Hey (Eds). *The Precautionary Principle and International Law: The Challenge of Implementation*, pp.3-15, at 13. The Hague: Kluwer Law International.

166 Birnie and Boyle, *ibid.*, p.676; Freestone and Hey, *ibid.*, 'Origins and Development of the Precautionary Principle', p.12; Freestone, supra, note 36, 'International Fisheries Law Since Rio', p.141; Freestone, supra, note 36, 'Implementing Precaution Cautiously', p.299; Wolfrum, supra, note 158, p.205.

167 Birnie and Boyle, *ibid.*, p.118; Freestone and Makuch, supra, note 158, pp.12-13; Freestone, *ibid.*, 'International Fisheries Law Since Rio', p.140; Freestone, *ibid.*, 'Implementing Precaution Cautiously', pp.297-8; Juda, L. (1997). 'The 1995 United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks: A Critique'. *Ocean Development and International Law* 28: 147-66, at 152. For a general reversal of the burden of proof Sadeleer, supra, note 133, pp.202-3; Wolfrum, *ibid.*, p.207.

168 Large-scale pelagic driftnet fishing and its impact on the living marine resources of the world's oceans and seas, 22 December 1989, A/RES/44/225.

169 *Ibid.*, para. 4(a); cf. Freestone and Hey, supra, note 135, 'Implementing the Precautionary Principle', p.260; Freestone, supra, note 36, 'International Fisheries Law Since Rio', pp.151-2; Freestone and Makuch, supra, note 158, pp.17-18; Freestone, supra, note 36, 'Implementing Precaution Cautiously', pp.308-9; Wolfrum, supra, note 158, p.207.

170 Convention on the Conservation and Management of Pollock Resources in the Central Bering Sea, Washington DC, 16 June 1994, in force 8 December 1995.

171 *Ibid.*, Article VII(1).

172 *Ibid.*, Article VII(2), Annex Part 1(c); cf. Freestone and Hey, supra, note 135, 'Implementing the Precautionary Principle', pp.262-3; Freestone, supra, note 36, 'International Fisheries Law Since Rio', pp.152-3; Freestone and Makuch, supra, note 158, p.18; Freestone, supra, note 36, 'Implementing Precaution Cautiously', p.309.

*helps us identify whether a legally significant risk exists by addressing the role of scientific uncertainty, but it says nothing about how to control that risk, or about what level of risk is socially acceptable. Those are policy questions which in most societies are best answered by politicians and by society as a whole, rather than by courts or scientists.*¹⁷³

However, the duty arising from an application of the precautionary principle is clearly an obligation of the state concerned to take adequate measures to protect the environment, even though a choice of measures may be open to the state. Beyerlin aptly emphasizes that '[a]lthough the legal consequences flowing from the state's duty to take precautionary action may be indeterminate in substance, this flaw does not affect the core of the duty that arises'.¹⁷⁴ In this respect, the precautionary principle does not differ from the principle of prevention, which is well established as a norm of international law.¹⁷⁵ Hence, the precautionary principle is clearly of normative quality and may well qualify as a rule of law.¹⁷⁶

b) Acceptance as law

Whether or not the precautionary principle has as yet acquired the status of customary international law seems still a matter of uncertainty and debate.¹⁷⁷ To evaluate state practice in implementing the precautionary principle in fisheries management would go beyond the scope of this work. In any event, Freestone and Hey observe that the precautionary principle 'has been included in virtually every recent

treaty and policy document related to the protection and preservation of the environment'.¹⁷⁸

As regards its application to fisheries, the precautionary principle has not only been codified in the UN Fish Stocks Agreement. The FAO Code of Conduct also accords a central role to the precautionary approach, phrasing it in the following terms: 'States should apply the precautionary approach widely to conservation, management and exploitation of living aquatic resources in order to protect them and preserve the aquatic environment. The absence of adequate scientific information should not be used as a reason for postponing or failing to take conservation and management measures.'¹⁷⁹ In broadly the same terms as the UN Fish Stocks Agreement, the Code calls upon states to take into account a number of uncertainties in implementing the precautionary approach; to determine target and limit reference points and the action to be taken when they are approached or exceeded; and to adopt cautious conservation and management measures for new or exploratory fisheries, as well as emergency measures to avert certain detrimental effects of fishing.¹⁸⁰

Besides, Chapter 17 of Agenda 21 calls for approaches that are 'precautionary and anticipatory in ambit'.¹⁸¹ Section 17.21 explicates that '[a] precautionary and anticipatory rather than a reactive approach is necessary to prevent the degradation of the marine environment', including, *inter alia*, the adoption of precautionary measures and environmental

173 Birnie and Boyle, *supra*, note 2, p.119.

174 Beyerlin, U. (2001). 'Different types of norms in international environmental law: policies, principles and rules'. In: Bodansky, D., Brunnée, J. and Hey, E. (Eds). *The Oxford Handbook of International Environmental Law*, pp.425-48, at 440. Oxford; New York: Oxford University Press.

175 On the principle of prevention cf. Freestone, *supra*, note 36, 'International Fisheries Law Since Rio', pp.139-40; Sands, *supra*, note 13, pp.246-9; Wolfrum, *supra*, note 158, p.206.

176 Cf. Beyerlin, *supra*, note 174, p. 440; Cameron and Abouchar, *supra*, note 154, p.30; Maurmann, *supra*, note 118, Teil 2, 13. Kapitel, A.VI; Winter, G. (2004). 'The Legal Nature of Environmental Principles in International, EC and German Law'. In: Macrory, R. (Ed.). *Principles of European Environmental Law*, pp.11-28, at 21-2. Groningen: Europa Law Publishing; Winter, G. (2006). 'The legal nature of environmental principles in international, EU, and exemplary national law'. In: Winter, G. (Ed.). *Multilevel Governance of Global Environmental Change*, pp.587-604, at 595, see also 603-4. Cambridge: Cambridge University Press.

177 Cf. Beyerlin, *ibid.*, pp.440-1; Birnie and Boyle, *supra*, note 2, pp.118-20; Cameron and Abouchar, *ibid.*, pp.36-8; Erben, *supra*, note 142, pp.245-50; Sadeleer, *supra*, note 133, pp.316-8. Pro at least evolving customary status Beyerlin, *ibid.*; Cameron and Abouchar, *ibid.*, pp.30-1, 52; Ellis, *supra*, note 135, p.292; Erben, *ibid.*, p.247; Freestone, *supra*, note 36, 'International Fisheries Law Since Rio', p.137; Rayfuse, *supra*, note 71, p.132; Sadeleer, *ibid.*, pp.100, 318-9; Sands, *supra*, note 13, p.279. To the contrary Birnie and Boyle, *supra*, note 2, p.120.

178 Freestone and Hey, *supra*, note 165, 'Origins and Development of the Precautionary Principle', p.3. Cf. the instruments referred to under a) above.

179 FAO, *supra*, note 2, Article 7.5.1.

180 *Ibid.*, Article 7.5.2-5.

181 Agenda 21, *supra*, note 94, s. 17.1.

impact assessments. Moreover, the UN General Assembly Resolution on sustainable fisheries calls upon states 'to apply widely, in accordance with international law and the Code, the precautionary approach... to the conservation, management and exploitation of fish stocks... and also calls upon States parties to the [UN Fish Stocks] Agreement to implement fully the provisions of article 6 of the Agreement as a matter of

priority'.¹⁸²

The precautionary approach to fisheries conservation and management thus qualifies as a general principle of international law within the meaning of Article 38(1)(c) ICJ Statute,¹⁸³ if not a rule of customary international law.

3. Transboundary cooperation

3.1 Fisheries treaties

Part V of UNCLOS on the Exclusive Economic Zone contains a number of specific requirements for transboundary cooperation between states. Article 61(2) requires the coastal state to cooperate with competent subregional, regional or global organizations 'as appropriate' to ensure that the maintenance of the living resources in its EEZ is not endangered by overexploitation, thus leaving the coastal state a wide discretion.¹⁸⁴ Other cooperation requirements relate to species that occur not exclusively within the coastal state's EEZ, such as straddling and highly migratory species or anadromous and catadromous stocks.

Article 63(1) UNCLOS applies to transboundary stocks, i.e., situations where 'the same stock or stocks of associated species occur within the exclusive economic zones of two or more coastal states'. It provides that the coastal states concerned shall seek to agree upon the necessary measures to coordinate and ensure the conservation and development of such stocks within their EEZs, either directly or through appropriate subregional or regional organizations. In effect, the coastal states concerned are obligated to cooperate in implementing their original EEZ obligations of conservation and sustainable use. This entails that the coastal states must seek to adopt jointly, or coordinate, the conservation measures for the shared

stock or stocks; jointly determine the TAC; and allocate the TAC among themselves. Nonetheless, within its own portion of the TAC each state may regulate access to the fishery for both national and third state vessels individually.¹⁸⁵

Article 63(2) UNCLOS relates to so-called straddling stocks, i.e., situations where the same stock or stocks of associated species occur both within the EEZ of a coastal state and in the adjacent high seas. In this case, cooperation between the coastal state and states fishing on the high seas is required with regard to high seas conservation measures only. The obligation is restated in Article 7(1)(a) UN Fish Stocks Agreement.

Notably, the cooperation obligations established under Article 63(1) and (2) UNCLOS both include associated species. Besides, both paragraphs equally require states to 'seek to agree', rather than to cooperate or to reach an agreement. Thus, they create obligations to enter into negotiations, or *pacta de negotiando*, rather than obligations to negotiate and to reach an agreement, or *pacta de contrahendo*.¹⁸⁶ Nevertheless, these *pacta de negotiando* do require states to enter into negotiations in good faith, to respond to genuine attempts at negotiation, and to be prepared to modify their original positions.¹⁸⁷

182 A/RES/61/105, supra, note 107, para. 5, cf. also para. 7.

183 Cf. for general international law Maurmann, supra, note 118, Teil 2, 13. Kapitel, C.

184 Cf. also Attard, supra, note 15, p.153.

185 Hey, E. (1989). *The regime for the exploitation of transboundary marine fisheries resources: the United Nations Law of the Sea Convention Cooperation between States*, pp.56, 68, 91. Dordrecht: Martinus Nijhoff Publishers; cf. also Kaye, supra, note 28, p.158.

186 Kaye, *ibid.*, pp.118, 158; cf. also Churchill and Lowe, supra, note 15, p.294.

187 Kaye, *ibid.*, pp.116-8, 158-9; cf. *Lake Lanoux Arbitration* (France v. Spain) (1957) 24 ILR, 101, 119, 128, 130; cf. also Churchill and Lowe, *ibid.*, p.294.

Article 64 UNCLOS concerns the highly migratory species enlisted in Annex I to the Convention, such as tuna and tuna-like species. This Article stipulates that the coastal state and other states fishing for such species in a given region shall cooperate with a view to ensuring conservation and promoting the objective of optimum utilization, both within and beyond EEZs.¹⁸⁸ This obligation, which is restated in Article 7(1)(b) UN Fish Stocks Agreement, entails, *inter alia*, the coordinated or joint determination and allocation of the TAC for such species, inclusive of the catch taken within areas under national jurisdiction.¹⁸⁹ Nevertheless, Article 64(2) UNCLOS clarifies that the sovereign rights and responsibilities of the coastal state within its EEZ persist also with regard to highly migratory species.¹⁹⁰ Within its EEZ the coastal state retains in particular the sole right to determine the conditions under which fishing may take place, the enforcement responsibility and the control over research and data collection.¹⁹¹

States are free to ‘cooperate directly or through appropriate international organizations’ under Article 64 UNCLOS. Where no international organization exists, they shall cooperate to establish one and participate in its work.¹⁹² The latter provision indicates a preference for cooperation through regional fisheries organizations,¹⁹³ but would hardly create a genuine obligation.¹⁹⁴ Firstly, states remain free to cooperate directly. Secondly, the claim to establish an ‘appropriate international organization’ also lacks detail.¹⁹⁵ Kaye moreover observes that ‘it is difficult to conceive of a situation where a State that was willing to negotiate and conclude a fisheries agreement could be liable for

failing to assist in the establishment of an organization to do the same task’.¹⁹⁶

Article 7 of the UN Fish Stocks Agreement goes beyond the obligations under UNCLOS by requiring states to cooperate to ensure compatibility between national and high seas measures for straddling and highly migratory fish stocks.¹⁹⁷ Article 7(2) UN Fish Stocks Agreement lists a number of factors to be taken into account in determining compatible conservation and management measures, such as existing national and high seas measures, the biological unity of the stocks, and the impact of such measures on the living marine resources as a whole.

With regard to anadromous stocks¹⁹⁸ Article 66(1) UNCLOS ascribes the ‘primary interest... and responsibility’ to the state in whose rivers such stocks originate. The state of origin must ensure the conservation of anadromous stocks through appropriate regulatory measures ‘in all waters landward of the outer limits’ of its EEZ, including the territorial sea and internal waters,¹⁹⁹ and on the high seas.²⁰⁰

Fishing for anadromous stocks on the high seas is allowed by way of exception where its prohibition would result in economic dislocation for another state traditionally fishing the stocks.²⁰¹ In such cases, the states concerned are to ‘maintain consultations with a view to achieving agreement on terms and conditions’ of high seas fishing, ‘giving due regard to the conservation requirements and the needs of the State of origin in respect of these stocks’.²⁰² The state of origin is to cooperate in minimizing economic dislocation in

188 Article 64(1) UNCLOS.

189 Hey, *supra*, note 185, p.60; Kaye, *supra*, note 28, p.126.

190 Cf. also Hey, *ibid.*, p.59; Kaye, *ibid.*, pp.125-6.

191 Kaye, *ibid.*, p.127.

192 Article 64(1) UNCLOS.

193 Hey, *supra*, note 185, p.58.

194 Cf. Kaye, *supra*, note 28, p.121.

195 *Ibid.*

196 *Ibid.*

197 Cf. UN Fish Stocks Agreement, *supra*, note 18, Article 7(2); Birnie and Boyle, *supra*, note 2, pp.666, 676.

198 ‘[F]ish which spawn in fresh water within a State’s territorial jurisdiction, and migrate to sea for part of their life span, returning to the river of origin to spawn... [M]ost species die in the spawning process’, Nordquist, *supra*, note 40, II, p.667.

199 Nordquist, *ibid.*, II, p.678.

200 Article 66(2) UNCLOS; cf. also Churchill and Lowe, *supra*, note 15, p.315.

201 Cf. also Kwiatkowska, B. (1989). *The 200 Mile Exclusive Economic Zone in the New Law of the Sea*, p. 83. Dordrecht: Martinus Nijhoff Publishers.

202 Article 66(3)(a) UNCLOS.

such other states, and give special consideration to states contributing to the renewal of the stocks.²⁰³ Enforcement of the high seas regulations shall be governed by agreement between the states concerned.²⁰⁴

Where anadromous stocks migrate into or through waters under national jurisdiction of another state than the state of origin, these states must cooperate with regard to the conservation and management of the stocks.²⁰⁵

The TAC for anadromous stocks, with regard to catches both within and beyond the EEZ of the state of origin, may be established by the state of origin after consultations with any other states fishing these stocks in accordance with Article 66 UNCLOS.²⁰⁶ The state of origin and the other states fishing these stocks under Article 66 UNCLOS shall further ‘make arrangements’ for the implementation of this Article through regional organizations ‘where appropriate’.²⁰⁷ Notably, with

3.2 Customary international law

Under international environmental law, the customary obligation of states to prevent, reduce and control environmental harm is complemented by the procedural duty to cooperate in mitigating transboundary environmental risks through notification, consultation, negotiation and, where appropriate, environmental impact assessment.²¹⁶ This, however, does not entail that states may act only by agreement. In other words, the customary obligation can be characterized as a *pactum de negotiando*, i.e., a duty to enter into negotiations in good faith, rather than a duty to reach an agreement.²¹⁷ As Articles 64,

regard to anadromous stocks the other provisions of Part V of the Convention do not apply in addition to Article 66.²⁰⁸

Similarly, coastal states in whose waters catadromous species²⁰⁹ spend the greater part of their life cycle are responsible for the management of these species.²¹⁰ Catadromous species may not be exploited on the high seas.²¹¹ Where catadromous fish migrate through the EEZ of another state, the management and exploitation of such fish is to be regulated by agreement between the coastal state in whose waters the fish spend the greater part of their life cycles and this other state.²¹²

In contrast to Article 63, Articles 64, 66 and 67 UNCLOS create genuine duties of cooperation or *pacta de contrahendo*, as indicated by requirements that states ‘shall cooperate’²¹³ and that regulation or enforcement shall be ‘by agreement’.^{214, 215}

66 and 67 UNCLOS create genuine duties of cooperation or *pacta de contrahendo*, these obligations may go beyond the general procedural obligation under customary international law. Therefore, the question arises whether the pertinent UNCLOS provisions have also acquired customary status.

The UNCLOS regime for the management of transboundary, straddling and highly migratory species and anadromous and catadromous stocks comprehensively sets out the respective rights and duties of coastal states and other states concerned. On

203 Ibid., Article 66(3)(b), (c).

204 Ibid., Article 66(3)(d).

205 Ibid., Article 66(4).

206 Ibid., Article 66(2); Kaye, supra, note 28, p.135.

207 Article 66(5) UNCLOS.

208 Hey, supra, note 185, p.64.

209 ‘Catadromous species, of which the freshwater eel is a prominent example, spawn in the ocean and migrate to fresh water for most of their lives before returning to the ocean to reproduce. (This life cycle is the opposite of anadromous stocks, dealt with in article 66.)’, Nordquist, supra, note 40, II, p.681.

210 Article 67(1) UNCLOS.

211 Ibid., Article 67(2).

212 Ibid., Article 67(3).

213 Ibid., Articles 64(1), 66(3)(b), (4).

214 Ibid., Articles 66(3)(d), 67(3).

215 Cf. Kaye, supra, note 28, pp.118, 126.

216 Cf. Birnie and Boyle, supra, note 2, pp.104-5, 126-9; Sands, supra, note 13, pp.249-51.

217 Cf. *Lake Lanoux Arbitration* (France v. Spain) (1957) 24 ILR, 101, 119, 128, 130; Birnie and Boyle, *ibid.*, pp.126, 128.

the whole, it is clearly norm-creating. Exceptions are only the second sentence of Article 61(2) UNCLOS and Article 66(5), leaving coastal states a wide discretion to cooperate with, or through, international organizations, and the second sentence of Article 64(1), calling for the establishment of regional organizations for highly migratory species while direct cooperation is also permitted.²¹⁸ The widespread and representative participation in the 1982 UNCLOS and the passage of a sufficient time span have been ascertained under 1.3 above.

According to Kwiatkowska:

*[n]eighbouring coastal states in various regions increasingly acknowledge their joint responsibility for seeking an agreement on conservation and management of stocks migrating between their EEZs in conformity with the LOS Convention. This is evidenced by practice of, e.g., the United States and Canada, the European Economic Community with regard to stocks shared with other states; the Baltic states; the Gulf of Guinea states; and activities of the regional fishery commissions of the FAO.*²¹⁹

Similarly, Churchill and Lowe find that ‘[i]n practice States have been able to agree on co-operative arrangements for the management of [transboundary] stocks to a considerable extent’.²²⁰ They refer to ‘at least twenty agreements... dealing with the management of shared stocks’, including periodic arrangements negotiated under framework treaties, bilateral commissions, regional fisheries organizations and agreements on an *ad hoc* basis.²²¹ Hey has also

compared a large number of cooperative arrangements with the pertinent UNCLOS provisions in order to ascertain if, and to what extent, the arrangements reflect these provisions. She finds that most cooperative arrangements concluded by states with regard to transboundary stocks conform to the requirements of Article 63(1) UNCLOS.²²² Limited divergences seem to exist with regard to highly migratory species.²²³ Kwiatkowska states in this respect that ‘state practice shows an increasing acceptance of the obligation of international cooperation established in Article 64’.²²⁴ Moreover, she observes with regard to straddling stocks that:

*state practice in the regions where such stocks are at present exploited reflects basically shared responsibility of the coastal states and the relevant organizations for coordination of fisheries measures within and beyond 200 miles; at the same time there is a noticeable tendency to ensure the consistency of measures applicable to the high seas with those adopted by the coastal state in the EEZ.*²²⁵

Finally, ‘state practice in the regions where anadromous stocks occur show recognition of primary interest and responsibility of the state of origin, limitation of fishing to the areas within 200 mile zones, and the indispensability of international cooperation in conservation and management of such stocks’.²²⁶

Consequently, the cooperation requirements of Articles 63, 64, 66 and 67 UNCLOS appear to have been transformed into customary international law.²²⁷

218 See Section III.1. above.

219 Kwiatkowska, *supra*, note 86, pp.252-3; cf. also Kwiatkowska, *supra*, note 201, p.78.

220 Churchill and Lowe, *supra*, note 15, p.294.

221 *Ibid.*, pp.294-6.

222 Hey, *supra*, note 185, p.95.

223 *Ibid.*, pp.106-7.

224 Kwiatkowska, *supra*, note 86, p.253.

225 *Ibid.*; cf. also Kwiatkowska, *supra*, note 201, pp.79-80.

226 Kwiatkowska, *ibid.*, ‘Conservation and optimum utilization’, p.254, cf. also p.260; cf. also Kwiatkowska, *ibid.*, *The 200 Mile Exclusive Economic Zone*, p.85.

227 Cf. also Kwiatkowska, *ibid.*, ‘Conservation and optimum utilization’, p.260 with regard to the regime for anadromous stocks, and p.259 for an ‘emerging’ customary status of the regime for transboundary and straddling stocks; cf. also Kwiatkowska, *ibid.*, *The 200 Mile Exclusive Economic Zone*, pp.79, 80.

III. Conclusion

The international law of fisheries has frequently been criticized for its alleged lack of contemporary and legally binding EEZ fisheries management standards.²²⁸ Nevertheless, the 1982 UNCLOS in particular, as well as general international law, seem to provide a useful range of norms for national fisheries management, if carefully interpreted. Such legally binding norms include the coastal state's primary obligation to ensure that the maintenance of the living resources in its EEZ is not endangered by overexploitation; the duty to maintain or restore populations of target species at

sustainable levels; the determination of catch limits for stocks actually or potentially affected by exploitation; the duty to apply the precautionary approach widely to conservation, management and exploitation of living marine resources; and duties to cooperate for the conservation and management of species not exclusively occurring within the coastal state's EEZ. It thus appears that even greater professional attention is owed to the full and coherent implementation of the existing international standards than to the future development of the international law of fisheries.

228 E.g., Barnes, *supra*, note 4; Christie, *supra*, note 5.

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PART B:

Exemplary National Approaches

1 Promotion and Management of Marine Fisheries in Indonesia

Laode M. Syarif*

Summary

Indonesia has some of the richest fisheries resources in the world, with the world's most diverse coral reefs, 81,000 km of coastline (the second longest in the world), and about 5.8 million km² of sea area. The environmental features that support these resources, such as coral reefs, mangrove forests and the quality of the water around coastal zones, have been severely degraded by the combined effects of unsustainable fishing practices, urban development pressures, and inadequate fisheries legislation.

The environmental degradation has been exacerbated by unsuitable strategic policies for fisheries management developed by both central and local governments. Serious efforts in fisheries development only started in 1999 with the establishment of the Department of Marine Affairs and Fisheries (DKP). Prior to 1999, the fisheries sector was managed under the Directorate General of Fisheries within the Department of Agriculture. The management and promotion of fisheries in Indonesia were then strengthened with the enactment of *Law No. 31/2004 on Fisheries (Fisheries Act)*.

Compared to the old regime, the *Fisheries Act* brought a new perspective to Indonesia's fisheries sector because it introduced several management measures which were unknown in the past. The *Fisheries Act*, for instance, established several provisions on: (a) fisheries management planning, (b) fish resources, (c) total allowable catch (TAC), (d) types, amount and

size of fishing gear, (e) zone, route and time of fishing season, (f) fishing fleet surveillance systems, (g) rehabilitation of fish resources and their environment, (h) minimum size and weight, (i) fish sanctuaries, and other measures. In addition, the *Fisheries Act* also provided several supporting measures for small-scale traditional fishermen such as technical assistance, fuel subsidies, and a limited number of soft loans.

However, the full implementation of these measures is still problematic because some provisions of the *Fisheries Act* contradict *Law No. 32/2004 on Local Government* and *Law No 33/2004 on Financial Balance between Central and Local Government*. The full implementation of the *Fisheries Act* is further hindered by a lack of personnel and facilities in the DKP and a lack of support from other government agencies such as the navy and water police with regard to law enforcement. As a result, the use of destructive fishing methods such as explosives and poisons is still common in many coastal areas.

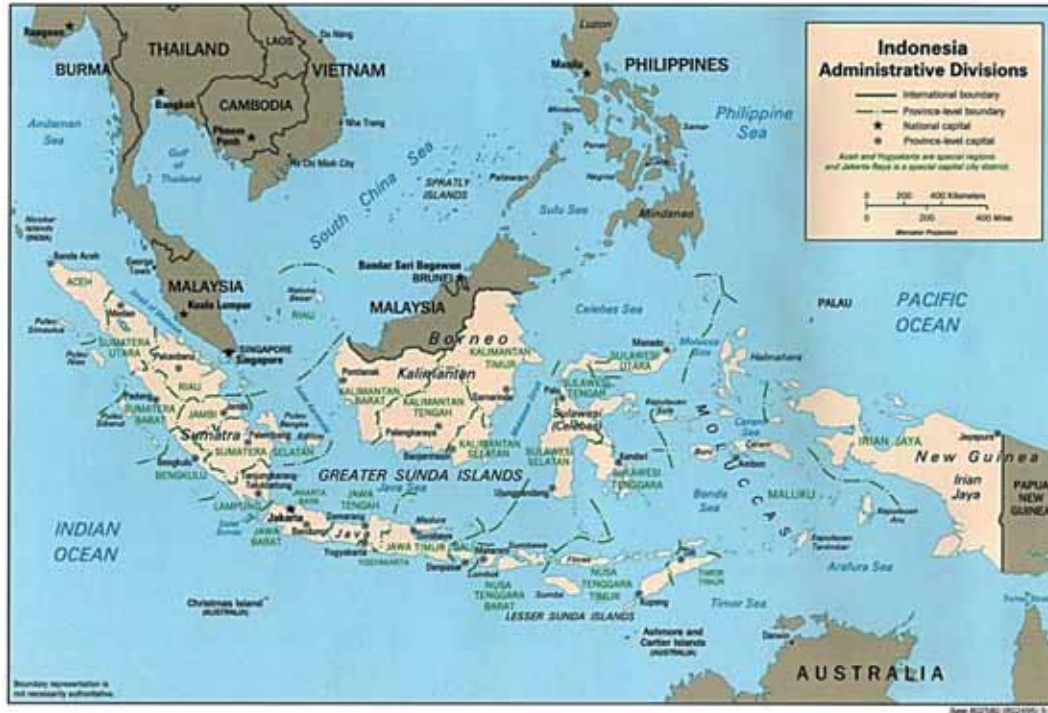
In addition, the lack of skills and capacity of provincial and district governments to deal with multi-layered fisheries problems also hampers full implementation of the *Fisheries Act*. There is great disparity between written law and practised law. Therefore, the aims of the fisheries management reform introduced by the *Fisheries Act* still require much effort in order to be realized.

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I. Environmental and socio-economic background

1. Geography

Figure 1. The Indonesian archipelago



Source: US Central Intelligence Agency. (2002).

Available at: <http://www.lib.utexas.edu/maps/indonesia.html> (consulted: 1 April 2006).

The Indonesians call their homeland *Tanah Air Kita* (Our Land and Water). It is made up of 18,108 islands (based on 2003 satellite-imaging data by the Aviation and Space Institute) with a total landmass of 1.91 million km². However, only about 6,000 islands are inhabited.¹ The total marine area covers more than 5.8 million km² (3.1 million km² territorial and archipelagic waters and 2.7 million km² of EEZ).

Indonesia's approximate geographic centre is at 5°ES and 120°EE. It lies between the Indian and Pacific Ocean and between Asia and Australia, south of Malaysia and the Philippines, and northwest of

Australia. Indonesia is the largest archipelago in the world, extending some 2,000 km from north to south and more than 5,000 km from east to west. The largest islands are Kalimantan (Borneo), Sumatra, Papua (formerly Irian), Sulawesi and Java (where the capital Jakarta is).

The climate in Indonesia is tropical - hot and humid in the low elevations and jungles but cooler in the highlands. Temperatures range from 21°C(70°F)-33°C(90°F). Humidity ranges from 60-90%. Indonesia's wet season lasts from November to April and its dry season from May to October, with slight

1 To date, the government has no official number of islands within Indonesian territory, because some of them are just atolls and uninhabited. Some authors put the figure at 13,677 islands and islets, while others just say more than 10,000 islands. The government departments and authorities that are responsible for the management of Indonesian small islands are the Department of Defence, the Department of Marine Affairs and Fisheries, and the National Coordination Agency for Surveys and Mapping (<http://www.bakosurtanal.go.id> – consulted: 4 April 2006). For the total size of the sea, see Putra, Sapta and Yaya, Mulyana. Linking Coral Reef Conservation into Integrated Coastal Management as Part of Indonesia Sea Large Marine Ecosystem: An Experience of Coral Reef Rehabilitation and Management Program (COREMAP Phase II). Available online at: <http://www.iucn.org/themes/wcpa/wpc2003/pdfs/programme/cct/marine/coremapabstract.pdf> (consulted: 12 April 2006).

variations in regional sub-climates. Annual precipitation levels in Indonesia lie between 200 cm (79 in) and 380 cm (150 in) depending on the region.

While Indonesians are scattered across many different islands, they are also divided into many ethnic groups. Indonesia is a very diverse nation with 350 recognized ethno-linguistic groups, of which 180 are located in Papua. The biggest ethnic group is Javanese making up 45% of the population, followed by Sundanese (14%), Madurese (7.5%), coastal Malays (7.5%), and others (26%). It is important to note that, apart from indigenous ethnic groups, there are a significant number of non-indigenous groups, such as Chinese, Indians and Arabs. They are mostly concentrated in urban areas throughout the archipelago.

Although the majority of the population can speak the national language *Bahasa Indonesia* (the Indonesian Language), ethnic languages are still spoken on a daily basis. The Javanese language, for instance, is spoken by about 75 million people, while Sundanese is spoken by at least 27 million people. Similarly, some other ethnic groups such as Batak in North Sumatra, Minang in West Sumatra, Bugis and Makassar in South Sulawesi, Muna and Buton in Southeast Sulawesi, and Ternate in the eastern part of Indonesia still speak their own languages in daily informal conversations. In total, there are more than 300 languages and dialects spoken in Indonesia.

Another important indicator that makes Indonesia a socially unique country is the religion of its citizens. The Indonesian Constitution guarantees religious freedom.² However, the Moslem population dominates with 88% making Indonesia the biggest Islamic country in the world. Five percent of the population are Protestant, while another 3% are Roman Catholic. Hindu constitutes about 2% of the population and its

followers mainly live on the island of Bali. One percent of the population follows Buddhism.³

According to an estimate by the Asian Development Bank (ADB), the total population of Indonesia is about 216.4 million, making it the fourth largest nation after China, India and the USA. The average population density per square kilometre is 114,⁴ with a population growth rate of 1.49% per year. The Indonesian population is not evenly distributed throughout the archipelago. The island of Java, together with the smaller adjoining islands of Madura and Bali, accounts for around 7% of Indonesia's land area, but is populated by 59.5% of the total population. By contrast, Papua represents 22% of the total land mass, yet has only 1% of the total population.

The Statistics Bureau of Indonesia (*Badan Pusat Statistik - BPS*) estimated that the total labour force in 2005 was 105,802,372, but only 68.2% are employed. The unemployment rate in 2005 reached 10.26%.⁵ Until 2003, the agricultural sector provided about 42% of the jobs, while manufacturing only provided about 12%. However, the proportion of output percentage of the GDP at current prices is now the opposite: (i) agriculture 15.4%, (ii) industry 43.7% and (iii) services 40.9%. The total GDP of Indonesia in 2004 was Rp 2,303,031 trillion (about US\$ 230,303.1 million).⁶ The contribution of the fisheries sector to the GDP is about 2.2% and has been constantly increasing over the last five years.⁷

Total export values from the non-oil, gas and commodity sectors in 2004 were as follows: (i) agricultural products, US\$ 2,496.2 million; (ii) industrial products, US\$ 48,677.3 million; (iii) mining products, US\$ 4,761.4 million; and (iv) fisheries (excluding shrimp) US\$ 470.7 million. Meanwhile, shrimp alone contributes US\$ 824 million.⁸ From these figures we can conclude that the contribution of the

2 The Indonesian Constitution, Article 28E (1) states 'Every person shall be free to choose and to practice the religion of his/her choice...'

3 See 'Overview of Indonesia', at <http://www.expat.or.id/info/overview.html#THE%20LAND> (consulted: 6 April 2006).

4 ADB. (2005). Key Indicators 2005: Labor Markets in Asia: Promoting Full, Productive, and Decent Employment, p.244. Manila: ADB. Available online at http://www.adb.org/Documents/Books/Key_Indicators/2005/pdf/INO.pdf (consulted: 4 April 2006).

5 BPS, available online at <http://www.bps.go.id/sector/employ/table1.shtml> (consulted: 6 April 2006).

6 ADB, supra, note 4.

7 Patlis, J. (2007). 'Indonesia's New Fisheries Law: Will it Encourage Sustainable Management or Exacerbate Over-Exploitation'. *Bulletin of Indonesian Economic Studies* 43(2): 201-226, p.202.

8 BPS, available online at <http://www.bps.go.id/sector/frtrade/export/table2.shtml> (consulted: 6 April 2006).

fisheries sector to the national economy is still below the target and projection of the government.

To provide a general picture of Indonesia's current (macro) economy, the Indonesian Statistics Agency and

the ADB analyses show that the Indonesian economy has steadily increased over the last five years and has started to recover from the Asian economic crisis in 1997/8.

Table 1. Major economic indicators, 2004-2007 (%)

Item	2004	2005	2006	2007
GDP growth	5,1	5,5	6,0	6,5
GDI/GDP	21,3	22,3	24,2	26,1
Inflation (CPI)	6,2	5,9	5,4	5,5
Money supply (M2) growth	8,1	12,0	12,0	12,0
Fiscal balance/GDP	-1,3	-0,8	-1,0	-0,5
Merchandise export growth	9,4	6,0	7,0	8,0
Merchandise import growth	13,3	9,6	11,0	12,0
Current account/GDP	2,6	2,1	1,5	1,0

Source: ADB. 'Asian Development Outlook', available online at: <http://www.adb.org/Documents/Books/ADO/2005/ino.asp> (consulted: 16 January 2008).

Key: CPI = Consumer Price Index. GDI = Gross Domestic Investment. GDP = Gross Domestic Product.

2. State of the environment

Since the status of other natural resources cannot be separated from the issue of fisheries in general, this section examines several of Indonesia's important key natural resources. This section briefly discusses the status of mangrove forests and coral reefs because they play a major role in maintaining fish stocks in Indonesia. In addition, since the quality of coral reefs and mangrove forests has declined significantly in the last 20 years due to human pressure and illegal activities, their condition needs comprehensive assessment.

a) Mangrove forests

The FAO states that Indonesia has the largest mangrove forest area in the world.⁹ However, detailed calculations of Indonesia's mangrove forest area vary. According to Martosubroto and Naamin's estimate in 1977, the total area of Indonesia's mangrove forest was 9,500,000 hectares,¹⁰ while the Ministry of Environment put the figure at 9,200,000 hectares.¹¹ However, several authors have estimated that the total area is only 3,743,500 hectares¹² while, according to Aizpuru *et al.*, it covers about 4,000,000 hectares.¹³

9 Wilkie, M.L. and Fortuna, S. (2003). Status and Trends in Mangrove Area Extent Worldwide. Forest Resources Assessment Working Paper 63. Rome: Forest Resources Development Service, Forest Resources Division, Forestry Department, Food and Agriculture Organization of the United Nations (FAO). This data also available online at http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/007/j1533e/J1533E46.htm (consulted: 11 April 2006). See also Wilkie, M.L., Fortuna, S. and Souksavat, O. (2002). FAO's Database on Mangrove Area Estimates. FAO Forest Resources Assessment Working Paper 62. Rome: Forest Resources Division, Forestry Department, Food and Agriculture Organization of the United Nations (FAO).

10 Martosubroto, P. and Naamin, N. (1977). 'Relationship between Tidal Forests (mangroves) and Commercial Shrimp Production in Indonesia'. *Marine Resources Indonesia* 18: 81-86.

11 Ministry of Environment of the Republic of Indonesia. (2005). Status Lingkungan Hidup Indonesia 2004 (State of Environment of Indonesia 2004: Chapter 4 Coastal and Marine (Pesisir dan Laut), Jakarta: Ministry of Environment.

12 FAO. (1995). Directorate General of Forest Inventory and Land Use Planning, Second Interim Forest Resources Statistics Indonesia. UTF/INS/066/INS.

13 Aizpuru, M., Achard, F. and Blasco, F. (2000). Global Assessment of Cover Change of the Mangrove Forests using satellite imagery at medium to high resolution. In: EEC Research project n 15017-1999-05 FIED ISP FR. Ispra: Joint Research Centre.

Apart from its significant size, the diversity of Indonesia's mangroves is the highest in the world.¹⁴ Indonesia has 75% of all mangrove species in South-east Asia and about 27% of the world's mangrove species. However, the quality of Indonesia's mangrove forest is cause for alarm. Due to land conversion, illegal clearing for aquaculture, and other purposes, the average loss of mangroves is about 200,000 hectares per year.¹⁵

Due to a lack of environmental awareness on the part of the government and the Indonesian people, and uncontrolled mangrove conversion, the latest data from the Department of Forestry states that 73% of Indonesia's mangrove forests are damaged. This means that only 2,648,309 hectares are in good condition. In order to mitigate further destruction, the Department of Forestry, in cooperation with provincial and district governments, international donors and non-governmental organizations (NGOs), has developed a programme called the National Rehabilitation of Mangrove Forests. This programme rehabilitated 29,526 hectares in 2005, and plans to rehabilitate 1,738,076 hectares in 2006-2010.¹⁶

b) Coral reefs

The Reefs at Risk in South-east Asia (RRSEA) Project study estimated that Indonesia has approximately 51,000 km² of coral reefs. This does not include sub-surface reefs or reefs in remote areas that have not been mapped. If this conservative estimate is accurate, 51 percent of the region's coral reefs and 18% of the world's coral reefs are found in Indonesian waters.¹⁷ Most of these reefs are fringing reefs, adjacent to the coastline and easily accessible to coastal communities.¹⁸

Unsustainable practices of the coastal communities, population growth, and land-based pollution have put additional pressure on Indonesia's coral reefs.

Apart from their sheer magnitude, Indonesia's coral reefs are also among the most biologically rich in the world, containing an extraordinary amount of plant and animal diversity. According to the current study, more than 480 species of hard coral have been recorded in the eastern part of Indonesia which is approximately 60% of the world's described hard coral species.¹⁹ In addition, eastern Indonesian reefs are home to more than 1,650 species of fish, which makes it the most diverse (coral) reef fish collection in the world. In fact, Indonesia's coral reefs (help to) support one of the largest marine fisheries in the world, generating 3.6 million tons of total marine fish production in 1997.²⁰ It is important to note that the exact extent of Indonesia's biological heritage is still unknown since many reefs in eastern Indonesia have yet to be studied.²¹

While Indonesia has the reputation of being the country with the richest coral reefs in the world, most of Indonesia's coral reefs are seriously threatened. Based on the report of the Ministry of Environment, only 5-6% of the coral reefs are in very good condition, while about 35% have been damaged.

The combined effects of destructive fishing practices and land-based activities contribute most to coral reef destruction. Destructive fishing practices (cyanide and blast fishing) occur throughout the archipelago and cause significant destruction of coral reefs in many islands. For instance, about 65% of coral reefs in the Maluku islands showed evidence of bomb

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- 14 Eighty-nine species of mangrove are found in Indonesia. Among them are *Rhizophora*, *Avicennia*, *Sonneratia*, *Bruguiera*, *Xylocarpus*, *Ceriops* and *Exoecaria*.
- 15 Dahuri, R. (2002). 'Integrasi Kebijakan Pengelolaan Sumberdaya Pesisir dan Pulau-Pulau Kecil (Integration of Resources Policy in Coastal and Small Islands Management)'. Paper presented at the National Seminar on Mangrove Ecosystem Management, Jakarta 6 August 2002. Rokhmin Dahuri is a Former Minister of Marine Affairs and Fisheries of Indonesia.
- 16 See Press Release of the Department of Forestry No: S.256/II/PIK-1/2005, 14 April 2005. Available at http://www.dephut.go.id/INFORMASI/HUMAS/2005/256_05.htm (consulted: 11 April 2006).
- 17 Reef area estimates for Southeast Asia are developed from coral reef maps developed under the Reefs at Risk in Southeast Asia project. Global totals for reef area come from United Nations Environment Programme-World Conservation Monitoring Centre (UNEP-WCMC). (1999). *Global Coral Reef Distribution*. Cambridge: UNEP-WCMC.
- 18 Dahuri, R. and Dutton, I.M. (2000). 'Integrated Coastal and Marine Management Enters a New Era in Indonesia'. *Integrated Coastal Zone Management* 1:11-16.
- 19 Suharsono and N. Purnomohadi. (2001). 'International Coral Reef Initiative Country Report: Indonesia', p.1. Paper presented at the Regional ICRI Workshop for East Asia, Cebu, Philippines, 2 April 2001.
- 20 Hopley, D. and Suharsono, (Eds). (2000). *The Status of Coral Reefs in Eastern Indonesia*, p.38. Townsville: Global Coral Reef Monitoring Network.

damage.²² Despite short-term profits, studies have shown that the economic costs of blast and poison fishing are remarkable.²³ The RRSEA estimates that the net economic loss from blast fishing in Indonesia over the next 20 years will exceed US\$ 570 million, while the economic loss from cyanide fishing is estimated to be US\$ 46 million annually.²⁴

In addition, land-based activities such as extensive deforestation have increased coastal sedimentation, smothering coral reefs. Similarly, pollution from industrial effluents, sewage and fertilizers has affected the diversity of the coral reefs. A study demonstrated that 30-50% of coral reefs at a depth of 3 m are less diverse compared to a pristine reef.²⁵

So far, the Indonesian government in collaboration with international donors and NGOs has developed several programmes to mitigate further destruction of their reefs. The Ministry of Marine Affairs and Fisheries (DKP) has initiated the Coral Reef Rehabilitation and Management Program (COREMAP) to strengthen the management of the country's coastal resources.

COREMAP is a 15-year project, divided into three phases: COREMAP I, II and III. The primary goal of COREMAP is to protect, rehabilitate and sustain the utilization of coral reefs and associated ecosystems in Indonesia. COREMAP I focused on the progressive accumulation of knowledge, skills and capacity for coral reef management at the central, provincial and local levels. The goal of COREMAP II is to accelerate the growth in capacity of the relevant government institutions to manage coral reefs, while the goal of COREMAP III is to hand over the management of coral reefs and their associated ecosystems to the local government and communities.²⁶

It is important to note that COREMAP is based on a combination of two development approaches, top-down and bottom-up, with the main focus on community-based management. The community focus mainly stems from experiences learned from failed top-down approaches of government projects without the participation of local communities. In contrast, the bottom-up approach considers coastal communities as primary stakeholders that participate from the very beginning of the programme, such as identifying the problems, needs, and potential solutions. In addition, COREMAP is based on four main component strategies: (i) community-based management (CBM), (ii) public communication (PC), (iii) monitoring control and surveillance (MCS), and (iv) coral reef research, information, and training centre (CRITC).²⁷

In order to maintain the continuation of the project, the DKP launched COREMAP II on 26 September 2004. Under this programme, the DKP has established Project Management and Implementation Units in seven provinces (North Sumatra, West Sumatra, Riau, South Sulawesi, Southeast Sulawesi, East Nusa Tenggara and Papua) in cooperation with the Indonesian Institute of Science, National Development Agency (BAPPENAS), Departments of Forestry and Home Affairs, Police Headquarter and the Military. The project in eastern Indonesia is funded by the ADB, while that in the western part of Indonesia is funded by the World Bank.²⁸

The Government of Indonesia also planned to establish 85 marine protected areas (MPAs) covering 10 million hectares by 1990. They were to be expanded up to 50 million hectares by the year 2000. However, the above targets were not fulfilled. By the year 2000,

21 Hopley and Suharsono, *supra*, note 20, pp.10-11.

22 Hopley and Suharsono, *supra*, note 20, p. 35.

23 Pet-Soede, L., Cesar, H. and Pet, J. (2000). 'Blasting Away: The Economics of Blast Fishing on Indonesian Coral Reefs'. In: Cesar, H. *Collected Essays on the Economics of Coral Reefs*, pp.77-84. Kalmar: CORDIO, Kalmar University; see also Cesar, H. (1996). *Economic Analysis of Indonesian Coral Reefs*. Working Paper Series 'Work in Progress'. Washington, DC: World Bank.

24 Hopley and Suharsono, *supra*, note 20, p. 42.

25 For more information, see Edinger, E.N., Jompa, J., Limmon, G.V., Widjatmoko, W. and Risk, M.J. (1998). 'Reef Degradation and Coral Biodiversity in Indonesia: Effects of Land-based Pollution, Destructive Fishing Practices and Changes over Time'. *Marine Pollution Bulletin* 36(8): 617-630.

26 Indonesia COREMAP Program, available online at http://www.unescap.org/DRPAD/VC/conference/ex_id_14_icp.htm (consulted: 12 April 2006).

27 Deny, Hidayati (2003). *Coral Reef Rehabilitation and Management Program in Indonesia*, pp.304 and 310. Proceedings of the 3rd International Surfing Reef Symposium, Raglan, New Zealand.

28 COREMAP II. (2004). *Healthy Coral Reefs – Abundance of Fish*. Jakarta: DKP. Available online in Bahasa Indonesia at <http://www.dkp.go.id/content.php?c=1534> (consulted: 12 April 2006).

the Indonesian government had only established 51 MPAs, covering only about 6.2 million hectares.²⁹

Since COREMAP is the first integrated national programme to save Indonesia's coral reefs, it has not been fully successful. However, this programme has

increased public awareness that coral reefs sustain the life of the sea and the livelihood of many Indonesians who live in coastal areas. It is also important to acknowledge the role of local NGOs because they have been successful in protecting certain important coral reefs in their areas.

3. The state of relevant fisheries resources

Indonesia has one of the richest fisheries in the world.

Eastern Indonesia (all the islands of the archipelago except Sumatra, Java and Bali and their surrounding islands) has more fish resources than western Indonesia due to the diversity of its ecosystems and lower population pressure. Based on the report of the Indonesian Institute of Science (LIPI), the total sustainable potential catch of fish above 200 m depth is around 6.7 million tonnes per year. Assuming an

80.2% Total Allowable Catch (TAC), the total amount of annual catchable fish is 5.4 million tonnes.³⁰ With such a rich resource, Indonesia is the fourth largest fish producer after China, Peru and the USA, with 4.5 million tonnes per year.³¹ This number is lower than the (formal) data produced by the DKP.

The Indonesian government reported fish catch (excluding shrimp) production in 1999-2003 as follows:

Table 2. Fish catch production 1999-2003 (in tonnes)

Name of province	1999	2000	2001	2002	2003	Average increase (%)
Indonesia total	4,010,071	4,125,525	4,276,720	4,378,495	4,691,796	4.02
SUMATRA	1,207,637	1,275,952	1,332,159	1,330,905	1,429,428	4.34
Nanggroe Aceh Darussalam	112,615	91,243	103,753	93,259	135,040	7.35
North Sumatera	321,419	344,513	348,364	356,838	352,677	2.39
West Sumatera	99,158	102,684	108,188	90,006	105,973	2.46
Riau	275,982	299,576	315,286	322,881	328,043	4.45
Jambi	43,242	46,964	50,181	50,705	54,200	5.85
South Sumatera	190,872	202,457	87,961	91,992	119,064	-4.12
Bangka Belitung	-	-	127,866	136,526	143,897	6.09
Bengkulu	28,504	27,892	29,357	29,473	30,996	2.17
Lampung	135,845	160,623	161,203	159,225	159,538	4.39
JAVA	873,406	866,363	972,375	1,046,541	1,014,839	4.01
Banten	-	-	108,905	65,787	53,321	-29.27
DKI Jakarta	94,723	105,179	107,136	106,668	120,827	6.43
West Java	188,986	179,089	147,042	157,6	154,943	-4.41
Central Java	279,794	265,294	294,345	301,84	250,569	-2.17
D.I. Yogyakarta	2,693	2,640	2,214	2,772	2,903	2.96
East Java	307,210	314,161	312,733	411,874	432,276	9.62
BALI - NUSATENGGA	216,925	226,788	234,173	249,679	267,613	5.40

continued on next page

29 Reefs at Risk in Southeast Asia. 'Scientists call for better management of Indonesia's coral reefs'. News release, available at http://newsroom.wri.org/newsrelease_text.cfm?NewsReleaseID=11 (consulted: 13 April 2006).

30 This data can be viewed at the website of 'Indonesia Country Gateway' at http://www.indonesia-gateway.web.id/content.php?id=eco&sid=natural_resources&pid=marine_fishery (consulted: 12 April 2006).

31 FAO. (2004). State of the World Fisheries and Aquaculture (SOFIA) 2004, Part 1, Figure 5. Rome: FAO Fisheries Department. This data includes inland captured fish.

Table 2. Fish catch production 1999-2003 (in tonnes) (continued)

Name of province	1999	2000	2001	2002	2003	Average increase (%)
Bali	51,691	56,779	60,046	82,306	95,823	17.27
West Nusa Tenggara	85,186	88,144	89,709	81,499	83,926	-0.23
East Nusa Tenggara	80,048	81,865	84,418	85,874	87,864	2.36
KALIMANTAN	431,426	422,538	438,325	443,299	431,656	0.05
West Kalimantan	73,185	73,232	77,577	78,009	75,532	0.84
Central Kalimantan	87,659	89,439	91,565	92,447	74,536	-3.50
South Kalimantan	156,508	157,044	158,043	161,925	165,661	1.44
East Kalimantan	114,074	102,823	111,140	110,918	115,927	0.64
SULAWESI	737,445	766,747	786,128	827,217	849,966	3.62
North Sulawesi	184,762	190,785	186,112	197,326	183,488	-0.04
Gorontalo	-	-	23,381	32,981	34,038	22.13
Central Sulawesi	87,918	92,748	79,786	65,866	65,687	-6.55
South Sulawesi	303,625	335,140	332,783	359,300	376,811	5.63
South-east Sulawesi	161,140	148,074	164,066	171,744	189,942	4.49
MALUKU - IRIAN JAYA	543,232	567,137	513,560	480,854	698,294	8.45
Maluku	361,224	361,225	217,642	171,536	373,777	14.24
North Maluku	-	-	83,787	91,342	77,832	-2.89
Papua	182,008	205,912	212,131	217,976	246,685	8.02

Source: Department of Marine Affairs and Fisheries.

This data is available online at [http://www.dkp.go.id/files/Lampiran_Data_Statistik_Th\[1\]_1999-2003.xls](http://www.dkp.go.id/files/Lampiran_Data_Statistik_Th[1]_1999-2003.xls) (consulted: 12 April 2006).

The above data shows that the total amount of annual catch is still under the TAC of 5.4 million tonnes per year.

Even though the annual catch is still below the TAC, certain areas of Indonesia's water, especially in the coastal areas of Java, Bali and Sumatra, have been heavily exploited. The coastal zone of Java, for instance, has been severely affected by overfishing since the early 1990s.³² Similarly, Spalding states, 'if fishing is not reduced to more sustainable levels, both coral reefs and food security will be further imperilled'.³³ The ICRAN

also reported that overfishing and blast fishing are estimated to result in a net loss of over US\$ 1.3 billion in the next twenty years.³⁴

Another study in 2002 estimated that due to overfishing, the economic value of fish resources at the northern coastline of Java has depreciated to about US\$ 200,000 per year. Similar conditions exist on the coastlines around the Malacca strait, Makassar and Bali.³⁵ In short, fishing activities in these areas have exceeded the maximum sustainable yield agreed by the government.³⁶

32 Wilkinson, C.R., Chou, L.M., Gomez, E., Mohammed, I., Soekarno, S. and Sudara, S. (1994). 'Status of Coral Reefs in Southeast Asia: Threats and Responses'. In: Ginsburg, R.N. (Comp.) *Global Aspects of Coral Reefs: Health, Hazards, and History*. Miami, FL: University of Miami.

33 Mark Spalding is a co-author of the report and an organizer of the International Coral Reef Action Network (ICRAN), a global partnership aimed at halting and reversing the decline of the world's coral reefs. His comment can be seen at the World Resources Institute website at http://newsroom.wri.org/newsrelease_text.cfm?NewsReleaseID=11 (consulted: 13 April 2006).

34 International Coral Reef Action Network (ICRAN). 'People and Reefs: A Partnership for Prosperity'. Leaflet, at http://www.icran.org/doc/icran_wssd_eng.pdf (consulted 13 April 2006).

35 Fauzi, Akhmad and Anna, Suzy. (2005). *Pemodelan Sumber Daya Perikanan dan Kelautan untuk Analisis Kebijakan (Fisheries and Marine Resources Modelling for Policy Analysis)*, pp.166-169. Jakarta: Gramedia.

36 Fauzi, Akhmad. (2005). *Kebijakan Perikanan dan Kelautan: Isu, Sintesis, dan Gagasan (Fisheries and Marine Policy: Issue, Synthesis and Idea)*, p.32. Jakarta: Gramedia.

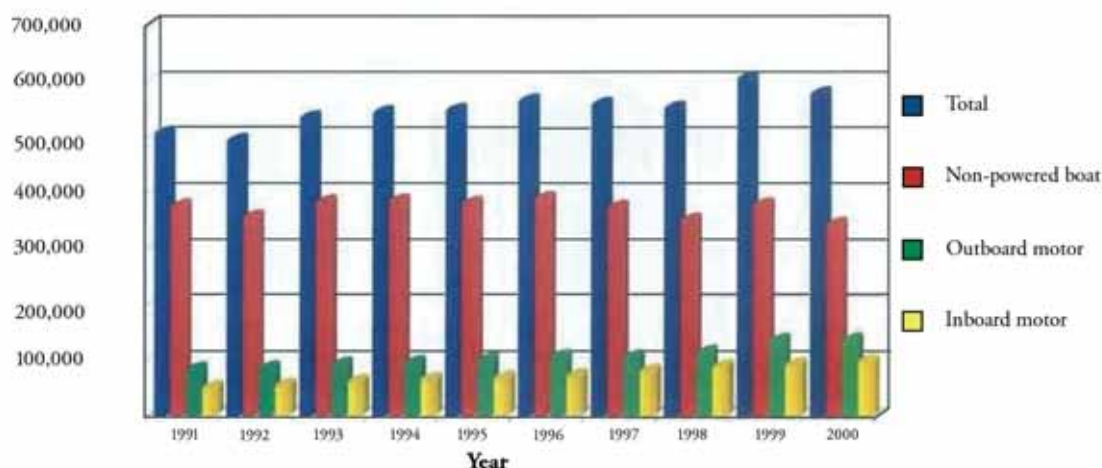
The rapid decline of fish resources on the coastline partially relates to the fact that the people who live and settle in the coastal areas are among the poorest in the country with a per capita income of US\$ 5 to US\$ 7 per month. This income level is clearly below the poverty threshold determined by the government, which is about US\$ 10 *per capita* per month.³⁷

In contrast, due to the limited capacity of Indonesia's fishing fleets, the EEZ is under-exploited by Indonesian fishers. In fact, Indonesia's EEZ has turned into a playground for illegal foreign fishing fleets. These foreign fleets are categorized as illegal because they enter the Indonesian EEZ without authorization from the Indonesian government. Since they lack authorization the exact numbers of illegal foreign fleets are unknown. However, most observers agree that illegal foreign fleets have created a significant economic loss.³⁸

The Indonesian government has encouraged domestic and foreign investors in the fishing industry to operate in the EEZ, but most Indonesian fishing fleets have very limited capacity to operate in this zone. So far the DKP has granted 7,000 fishing licences, but 70% of these are granted to foreign fishing operators.³⁹ The number of licences issued to nationals or foreigners is considered low compared to the total size of Indonesia's EEZ. Therefore, many observers believe that the EEZ is still under-exploited, even though the Indonesian authorities find it difficult to control the whole area.

In order to fully understand the capacity of Indonesia's fishing fleet, the DKP provides the following chart.

Figure 2. Number of fishing fleets according to category, 1991-2000



Source: Department of Marine Affairs and Fisheries at <http://www.dkp.go.id/index.php> (consulted: 12 April 2006).

Another report made by JICA in 2005 concluded that more than half of the Indonesian fleet is made up of non-powered boats. However, the number of non-powered boats is steadily decreasing as more fishers acquire small outboard and inboard motors. For

example, in 1999, there were 241,517 non-powered boats (53%) and by 2002 this number had dropped to 219,079 (47.6%). On the other hand, the number of outboard motors increased from 57,768 in 1999 to 74,292 in 2002.⁴⁰

37 Fauzi and Anna, *supra*, note 35, p.96.

38 Fauzi, *supra*, note 36, p.133.

39 *Ibid.*

40 Japan International Cooperation Agency (JICA). (2005). A Study of the Current Indonesian Fisheries Scheme under Decentralization: Final Report. Prepared by PT Pacific Consulindo International Indonesia.

These figures not only demonstrate the capacity of Indonesian fishers to fish in the deep sea, but also reflect the actual economic capability of most Indonesian fishers. However, as long as about half of Indonesia's fishing fleet is not powered by motor, the total value of fish catch remains relatively low compared to actual fish resources.

In environmental terms, the above situation may be good for the preservation of the EEZ resources, but

4. Multiple demands on the coastal zone

Since most coastal areas around the major islands of Indonesia serve multiple functions and purposes, such as: fishing villages, traditional and modern ports, trade centres, industrial estates, housing complexes and tourist attractions, they are usually overpopulated. As a result, the level of interest and demands on coastal zones is high, especially in urban areas.

One of the most obvious pressures on coastal zone in urban areas are waterfront cities that encroach on coastal zones for building new housing complexes, business centres, or tourist attraction facilities. These activities usually occur in urban centres where the demand for new space and facilities is high. The Governor of Jakarta, for instance, has designated the coastal zone of North Jakarta to be a new waterfront city. This Rp 20 trillion (US\$ 2 billion) project will reclaim a total area of 2,700 hectares and 32 km of the coastline of North Jakarta. This project was opposed by the Ministry of Resettlement and Regional Infrastructure and the Ministry of Environment because, according to their study, it will create a more acute flooding risk and significantly change the ecosystems of Jakarta's coastline. The assessment also found that the planned reclamation project would enhance marine pollution in the Thousand Islands (*Kepulauan Seribu*) district, damage marine ecosystems, and cause thousands of fishers to lose their livelihoods.⁴¹

Apart from the potential environmental calamities posed by the project, the direct victims are the fishing communities. Although the government has promised

at the same time it puts additional pressure on coastal areas. Since the EEZ is underexploited, the Indonesian government should develop and enable fisher fleets to operate in the EEZ. It is believed that the improvement of Indonesia's fishing fleet will not only create new jobs and revenue, but will also reduce the overexploitation of the coastal zone and internal waters.

to provide jobs for the people affected by the project, the government has no intention of preserving the North Jakarta coastline as it currently is. In fact, the Governor wants to change the unattractive face of Jakarta into a waterfront city like Singapore.

A similar project was introduced in Manado (North Sulawesi) by reclaiming about 10 km of Manado bay into a trade centre and tourist attraction. That particular project destroyed all mangrove forest on the bay and exposed the Bunaken Marine Park to direct land-based pollution. In addition, this project also affected the livelihoods of the traditional fishers around the bay because they had to move away from their villages or change their jobs.⁴²

In addition, Makassar (the biggest city in Eastern Indonesia) has taken over the Tanjung Bunga beach and changed it into a housing and trade complex. This complex not only changed the structure of the coastline and created environmental damage, it also affected the traditional fishers who had lived in that area for many years.⁴³ The same thing has happened in other big cities, such as: Semarang in Central Java, Medan in North Sumatra, Samarinda in South Kalimantan, and others.

The industrial sector also wants access to coastal areas because of the many advantages for their industrial operations. Most heavy industries in Java and other major islands are located in coastal areas or close to river systems. The obvious advantages of a coastal zone are its close proximity to water resources and to the

41 Aurora, L. (2003). 'Jakarta Coastal Reclamation may Cause More Floods'. The Jakarta Post, 20 November.

42 'Teluk Manado jadi Bak Sampah (Manado Bay becomes a Garbage Bin)'. KOMPAS Daily, 2 May 2001.

43 'Makassar Menuju Kota Metropolitan? (Is Makassar Becoming a Metropolitan City?)'. KOMPAS Daily, 17 March 2003.

main port of the island. This situation can be observed in many big cities, such as: Medan, Padang, Palembang, Pekanbaru and Lampung in Sumatra; Batam in Riau islands; Jakarta, Semarang and Surabaya in Java; Makassar and Manado in Sulawesi; and some other big cities in Kalimantan, Maluku and Papua.

The establishment of industry in coastal areas also has a direct impact on fisher communities, because these industries 'force' traditional fishers to relocate outside these areas. In addition, they also create serious environmental damage to the coastal environment because most of them have inadequate waste treatment systems. As a result, many traditional fishers have changed their jobs and become workers in these industries.

Another sector that has a significant impact on coastal areas is tourism, especially marine tourism (*wisata bahari*). Being one of the main tourist attractions in Indonesia, marine tourism offers a lot of activities that include diving, snorkelling, traditional cruises, whale and dolphin watching, wave and wind surfing, and other general beach activities. The environmental impact of tourism on marine ecosystems is less compared to land encroachment and industry, but it also affects traditional fishing communities.

Most tourist operators in Indonesia, especially in Bali, Lombok, Sulawesi and Sumatra try to protect coastal ecosystems by asking the government to ban traditional fishing around tourist destinations.⁴⁴ In some cases, local fishers have been forced to move away from tourist areas because their fishing grounds have been designated as tourist attractions. As a result, some fishers have abandoned fishing altogether and now work for tourist operators. However, since most fishers are less educated or uneducated they cannot compete with more educated people or are simply not qualified to work in the tourism industry.

The last significant demand on the coastal zone comes from the shrimp industry. As explained above, one of the main causes of mangrove forest destruction is the extensive operation of shrimp farming. Shrimp is the highest agricultural export product, generating US\$ 824 million in 2004. However, the environmental cost of shrimp farming has never been included in government statistics. Shrimp farms covered about 170,000 hectares and produced about 677,800 tonnes in 2003. According to the government, shrimp farms will expand to 860,000 hectares. If such programme continues, it will convert about 25% of Indonesia's mangrove forests.⁴⁵

In the past, traditional shrimp ponds were individually or communally owned by the coastal people. However, with the introduction of intensive modern shrimp farming in 1984, several big companies have significantly controlled shrimp farming through the *Tambak Inti Rakyat* programme (Nucleus Estate Smallholders Scheme – NESS). Based on this scheme, the big company provides financial and technical assistance to traditional shrimp farmers, but the farmers have to sell their products to the company until their 'loan' is paid off. This scheme has created problems in some places since it was accused of creating a debt trap for traditional fish farmers.⁴⁶

The main shrimp farm operators using the NESS model are PT. Central Pertiwi Bratasena (PT. CBP), PT. Dipasena Citra Darmaja (PT. DCD), and PT Wahyuni Mandira (PT.WM). PT.CPB alone, which is 30%-owned by the shrimp multinational Charoen Pokphand from Thailand, owns an area of 10,500 hectares in South Sumatra and Lampung and plans to expand by a further 15,000 hectares in the same location. These companies dominate Indonesian shrimp exports.⁴⁷

44 For an example of the efforts of tourism operators to protect the marine environment, see Erdmann, M.V. (2001). 'Saving Bunaken: Involved locals are saving one of the world's most beautiful marine parks'. Inside Indonesia 65, at <http://www.insideindonesia.org/content/view/493/29/> (consulted: 2 February 2009).

45 Siregar, P. Raja. (2001). 'Indonesia: Mounting Tension over Industrial Shrimp Farming'. World Rainforest Movement (WRM) Bulletin 51. Shrimp Business Destroys Mangroves and Livelihoods, Down to Earth Newsletter, No 58, August 2003. Available at <http://dte.gn.apc.org/51srp.htm>. (consulted: 18/04/06).

47 Siregar, supra, note 45.

It is also important to note that Indonesia is among the top three shrimp exporting countries in the world. Most of Indonesia's shrimp products are exported to Japan, Hong Kong, Singapore, Malaysia and USA. The Indonesian government also plans to increase current production to fulfil the new emerging market for Indonesia's shrimp in the European Union (EU). According to Eurostat statistics 1996-2000, the EU

imported 2,879 metric tonnes of frozen shrimp from Indonesia in 1996; this had increased to 11,734 metric tonnes in the year 2000. The average increase of EU frozen shrimp imports from Indonesia is about 44.6% per year. Indonesia is the fifth biggest frozen shrimp supplier, capturing 4.88% of the EU market.⁴⁸ The following table shows the trend of EU imports of Indonesian frozen shrimp.

Table 3. Trend of EU imports of frozen shrimp from Indonesia

Year	Import value (€ 000)	Change (%)	Volume (million ton)	Change (%)	Price (value/volume)
1996	25,030	–	2,879	–	8,690
1997	48,145	92,35	4,799	66,69	10,03
1998	83,143	72,69	8,323	73,43	9,99
1999	85,699	3,07	9,856	18,42	8,70
2000	118,699	38,51	11,734	19,05	10,12

Source: The Department of Marine Affairs and Fisheries of Indonesia. Available online at <http://www.dkp.go.id/index.php> (consulted: 18 April 2006).

Since 1992, shrimp production in Indonesia has been affected by virus outbreaks, especially in Java and South Sulawesi, and shrimp investors are looking for new places to exploit. Many academic and NGO studies have pointed out that uncontrolled shrimp farming has become one of the major threats to mangrove forests. Shrimp farming also causes coastal erosion, sedimentation and water pollution, thereby affecting coral reefs, seagrass beds and the productivity of coastal waters. Rehabilitation of abandoned ponds due to soil acidification is too costly for local people and government units.

5. Perception of basic fisheries issues

An overview of basic fisheries issues should be addressed from the perspective of government officials and business actors on the one hand, and the traditional fishers on the other. The government as well as people in the fishing industry are aware that the current state

The above illustration provides a general picture of the conflicts of interest and demands of many stakeholders in coastal zones. To avoid such overlapping claims and demands, the government has initiated integrated approaches through relevant ministries and local governments, such as COREMAP. But they are in the early stages and still require much work to be fully implemented.

of Indonesia's fishing industry needs to be improved. However, the serious political debate on the importance of fisheries issues only started seven years ago due to multi-layered problems of fisheries management and more than 40 years of mismanagement.

48 Department of Marine Affairs and Fisheries of Indonesia. (2005). *Kajian Pasar Produk Udang Beku di Uni Eropa (Market Analysis of Frozen Shrimp in the EU Market)*. Jakarta: Department of Marine Affairs and Fisheries of Indonesia. Available online at <http://www.dkp.go.id/index.php> (consulted: 18 April 2006).

Until today, some government agencies outside the DKP still think that fisheries issues are not relevant to them and should be left to the DKP. As a result of this mistaken perception, some government policies in fisheries management are isolated from mainstream economic reforms. The situation is made worse by institutional arrogance within government agencies because the DKP is considered to be a newcomer with less experience than other well established government departments such as agriculture, trade, industry and forestry. In addition, some messages from the DKP are not properly disseminated throughout the country since the DKP still does not have enough offices at the provincial and district levels.

Since most initiatives in fishing-related industries require the involvement of other governmental agencies, such as the Departments of Agriculture, Industry, Trade, Finance and other ministries, the DKP has to create healthy relationships with these agencies. Otherwise all programmes initiated by the DKP to improve the quality of fisheries management will not be well received. Furthermore, certain basic fisheries issues, such as illegally operating foreign fleets and use of illegal fishing methods are left to the water police and the navy since they are not directly within the competence of the DKP.

Considering that these government agencies have different levels of understanding of fisheries management and the preservation of the marine environment, these basic issues are not well addressed by the government in general. As a result, the public has very little awareness of fisheries issues. The problem of overfishing, for instance, is neither a main topic of public political debate nor has it been widely published in the national and local media. Overfishing is only addressed by a small number of NGOs who concentrate on marine issues.

In fact, due to illegal and unregulated fishing, overfishing has become one of the main problems of Indonesia's fisheries sector. As mentioned previously, most coastal zones of Indonesia especially in Java, Sumatra and Sulawesi have reached an alarming level of overfishing. However, since overfishing is considered an 'abstract concept' by many people, including the government itself, this issue has not been fully explored and systematically discussed by the government. This perception is illustrated by provincial government brochures on foreign investment opportunities in marine and fishing industries. For instance, the *Business Profile on Marine and Fisheries Investment Opportunities in West Java* claims that fish resources in West Java have not been fully explored and exploited.⁴⁹ In fact, many studies suggest that the Java Sea has been overfished, especially in the territorial sea.⁵⁰

Similarly, although the government and many people who are involved in fishing-related industries are aware of the urgency of improving the quantity and quality of the fishing industry, their concerns have never entered public political debate. This situation reflects the attitude of the past and current government that considers the marine and fisheries sector as a 'complementary' programme. To date, most government development programmes have concentrated on agriculture, forestry, mining and industry. The idea of reorienting national development towards marine resources is still in its infancy and requires serious efforts if it is to materialize.⁵¹

The only basic fisheries issue that attracts the attention of government officials and traditional fishers is illegal fishing conducted by foreign fishing fleets. Due to the enormous size of Indonesia's marine areas and a lack of monitoring, it is difficult for the government (navy and police) to safeguard all Indonesian waters. Illegal foreign fishing fleets,

49 See DKP and Fisheries Department of West Java Province. (2003). 'Profil Peluang Investasi dan Perikanan di Provinsi Jawa Barat'. Brochure. Jakarta: DKP and Fisheries Department of West Java Province. See also brochures from other provinces such as Bengkulu, Bali, East Kalimantan etc. published in 2003.

50 Squires, D., Omar, I., Jeon, Y., Kirkley, J., Kuperan, K. and Susliowati, I. (2003). 'Excess capacity and sustainable development in Java Sea fisheries'. *Environment and Development Economics* 8(1): 105-127. See also Stobutzki, I.C. and Hall, S.J. (2005). 'Rebuilding Coastal Fisheries Livelihoods after the Tsunami: Key Lessons from Past Experience'. *NAGA-WorldFish Center Newsletter* 28(1 & 2).

51 See Dahuri, R. (2003). 'Reorientasi Pembangunan Berbasis Kelautan (Reorientation of Marine Basis Development)'. Interview 29 December 2003. Available at <http://www.tokohindonesia.com/ensiklopedi/r/rokhmin-dahuri/wawancara.shtml> (consulted: 2 February 2008). Rokhmin Dahuri is former Minister of the DKP.

especially from the Philippines, Thailand, China, Japan and South Korea, even operate within Indonesia's internal waters. This situation has raised a public outcry from traditional fishers and politicians, saying that foreign fleets have invaded Indonesia.

Dr Rokhmin Dahuri (the former Minister of the DKP) said in a press conference in October 2002 that Indonesia loses about US\$ 2 million worth of fish every year from illegal fishing. Those illegal foreign fleets are usually more sophisticated than the average Indonesian fishing fleet, because they are equipped with modern technologies, such as GPS, freezers and modern fishing gear.⁵² Furthermore, those illegal fleets also use illegal equipment such as trawl nets, drift nets, and massive long lines to exploit pelagic and demersal fishes throughout the archipelago.⁵³

In the past, illegal fishing was never targeted systematically because the navy and police had very limited resources. It is also important to underline that it is only recently that the navy and the police have increased their patrols. In the past they have notoriously been known to collaborate with illegal foreign fleets. It is an open secret in Indonesia that illegal foreign fleets can easily roam Indonesian waters, if they can establish 'good connections' within the navy.⁵⁴

In order to cut down on illegal fishing, the DKP, police, navy and air force established a programme in 2002 called the Integrated Operation (*Operasi Terpadu*). Table 4, based on the DKP report of 2005, shows the number of foreign illegal fishing fleets captured, as a result of this operation.

Table 4. Number of illegal foreign fleets captured by the Integrated Operation⁵⁵

Year	Number of fleets	Value (Rp)
2002	198	N/A
2003	144	1,056,000,000,000
2004	68	290,500,000,000
2005 (Jan–Sep)	268	501,000,000,000
Total	678	1,847,500,000,000

Note: US\$ 1 is equal to Rp. 9,200.

These numbers, however, are only a small proportion of the illegal fishing fleets operating within Indonesian waters because most illegal fishing fleets remain undetected by the authorities in the Indonesian EEZ.

Another effort made by the DKP to track the movements of legal foreign and domestic fishing fleets is to oblige every owner of a fishing fleet to install a vessel *monitoring system* (VMS). However, this programme has not been fully implemented because according to the DKP report, only 1,339 of the 3,055 fishing fleets have installed the VMS. The DKP also discovered that even those who have installed such

equipment may still turn the system off while they are out fishing.⁵⁶ As a result, there are still many undetected illegal fishing operations in Indonesia.

As mentioned above, the perceptions of traditional fishers should be differentiated from the perspective of the government and people in the fisheries industry. This distinction is essential, because the percentage of traditional fishers is much higher than modern fishers. Considering that the average level of education amongst fishers is low and they are among the poorest in the society, their perceptions are bound to differ from those in the government or modern fishers.

52 Fegan, B. (2003). 'Plundering the Sea: Regulating trawling companies is difficult when the navy is in business with them'. Inside Indonesia 73, at <http://www.insideindonesia.org/content/view/339/29/> (consulted: 2 February 2009).

53 Erdmann, M.V. (2003). 'Leave Indonesia's Fisheries to Indonesians! Corrupt foreign fishing fleets are depriving locals of food'. Inside Indonesia 63, at <http://www.insideindonesia.org/content/view/547/29/> (consulted: 2 February 2009).

54 Anucha, Charoenpo. 'Something Fishy in Sumatra'. Southeast Asia Press Alliance (SEAPA). Available online at <http://www.seapabkk.org/newdesign/fellowshipsdetail.php?No=53> (consulted: 5 February 2008).

55 This table is based on the DKP article 'Menyimak Kinerja Pengawasan dan Penertiban IUU Fishing' (Understanding the Performance of Control and Enforcement of IUU Fishing) (21/12/05), at <http://www.dkp.go.id/content.php?c=2366> (consulted: 2 February 2008).

56 Erdmann, supra, note 53.

Table 5. Level of education amongst traditional fishers

No.	Level of education	Percentage
1	Finished university or academy	0,03
2	Finished High School	1,37
3	Finished Junior High School	1,90
4	Finished Elementary School	17,59
5	Not finished Elementary School	79,05

Source: Statistics Agency of Indonesia (BPS) based on 1990 data.⁵⁷
Quoted from the DKP website at <http://www.dkp.go.id/index.php> (consulted: 2 February 2008).

With the levels of education shown in Table 5, most traditional fishers are rarely involved in any decision-making processes. Most of the time, they just accept their unfortunate condition because they do not have the power and means to influence government policies. As a result, basic fisheries issues, especially fisheries policy and overfishing, are beyond their comprehension.

To them, fishing is a matter of survival and not a career. Therefore, they will engage in every possible activity in order to protect their survival, including illegal fishing methods, such as using explosives or poison. A debate on overfishing and coherent fishing policy is beyond their main concern because they are aware that they have very little power to influence or improve fishing policy or to support recovery from overfishing. Therefore, the government must take the initiative in reforming the fishing industry.

Traditional fishers perceive the presence of illegal foreign fleets in Indonesian waters as a real threat to their survival. There were some occasions where local fishers were involved in direct confrontation with illegal fishing fleets from Thailand,⁵⁸ China, Viet Nam and

the Philippines, because they were fishing in Indonesian internal waters.⁵⁹

The main concern of traditional fishers is to have a secure livelihood. Traditional fishers have big hopes that the current government will initiate a programme which will free them from the vicious circle of poverty. For example, most traditional fishers wish to own a modest outboard-motor boat (*motor tempel*) that enables them to fish in deep waters. They also expect the government to provide uncomplicated micro-loan conditions from local banks, subsidized fuel prices, a stable market, and support for facilities such as ice factories close to fishing villages. These are the issues that occupy the minds of traditional fishers.

The government is aware that they need to have coherent and comprehensive fisheries policies in order to accommodate the above expectations. However, it is still struggling to find its way due to the multiple problems in fisheries management at the national, provincial and local levels plus the acute sectoral rivalry between government agencies. This issue will be discussed in greater detail in the next section.

57 In 2003, the Minister of the DKP Dr. Rokhmin Dahuri stated that the current average educational levels within this community were only slightly improved: 70% had not finished Elementary School, 19.59% had finished Elementary School, and still only 0.03% had gone on to tertiary education. See the interview at <http://www.tokohindonesia.com/ensiklopedi/r/rokhmin-dahuri/wawancara.shtml> (consulted: 3 February 2008).

58 Anucha, Charoenpo. 'Illegal Thai Fishing Robbed Indonesia off Billions of Catches and Cash'. Southeast Asia Press Alliance (SEAPA). Available online at <http://www.seapabkk.org/fellowships/2002/anucha.html> (consulted: 5 February 2008).

59 Erdmann, supra, note 53 and Anucha, supra, note 58.

II. The legal regime governing fisheries

This chapter presents the general legislation on fisheries, with a focus on coastal fisheries. It starts with a brief history of fisheries management in Indonesia influenced by the reorganization of competences between central and decentralized governments. It

1. The evolution of fisheries governance

The history of fisheries governance in Indonesia can be divided into two periods: before and after the *1999 Local Autonomy Law*. These two periods represent two different approaches to fisheries governance in Indonesia because the *Autonomy Law* brought radical changes to natural resource management including fisheries.

a) Before the 1999 Local Autonomy Law

Before 1999, the central government paid very little attention to the development of the marine and fisheries sectors. The first government attempt to develop the marine and fisheries sectors was in 1984 with its Five-Year Development Programme (*Rencana Pembangunan Lima Tahun – REPELITA IV*). It was not until 1994, in REPELITA VI, that the central government considered the marine sector as a separate sector. Prior to 1994, the marine and fisheries sectors were regulated and managed by various governmental departments with the Directorate General of Fisheries of the Department of Agriculture being the main government agency responsible. However, other departments such as the Department of Forestry, Department of Trade, Department of Home Affairs and the State Ministry of Cooperation were also involved.

During that period, provincial and district governments had a very limited role in fisheries management. All important policies and decisions were made in Jakarta. Provincial and district governments only implemented central government policies through fisheries agencies in their respective jurisdictions. As a result, provincial and district governments did not accumulate much knowledge and experience in managing the marine and fisheries sectors in their jurisdiction.

proceeds with an analysis of the institutional structure of fisheries governance, instruments of fisheries management, means of promoting fisheries, and international agreements related to fisheries in Indonesia.

The old policy also created an unwillingness amongst sectoral government agencies to transfer their powers to the DKP. Fisheries governance in Indonesia is still in its consolidation phase from the old management style to the new. Since the old management model needs to be changed, this section only discusses the current governance model.

b) After the 1999 Local Autonomy Law

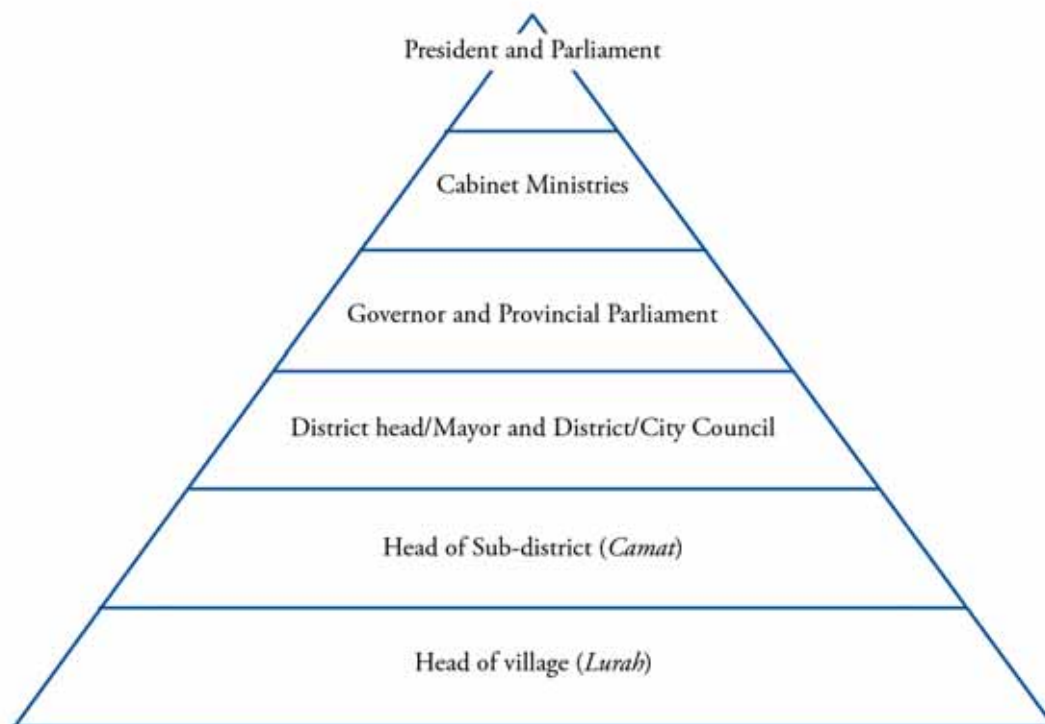
The new era of fisheries governance in Indonesia started soon after the fall of the Suharto administration in 1998. That period was known as the beginning of *Era Reformasi* (Reform Era). The *Era Reformasi* brought new hope and demands from the society, such as a regime change, democratization, and regional autonomy.

One of the main contributions of *Era Reformasi* is the promulgation of the *Undang-Undang No. 22/1999 tentang Pemerintahan Daerah* (Law No. 22/1999 on Local Government), widely known as the *Autonomy Law*. It was followed by the enactment of *Undang-Undang No. 25/1999 tentang Perimbangan Keuangan Pusat dan Daerah* (Law No 25/1999 on Financial Balance between Central and Local Government or 1999 Financial Balance Law). These two acts not only granted wider powers to local governments, but also changed the main structure of the Indonesian government system, especially in the relationship between central and local government. These two acts also brought a new dimension to fisheries governance in Indonesia. The impact of these two acts on fisheries management will be discussed in more detail later in this section.

Since fisheries governance cannot be separated from the general governance of Indonesia, this section also discusses Indonesia's main governmental structure. As a unitary state, Indonesia's governmental system has five levels:⁶⁰ (i) *Pemerintah Pusat* (Central Government), (ii) *Pemerintah Provinsi* (Provincial Government), (iii) *Pemerintah Kabupaten* (District Government), (iv) *Pemerintah Kecamatan* (Sub-district Government), and (v) *Desa* (Village).

The Constitution states that the power to make laws at the level of the central government belongs to the Parliament and the President,⁶¹ while at the provincial level it belongs to the provincial parliament and the governor.⁶² At the district level, the District Council and the District head/mayor (*Bupati/Walikota*) have the power to make law in their jurisdiction. The full structure of the Indonesian government is illustrated below.

Figure 3. The structure of the Indonesian Government



Note: (i) Cabinet ministries are divided into: three coordinating ministries, 20 Departments and 10 State Ministries; (ii) at the moment, Indonesia has 33 provinces, (iii) 380 districts/municipalities.

Before 1999, the regions (provinces and districts) had very limited powers to regulate natural resources within their jurisdictions. Even the model or format of provincial and district regulations (*peraturan daerah*) had to be determined by the Minister of Home

Affairs.⁶³ The power of provincial parliaments and district councils was limited to determining provincial and local budgets⁶⁴ and enacting regulations of national legislation. This old policy also influenced the style of marine and fisheries governance.

60 Article 18 of the Constitution. Sub-district and Village levels of government are not mentioned in the Constitution, but they exist as representatives of the Head of District Government at sub-district and village levels.

61 Ibid., Articles 5 and 20.

62 Ibid., Article 22(D)(1).

63 Article 44 (1) of the UU No. 5/1974 tentang Pokok-Pokok Pemerintahan Daerah (Law No. 5/1974 concerning Local Government). National Gazette (1999) No. 3037.

64 Ibid., Article 29(1).

When the *1999 Autonomy Law* was enacted, the relationship between the central and local governments changed radically. Article 7(1) of the *1999 Autonomy Law* provides that the power of the district government covers every governance field except for: (i) foreign affairs, (ii) defence and security, (iii) justice, (iv) finance, and (v) religion. Similarly, the *1999 Financial Balance Law* introduced a new radical formula for the distribution of revenues derived from natural resource extraction, especially from forestry, mining and fisheries. Under this new law, the local government receives 80% of natural resource revenues, while the central government gets 20%.⁶⁵ This is a complete reversal of the 80/20 split in favour of central government before 1999.

These two acts, however, contributed to the inconsistency of Indonesia's legal system, especially on natural resource sectoral legislation. As a result, all sectoral legislation on natural resources including fisheries had to be modified to suit the new regime. For instance, the (at least) 22 statutes and more than 100 government regulations governing about 14 sectors and addressing some aspects of coastal resources were substantially affected by these two acts.⁶⁶ Although the *Autonomy Law* and *Financial Balance Law* do not directly amend the sectoral legislation, they both affected the relationship between the central and local governments in managing natural resources which had been the responsibility of central government in the past. There is no constitutional basis for the competence allocation. The only legal basis for such power sharing is the *Autonomy Law* and *Financial Balance Law*.

It is important to note that these sectoral laws continued to apply until the new sectoral legislation was enacted by the parliament in line with the

Autonomy Law. The *Fisheries Act* is a good example of this situation, because the old fisheries law (Law No. 9/1985 on Fisheries) still applied until the enactment of the Fisheries Act in 2004. The same thing happened in other sectors such as forestry and mining. In fact, the mining sector still uses the old legislation (Law No. 11/1967 on Mining) as a legal foundation for mining operations because the new law is still being discussed in the parliament, even though that particular law contradicts some provisions of the *Autonomy Law*. This situation not only creates inconsistencies in natural resource governance, it also creates a new tension between the central and local governments.

Furthermore, due to some unclear provisions in the *1999 Autonomy Law* and the *1999 Financial Balance Law* the parliament repealed these two statutes with the enactment of the Law No 32/2004 on Local Government (*2004 Autonomy Law*)⁶⁷ and the Law No 33/2004 on Financial Balance between Central and Local Government (*2004 Financial Balance Law*).⁶⁸ The *2004 Autonomy Law* introduced a greater emphasis on the 'relationship' between central and regional (provincial and district) governments, rather than the 'autonomy' of the regional government.⁶⁹

Under the two new statutes, local government power remains much the same as in the previous statutes. The *2004 Autonomy Law* still grants the same power to the local government as its predecessor. The only significant change introduced by the new statute is the extension of provincial government powers, which cover 16 fields.⁷⁰ However, the *2004 Financial Balance Law* introduced a slightly different formula compared to its predecessor. Article 5 of the *2004 Financial Balance Law* states that regional income for implementing decentralization (Regional Revenue and Financing) will come from (a) regional own revenue

65 Article 6(5) of the 1999 Financial Balance Law. State Gazette (1999), No 3849.

66 Patlis, J.M. (2005). 'The Role of Law and Legal Institutions in Determining the Sustainability of Integrated Coastal Management Projects in Indonesia'. *Ocean & Coastal Management* 48: 450-468, p.451.

67 See Article 10(1) of the 2004 Autonomy Law. State Gazette (2004) No. 125.

68 State Gazette (2004), No. 126.

69 Patlis, supra, note 66, p.454.

70 See Article 13 for the powers of Provincial Government. These powers include: (a) planning and management of development, (b) spatial planning, utilization and supervision, (c) public order, (d) public infrastructure, (e) health, (f) education and human resources, (g) social matters, (h) manpower, (i) cooperatives, and small & medium-sized enterprises, (j) environment, (k) land, (l) population and civil registry, (m) public administration, (n) foreign investment, (o) other services that cannot be provided by the district, (p) other services determined by other laws.

(PAD),⁷¹ (b) a balancing fund, and (c) other incomes. In order to balance the finance between the central and regional governments, three types of funds were introduced through Article 10 of this Act: (a) a revenue-sharing fund (*Dana Bagi Hasil-DBH*), (b) a general allocation fund (*Dana Alokasi Umum-DAU*), and (c) a special allocation fund (*Dana Alokasi Khusus-DAK*).

Furthermore, Article 11(3) states that the DBH is derived from (a) forestry, (b) general mining, (c) fisheries, (d) oil & mining, (e) natural gas mining, and (f) geothermal mining. Finally, Article 14(d) states that: “revenue from fisheries received on a national basis shall be divided 20% for the government (central) and 80% for all districts and cities’ (italics added).

The above provision means that 80% of fisheries revenues should be shared between all districts/cities and not only go to the district/city of origin. This approach shows that fisheries are treated as truly commonly owned resources to be shared by all.⁷² This formula was taken by the drafter of the *2004 Financial Balance Law* to ‘compensate’ those provinces and districts that do not have sufficient fish resources. It may also be caused by the fact that fish do not recognize administrative boundaries, so all revenues from fisheries collected by the central government should be shared by all provinces and districts.

According to Patlis, the above formula was developed for practical reasons (that landings come from large marine zones and thus cannot be claimed by any particular district) rather than for philosophical reasons (that fisheries are a true national resource, and therefore benefits accrue across the nation).⁷³ Nevertheless, Article 33(3) of the Constitution states that:

Land and water, and the natural resources found therein, shall be controlled by the state and shall be exploited for the maximum benefit of the people.

Based on that provision, fisheries can be considered as a common resource.

The last important provision of the *2004 Autonomy Law* that has a significant influence on fisheries governance is Article 18. This Article allocates the following competences to the regional (Provincial and District) governments:

1. The regions that have sea territory are given the authority to manage resources in that territory.
2. The regions are entitled to share the profits from natural resource management beneath the seabed according to the law and regulation.
3. The authority to manage resources in the sea territory as referred to in point (1) shall include: (a) exploration, exploitation, conservation and management of sea resources; (b) administrative regulation; (c) zoning regulation; (d) law enforcement of the regulation established by the regions or delegated by the Central Government; (e) participation in the maintenance of security; and (f) participation in defending the State sovereignty.
4. The authority to manage the resources in the sea territory as referred to in point (3) shall be up to *12 nautical miles from the coast line towards the open sea and/or to the archipelagic water for the Provinces and 1/3 (one third) for the district/municipality.*
5. If the sea territory between two Provinces is less than 24 (twenty four) miles, the authority to manage resources in the sea territory will be equally divided by those two Provinces [...]

71 AD is derived from: (a) regional tax, (b) regional retribution, (c) proceeds from the management of regional assets set aside for this purpose, (d) other legal PAD. For more complete information, see Articles 6(1) and 6(2).

72 Patlis, supra, note 66, p.455. See also Patlis, J.M., Dahuri, R., Knight, M. and Tulungen, J. (2001). ‘Integrated Coastal Management in a Decentralized Indonesia: How it can work’. *Jurnal Pesisir & Lautan* (Indonesian Journal of Coastal and Marine Resources) 4(1): 24-39.

73 Jason Patlis, ‘Indonesia’s New Fisheries Law: Will it Encourage Sustainable Management or Exacerbate Over-Exploitation?’ (2007) 43 *Bulletin of Indonesian Economic Studies* 201-225 at, p.207.

6. The *provisions referred to in points (4) and (5) do not apply to traditional and small-scale fishers.* (Italics added).

Based on the above provisions, the provincial and district governments have almost absolute power to manage marine resources within their allocated jurisdiction. This means that the central government has to consult regional (provincial and district) governments if it wants to initiate or conduct programmes and activities within 12 nautical miles. However, this new power sharing shall not affect traditional and small-scale fishers, so they can move and fish within and beyond their district and provincial jurisdictions. In addition, the provincial and district governments cannot impose taxes or other fees on traditional and small-scale fishers.

Based on above provisions, the *2004 Autonomy Law* and the *2004 Financial Balance Law* give regional governments (provincial and district) broad powers in fisheries governance in the coastal zone. The role of the central government in fisheries management is limited to guidance and cooperation with regional governments.

The role of the central government in fisheries management is specified in the *Undang-Undang Nomor 31 tahun 2004 tentang Perikanan (Law No. 31/2004 on Fisheries or Fisheries Act)*.⁷⁴ As national law, this

2. Institutional structures

As discussed above, the institutional and organizational structure of fisheries governance in Indonesia straddles three levels of the government: central, provincial and district. At the national level, the DKP is the main institution responsible for fisheries management. The DKP has the power to regulate the use of infrastructure and of water resources for aquaculture purposes.⁷⁵

Other functions of the DKP in fisheries governance in the coastal zone are determination of

Fisheries Act binds all provinces and regencies and should be used as a guide for fisheries management in coastal areas and Indonesia's EEZ. However, the implementation of the *Fisheries Act* has to work side by side with the *2004 Autonomy Law* and the *2004 Financial Balance Law*. Unfortunately, the *Fisheries Act* does not specify any detailed power sharing between the central and regional governments. The only provision of the *Fisheries Act* that mentions power sharing is Article 65(1), which states that: 'the delegation of fisheries functions shall be done through subsequent Government Regulation'.

This situation creates uncertainty in fisheries management because the central and regional governments always interpret these laws according to their own interests. As a result, tension between the central and district and provincial governments still exists at the implementation level.

However, since the *Fisheries Act* is the main legal foundation for fisheries governance in Indonesia, this Act can be treated as *lex specialis* over other general laws. According to the *lex specialis* principle, specific law can override general law if these laws are on the same level in the legal hierarchy. As a consequence, the provincial and district governments are required to synchronize their fisheries management policies with this Act.

the basic planning and location of special fishing ports,⁷⁶ design and management of a fisheries information system including fisheries statistics,⁷⁷ and encouraging research and development in the fisheries sector.⁷⁸ The DKP is also responsible for education, training, and disseminating information on fisheries.⁷⁹

With relation to the empowerment of small-scale fishers and fish farmers, the DKP is responsible for initiating programmes such as: the development of soft

74 State Gazette (2004) No. 118.

75 Article 17 and 18(1) of the Fisheries Act.

76 Ibid., Article 41.

77 Ibid., Articles 46-47.

78 Ibid., Articles 52-53.

79 Ibid., Articles 57-59.

loans and micro-credits, free education and training on fishing techniques and farming methods, and promoting the formation of mutually supportive organizations.⁸⁰

Finally, the DKP ensures that all aspects of the *Fisheries Act* are well implemented at both the national and regional level. This monitoring and surveillance function is new to the DKP because such powers did not belong to the Department of Agriculture, the department previously responsible. As a consequence, the DKP has had to equip itself with sufficient patrol boats, modern communication equipment, and weapons if necessary.⁸¹

In order to undertake such tasks, the DKP has several general directorates, expert staff, a statistics bureau, quarantine, and other functional agencies. These agencies operate at the national level⁸² but can also be transferred to the provincial and district levels. The transfer of power from the central government to regional government can be done through a government regulation.⁸³

In addition to the power of the central government and as a consequence of the *2004 Autonomy Law*, the provincial governments also have some control over fisheries governance in their provinces. Their authority in fisheries governance extends over an area of four to twelve nautical miles out from the shore.

The main government agency responsible for fisheries management at the provincial level is the Provincial Office for Marine Affairs and Fisheries (hereinafter POMAF). However, the POMAF is not a branch of the DKP at the provincial level. The POMAF is part of the provincial government and accountable to the Governor. To some extent, the POMAFs are independent from the DKP, although most of their programmes are developed based on national fisheries policies and strategies.

The provincial government may also cooperate with other provinces to manage their fish resources. For example, the provinces of Riau, Bangka Belitung, Jambi and West Kalimantan have established joint cooperation to manage the Karimata strait because it is very rich in fish resources.⁸⁴ Similar forms of cooperation exist in the eastern part of Indonesia. Such cooperation is mainly triggered by economic reasons but it has positive impacts on the protection of marine ecosystems because it also involves conservation measures.

This cooperation may be conducive to setting national standards and practices because most individual POMAFs have very limited capacities to develop good strategies and programmes for fisheries management. This lack of capacity has been caused by more than 40 years of centralized government during the Suharto administration. As a result, the main function of the POMAF is acting as a 'partner' of the DKP at the provincial level rather than as an independent provincial agency.

Apart from the above role, the POMAF also manages and assists districts/municipalities within its province, including settling any cross-border issues between them. The POMAF is also responsible for promoting and developing fishing industries within their jurisdiction. In short, the function of the POMAF is similar to that of the DKP.

The last government agency that has responsibilities for fisheries management is the District Office for Marine Affairs and Fisheries (DOMAF) at the district/municipality government level. Similar to POMAF, the DOMAF is part of the district government and accountable to the district head/mayor. Although the DOMAF cannot be described as a branch of the DKP and POMAF at district/municipality level, most DOMAF programmes are dedicated to the implementation of national policies and strategies at the district level.

80 Ibid., Articles 60-64.

81 Ibid., Articles 66-70.

82 For full structure of the DKP, see <http://www.dkp.go.id/index.php> (consulted: 10 October 2006).

83 Article 65 of the Fisheries Act.

84 Four Governors have agreed on joint management of the Karimata strait. Available at <http://www.dkp.go.id/content.php?c=2392> (consulted: 4 February 2008).

Under the *2004 Autonomy Law*, the DOMAFs have the ultimate power over fisheries management up to four nautical miles from the shoreline. Since most fishing fleets use district/municipal ports to conduct their day-to-day operations, the DOMAF ought to play a very important role within the fisheries industry. Unfortunately, the structure and human resources of DOMAF are not as developed as they should be.

The district/municipality in fact plays potentially the most important role in fisheries management because they are at the frontline in serving and developing the capacity of Indonesian fishers. However, most government agencies concerned with fishing management at district/municipality level have very limited capacities to deal with fisheries issues. They not only lack qualified personnel but also have less knowledge and skills to deal with the multiple problems of the fishing industry.

Apart from the above government agencies, there are some private organizations and NGOs that play a limited role in fisheries management in the coastal zone. According to the DKP, there are at least 47 organizations at the national level that are related to fisheries management. However, only the following organizations have a significant influence on the fishing industry and small-scale fishers.⁸⁵

1) *Himpunan Nelayan Seluruh Indonesia*-Fishers Association of Indonesia (HNSI); 2) *Masyarakat Perikanan Nusantara*-Fisheries Society of Nusantara (MPN); 3) *Gabungan Pengusaha Perikanan Indonesia*-Association of Fisheries Business of Indonesia (GAPPINDO); 4) *Asosiasi Tuna Indonesia*-Indonesian Tuna Association (ASTUIN); 5) *Himpunan Pengusaha Penangkapan Udang Indonesia*-Association of Shrimp Catchment Business of Indonesia (HPPI); 6) *Serikat Nelayan Nusantara* – Nusantara Fishers Union (SENASA); 7) *Asosiasi Tuna Long Line Indonesia*-Association of Long-Line Tuna Fishers of Indonesia (ATLI); 8) *Asosiasi Pengusaha Pengalengan Ikan Indonesia*-Association of Cane-Fish Business of Indonesia (APIKI); 9) *Asosiasi Pengusaha Non Tuna dan Non Udang Indonesia*-Association of Non-Tuna and

Non-Shrimp Business of Indonesia (ASPINTU); 10) *Asosiasi Pengusaha Pengelola Hasil Perikanan Indonesia*-Association of Fish Processing Business of Indonesia (APEHAPI); 11) *Asosiasi Koran Kerang dan Ikan Hias Indonesia* – Association of Coral-Shell and Ornament Fish of Indonesia (AKKI); 12) *Asosiasi Budidaya Mutiara Indonesia*-Association of Pearl Farming of Indonesia (ASBUMI); 13) *Asosiasi Pengusaha Pakan Udang Indonesia*-Association of Shrimp-Feed Business of Indonesia (APPUI); 14) *Asosiasi Pengusaha Pembenuhan Udang*-Association of Shrimp Hatchery Business (APPU); 15) *Asosiasi Pengusaha Ikan Sidat Indonesia*-Association of *Sidat* (*Anguilla* spp.) Fish Business of Indonesia (APISI); 16) *Himpunan Ikan Hias Indonesia* – Association of Ornamental Fish of Indonesia (HIPI); and 17) *Perum Prasarana Perikanan Samudera*-Public Corporation for Fisheries Facility.

Although these associations have no power to regulate fishing management in the coastal zone, they play an important role in determining fishing policies in Indonesia. They also have significant bargaining power with the government because some of them have representatives in provincial and district governments. They can also influence the fish market since most fish harvested in Indonesia is sold to members of these organizations. Therefore, it is important for the government to work closely with these organizations.

Small-scale traditional fishers usually have no adequate representation in these organizations because they are too shy to join such organizations. There is also a tendency for business people in fisheries to exploit small-scale fishers for their own gain. Therefore, the government, and especially the DKP, should make sure that the programmes and activities of the above organizations do not harm the interests of the whole fishing community, including the small-scale traditional fishers.

There are other organizations called *Kelompok Nelayan* (Fishers Groups) operating at the village level. Most *Kelompok Nelayans* are informal, and only a few of them have a proper organizational structure. *Kelompok Nelayans* are usually established by traditional

85 See the complete list of organizations at the DKP website: <http://www.dkp.go.id/content.php?c=2355> (consulted: 4 February 2008).

fishers to protect their common interest. Some *Kelompok Nelayans*, however, are well developed and play a significant role in their community. They even establish profitable *Koperasi Nelayan* (fishing cooperatives) and initiate programmes and activities to protect their coastal areas. The *Kelompok Nelayan*

Mina Bakti Soansari in Les Village in Bali, for instance, has initiated a programme to stop the use of cyanide and potassium in catching ornamental fish in their coastal areas. Consequently, this *Kelompok Nelayan* successfully declared their village free of cyanide and potassium.⁸⁶

3. Instruments for promoting fisheries

As mentioned earlier, the fisheries sector is less developed compared to other sectors such as agriculture, industry and trade. A serious debate on the importance of the fisheries sector and the development of the modern fishing industry only started six years ago. Prior to the establishment of the DKP, only a few government initiatives were concerned with the development of the fisheries sector. The current government's policy instruments promoting the fisheries sector as the backbone of Indonesia's economy are only in their infancy.

a) *Structural policies*

The basic structural policy promoting fisheries was implemented by the new Department of Marine Exploration in 1999, which was then taken over by the DKP.⁸⁷ Since its establishment, the DKP has developed policies and programmes to promote the fisheries sector, such as: enacting the *Fisheries Act*, simplifying the administrative process for fishing licences, providing technical assistance for fishers, initiating cross-departmental cooperation, promoting the availability of soft loans and providing subsidized fuel to traditional and small-scale fishers.

Licence application procedures have been made much simpler compared to the old regime which used to involve up to five government agencies. In order to

establish a more reliable system, the DKP is developing an online licence application system. This system will not only expedite the application process but is also expected to prevent illegal payments to corrupt government officials.⁸⁸ Hopefully, the simplified licence application system will also encourage illegal and unregulated fishing companies to apply for a licence. More details on the system will be provided in the 'Instruments of fisheries management' section.

The DKP and related government agencies try to support fishers communities through formal and informal education and technical assistance. The DKP, for instance, manages three levels of specialized fisheries education: (i) Special Fisheries High School, (ii) Fisheries Academy, and (iii) Fisheries Institute. So far, there are only eight high schools, three academies and one institute which is not enough to serve the whole country.⁸⁹ Due to limited resources, the quality of these schools is still relatively poor.

Furthermore, the DKP also provides various training programmes: (i) Technical programme for fishers on fish breeding, (ii) Technical programme for government officials, (iii) Technical programme for trainers, (iv) Technical programme for counsellors⁹⁰, and (v) Technical programme for fishers and others.⁹¹ The DKP also provides a program called "*penyuluhan*"

86 'Nelayan Desa Les Melestarikan Alam Bawah Laut' (Les Village Fishers Preserves Under Water Environment). KOMPAS, 11 October 2005.

87 This Department has changed its name three times, from Department of Marine Exploration to Department of Marine Exploration and Fisheries, and Department of Marine Affairs and Fisheries. See Presidential Decree No. 165 of 2000 concerning the Status, Jobs, Functions, Powers, Organizational Structure and Working Mechanism of the Department (Keputusan Presiden Nomor 165 Tahun 2000 tentang Kedudukan, Tugas, Fungsi, Wewenang, Susunan Organisasi, dan Tata Kerja Departemen).

88 'Sistem Online Pengurusan Izin Penangkapan Mulai Dirintis' (Online System for Fishing Licence has been Developed). DKP website at <http://www.dkp.go.id/content.php?c=2365> (consulted: 4 February 2008).

89 For more information on special fisheries schools, see the Centre of Human Resources Development of the DKP at <http://pusdiklatkan.dkp.go.id/dkp/dkp.php?utk=sekt> (consulted: 4 February 2008).

90 People who provide technical advice to the fishers. They usually come every 4-8 weeks, or when they are requested by the fishers or government officials.

91 For more information, see <http://pusdiklatkan.dkp.go.id/dkp/dkp1.php?utk=jeni> (consulted: 11 May 2006).

(dissemination of information) for traditional fishers. *Penyuluhan* usually covers the following topics: technology, management, economy, ecology, society and culture, and law.⁹²

While the availability of formal education is limited to the cities, informal education such as training and *penyuluhan* usually reaches a wide range of fishing communities. As a means of communication, *penyuluhan* is very beneficial for traditional fishers because most of them are not able to visit city centres to acquire knowledge and new techniques.

In the last 10 years, *penyuluhan* has not only been carried out by relevant government officials but also by NGOs⁹³ and the private sector. In fact, there are a lot of NGOs, including foreign NGOs, that focus their programs on *penyuluhan* because it directly reaches and involve traditional fishers. Some private companies, which rely on traditional fishers, also have their *penyuluhan* programmes because such activities bring mutual benefits to fishers and the companies.⁹⁴ It is important to note that some NGOs and private organizations support government programmes, but some of them have their own *penyuluhan* programme. Many environmental NGOs focus their *penyuluhan* on the issue of sustainability and marine environmental protection, while the private sector concentrates on creating partnerships between small-scale fishers and the fishing industry. The government usually concentrates on subsidies for small-scale fishers and law enforcement issues.

In order to narrow the gap and to reduce sectoral rivalry between certain government agencies and regional governments, the DKP has established cooperation with relevant institutions, such as: the cooperation between the Department of Trade and the

DKP on Temporary Banning of Shrimp Imports,⁹⁵ the cooperation between the DKP with four Governors to develop Karimata Strait, and the cooperation between the DKP and the Ministry of Transmigration and Labour on the relocation of fishers to other islands.⁹⁶

Apart from that, the government has established inter-departmental collaboration between six ministries (Agriculture, Forestry, Marine Affairs and Fisheries, Manpower and Transmigration, State Ministry for the Acceleration of Less-Developed Regions, and State Ministry for Cooperatives and Small and Medium-sized Enterprises) through a programme called the Integrated Economic Development Programme for Villages. This programme is based on agrobusiness in order to assist potential local players in establishing businesses in fishing, agriculture, and forestry-related industries.⁹⁷ It promotes the availability of micro-credits for small-scale fishers, technical assistance on post-harvest techniques, and relocation of fishers to more suitable areas. In theory, it promises to develop the livelihoods of small-scale fishers, but it does not always work in practice.

Since the DKP is a relatively new full governmental department, some of its programmes have to be supported by other governmental institutions. For example, for promoting soft loans or micro-credits for small-scale traditional fishers, the DKP cooperates with the Ministry of Finance and the banking sector. Without sufficient support from these institutions, the DKP would have difficulty implementing its programmes. In order to provide micro-credits, the DKP (through its *Pemberdayaan Ekonomi Masyarakat Pesisir (PEMP)* – Economic Empowerment for Coastal Communities programme) worked together with a bank to establish the *Bank Perkreditan Rakyat Pesisir (BPRP)* (the Credit Bank for

92 For information, see <http://pusdiklatkan.dkp.go.id/dkp/dkp.php?utk=jepe> (consulted: 11 May 2006).

93 See, for instance, The Nature Conservancy (TNC). May 2000. Progress report on the pelagic fisheries project. TNC, Coastal and Marine Program Indonesia.

94 PT Unilever in collaboration with the WWF launched a campaign on 'Healthy Seas, Healthy Food', to promote sustainable fisheries in Indonesia. See <http://www.wwf.or.id/index.php?fuseaction=news.detail&id=NWS1146712267&language=e> (consulted: 4 February 2008).

95 See Ministerial Decision of the DKP and Ministry of Trade No. Nomor:37/M-DAG/PER/12/2005, Nomor:SKB.05/MEN/2005 on Temporary Banning of Shrimp Imports (Tentang Larangan Sementara Impor Udang ke Wilayah R.I).

96 For more information, see <http://www.dkp.go.id/index.php> (consulted: 25 January 2008).

97 Department of Marine Affairs and Fisheries. (2006). 'Percepatan Pembangunan Ekonomi Masyarakat Pedesaan Berbasis Agribisnis Industri Perikanan Terpadu Menjadi Pilihan' (Acceleration of People Economic Development through Integrated Agribusiness and Fisheries Industry for Villagers). Info Actual. Jakarta. Available at <http://www.dkp.go.id/content.php?c=2435> (consulted: 5 February 2008).

98 Saad, Sudirman. (2004). 'Masa Depan Nelayan Pasca UU Perikanan Baru' (The Future of Fishers Post the New Fisheries Act). INOVASI 24(2): 25-26.

Coastal Communities).⁹⁸ This programme has yielded some success after being supported by financial institutions and other government agencies. For example, it has been implemented in 247 districts/municipalities with more than 300 credit banks.⁹⁹

In addition to the above programmes, the government in cooperation with the DKP, Coordinating Ministry for Economy, Ministry of Energy and Mineral Resources, and Director of National Oil Company (PERTAMINA) have agreed to subsidize fuel because current prices are too high for most traditional fishers.¹⁰⁰ However, this programme faces difficulties in its implementation because middlemen and black marketeers are interfering with the distribution. The DKP and PERTAMINA are also partially to blame for the failure of this programme because they only have a very limited number of fuel stations near fishing communities.¹⁰¹

Although these programmes have great potential and are well structured, they still face a lot of barriers at the implementation level. To date, there are still many complaints from traditional and modern fishers on fisheries governance at all levels. The licensing system, micro-credit scheme, and inter-departmental cooperation still require serious efforts in order to be fully implemented. Many of the promises made by the DKP and other government agencies to improve the livelihoods of fisher communities may take a long time to be fulfilled.

b) Market organization

The process of marketing fish involves several links in the chain, including: (i) fishers, (ii) small-scale middlemen, (iii) retailers, (iv) fish brokers, (v) wholesalers, and (vi) fish export and processing companies. Most small and traditional fisher villages usually sell their catches directly to consumers in the

local market. However, if their catch is relatively large, it is sold to an intermediary, and the intermediary will sell the fish to consumers. This practice is common throughout Indonesia. In that process, the fishers act independently because there is no organization to assist small-scale fishers with marketing, management, or distribution of information.¹⁰² Their position in the market is weak and they have no control over the price they receive for their catch. This condition is also worsened by the lack of access to cold storage or ice, so they have to sell their fish below market price.

On the other hand, commercial fishers usually sell their catch to a broker or retailer in the cities where the demand for fish is high. Since they usually have cold-storage facilities or ice, they also buy fish from small-scale fishers. Commercial fishers usually have many options for selling their fish, depending on the species they catch. Certain species, such as skipjack, tuna, grouper (especially live ones), snapper and other valuable species are sold for export, while less valuable species are sold on the domestic market or to a processing company.

There is no government market intervention on price stabilization.¹⁰³ Government involvement is limited to establishing standards and mechanisms in the fish market. The government, for instance, encourages fishers to sell their catch at designated ports to enable quality control of the fish. In addition, the DKP ensures that all fish processing methods and the end products comply with sanitation and processing standards.¹⁰⁴

The government also provides special fishing ports. These are divided into four categories: (i) *Pelabuhan Perikanan Samudra* (PPS), (ii) *Pelabuhan Perikanan Nusantara* (PPN), (iii) *Pelabuhan Perikanan Pantai* (PPP), and (iv) *Pangkalan Pendaratan Ikan*

99 DKP. 'Kiprah Pemberdayaan Masyarakat Pesisir' (Efforts for the Empowerment of Coastal Communities). DKP website at <http://www.dkp.go.id/content.php?c=1794> (consulted: 13 January 2008); see also Fauzi, supra, note 36, pp.81-83.

100 'BBM untuk Nelayan Disubsidi' (Fuel for Fishers Subsidized). KOMPAS Daily. 18 April 2006.

101 'Cukup Sudah Derita Ini' (Enough of this Suffering). KOMPAS Daily. 13 January 2003.

102 Compare with Novaczek, I., Harkes, I., Sopacua, J. and Tatuhey, M. (2001). *An Institutional Analysis of Sasi Laut in Maluku, Indonesia*, p.54. ICLARM-The WorldFish Center.

103 Interview with Dr M. Hawin (senior lecturer at the Faculty of Law, Gajah Mada University, Yogyakarta-Indonesia) 20 May 2006. The same views are also held by Dr Arif Satria in an email communication with the author, 21 May 2006. Dr Satria is a senior lecturer from Bogor Institute of Agriculture (IPB). See also Satria, Arif and Matsuda, Yoshiaki. (2004). 'Decentralization of Fisheries Management in Indonesia'. *Marine Policy* 28(5): 437.

104 Article 20, Fisheries Act.

(PPI). PPS are designated for fishing fleets with a capacity of more than 60 gross tonnage (GT), while PPN are for boats with a capacity of 15-60 GT, PPP for smaller vessels (5-15 GT), and the PPI are for those with less than five GT. So far, Indonesia has only six PPS, 13 PPN, 50 PPP and 598 PPI.¹⁰⁵ This is not enough because ideally every province should have at least one PPS.

These ports are all trading centres for fish, but only the PPS has complete facilities such as cold storage and fish processing units. The DKP in cooperation with the national radio and the Department of Trade regularly updates the public on the price of fish commodities in these ports through the radio and the DKP website.

The government sometimes takes the radical step of banning imports of certain commodities to protect local fishers, fish farmers and domestic prices. For instance, in 2004, the Department of Trade and the DKP issued the Ministerial Decree *No 05/M/Kep/XIII/2004 tentang Larangan Impor Udang ke Wilayah RI* (Prohibition of Shrimp Imports).¹⁰⁶ This regulation, however, has been criticized by many parties who believe that it overprotects Indonesia's shrimp farmers and will eventually diminish their competitiveness on the global market. Internationally, this regulation has also triggered complaints from other exporting countries such as Thailand, Viet Nam and China.¹⁰⁷

The DKP has helped several commercial fishing communities e.g., a number of fish processing units in Bali, East Java, North Sumatra and Makassar, to enhance their capacity to sell their fish on foreign markets, especially on the EU market, known for its strict requirements. As a result of this programme, the DKP has recommended 14 companies for exporting

to the EU market. At the same time, the DKP has cancelled the export licences of two companies because they did not comply with Indonesian regulations, especially concerning hygiene. The government also tries to assist Indonesian companies to achieve good quality control as specified by the ISO 17025. The DKP hopes that these initiatives will help Indonesian companies to access the EU and other foreign markets.

Another instrument promoting marketing is a government programme called the '*Gerakan Memasyarakatkan Makan Ikan* (GEMARIKAN)'. In this programme, the DKP encourages Indonesian people (especially those who live in Java) to eat more fish as a source of protein. This was triggered by the fact that most Javanese rarely include sea fish in their diet. The national average fish intake is only 23 kg *per capita* per year. This figure is low compared to other nations such as Japan with 100 kg and South Korea with 80 kg (*per capita* per year). The government hopes that with an increased demand for fish, the fishermen (especially traditional fishers) will have more opportunities to increase their income.¹⁰⁸

The government also plans to establish several *Pasar Ikan Higienis* (Hygienic Fish Markets). This initiative aims to change the association in people's minds of fish markets with dirt and bad smells. The proposed markets will have three levels and a modern design. The first level will sell fresh and frozen fish while the second level will sell processed fish products. Level three will house fine seafood restaurants, targeting the more affluent part of society. The government hopes that these *pasar ikan higienis* will tempt people to come and buy fish.¹⁰⁹ Unfortunately, the only one so far is still under construction, in Jakarta. The drawback is that the slightly higher prices in such markets might make them too expensive for the general public.

105 See DKP website at http://www.pipp.dkp.go.id/pipp2/pelabuhan_index.html (consulted: 12 May 2006).

106 'Pengusaha Dalam Negeri Setuju Larangan Impor Udang' (Domestic Companies Agree on Shrimp Import Restriction). Koran TEMPO. 2 January 2006.

107 See 'SK Larangan Import Segera Dicabut' (Import Ban will be lifted). KOMPAS Daily. 28 January 2005).

108 Speech of the Minister of Fisheries and Marine Affairs on the Launching of GEMARIKAN Program, Jakarta, April 2004.

109 Ibid.

4. Instruments of fisheries management

After the enactment of the *Fisheries Act* in 2004, this Act has become the main fisheries instrument in Indonesia. This Act repealed the *Undang-Undang No. 9/1985 tentang Perikanan* (the 1985 Fisheries Act) and the criminal sanction provisions of the *Undang-Undang No 3/1983 tentang Zona Ekonomi Eksklusif Indonesia* (the 1983 Indonesian Economic Exclusive Zone Act). The *Fisheries Act* consists of 17 chapters and 111 articles that cover: (i) fisheries management zones,¹¹⁰ (ii) fisheries management,¹¹¹ (iii) fisheries industries,¹¹² (iv) an information system and fisheries statistics,¹¹³ (v) taxes,¹¹⁴ (vi) research and development,¹¹⁵ (vii) education, training and dissemination of fisheries information,¹¹⁶ (viii) enabling small-scale fish culture,¹¹⁷ (ix) distribution of power from central to regional government,¹¹⁸ (x) supervision,¹¹⁹ (xi) a special court,¹²⁰ (xii) rules of procedures in the special court,¹²¹ (xiii) criminal sanctions,¹²² and (xiv) transitional provisions.¹²³

This Act is unique compared to other Indonesian acts, because it not only contains a wide range of measures in fisheries management but it also has its own rules of procedure for implementation. The Act has even established a special court.

a) Access and catch restrictions, technical measures

The *Fisheries Act* introduced several mechanisms to control access, catch and technical measures. While other countries introduced catch quota schemes for fishers and even made those schemes tradable, a similar scheme does not apply in Indonesia. In relation to access, the *Fisheries Act* established several measures such as: licensing, catch limitations in certain zones, and protection of fish species in national marine parks.

However, due to a lack of scientific data, the DKP has not yet determined TACs in a systematic way, covering priority species and fishing areas. However, the government is planning to improve its policies in that direction.

According to Articles 26, 27 and 28 of the Fisheries Act, every commercial entity involved in fishing must have three kinds of licences: *Surat Izin Usaha Perikanan* (SIUP) or fishing business licence, *Surat Izin Penangkapan Ikan* (SIPI) or catching licence, and *Surat Izin Kapal Pengangkut Ikan* (SIKPI) or vessel licence. A business licence is given to an individual or legal entity whose activities involve both catching and processing. A catching licence is given to an individual or legal entity whose activity is limited to catching.

Artisanal fishermen do not need a fishing business licence but must have licences for catching and for operating a vessel.

Foreign fishing vessels need to have a catch and a vessel licence but not a business licence.

More detailed provisions on fishing licences can be found in the *Government Regulation No 54/2002 on Fisheries Business* (GR No 54/2002). This government regulation was established based on the old *Fisheries Act*, but is still valid.

Catching licences specify the allowed catching area, types of fishing gear, and vessel equipment. The licensee can only operate in pre-determined areas as specified in the licence. Unlike in other countries, a fishing licence in Indonesia is not based on the fish

110 Chapter III (Article 5) of the Fisheries Act.

111 Ibid., Chapter IV (Articles 6-24).

112 Ibid., Chapter V (Articles 25-45).

113 Ibid., Chapter VI (Article 46-47).

114 Ibid., Chapter VII (Articles 48-51).

115 Ibid., Chapter VIII (Articles 52-56).

116 Ibid., Chapter IX (Articles 57-59).

117 Ibid., Chapter X (Articles 60-64).

118 Ibid., Chapter XI (Article 65).

119 Ibid., Chapter XII (Articles 66-70).

120 Ibid., Chapter XIII (Article 71).

121 Ibid., Chapter XIV (Articles 72-83).

122 Ibid., Chapter XV (Articles 84-105).

123 Ibid., Chapter XVI (Articles 106-109).

species to be caught. This may be one of the weaknesses of the existing regime. However, since the law places several conditions on the type of fishing gear, the DKP assumes that this is sufficient to control the exploitation of particular species in particular zones. The licence is not transferable. A catching licence is given for a three-year period and can be renewed if the licensee has complied with the licence conditions.¹²⁴

Under Article 15(1) of the GR No. 54/2002, the licensee has an obligation to comply with the licence conditions. The licensee is also required to produce biannual reports describing their activities to the DKP. In cases of failure to comply with such conditions, the catching licence can be revoked by the relevant authorities.

In the case of a catching licence operating beyond 12 nautical miles or involving a fishing fleet of more than 30 GT, the DKP has the power to grant and revoke the licence. For fishers operating between 4 to 12 nautical miles from the shore, the provincial governor has the power to grant and cancel their licences. District heads/mayors can grant and revoke licences for fishing within four miles from the shore.

There is no special appellate body to challenge the decision if the licensee does not agree with the decision of the regulator. However, the licensee can appeal to the general administrative courts to challenge the decision if they think that the decision of the regulator has no valid legal ground.

The catching licence can only be granted if the applicant has obtained a letter of approval for his/her fishing boat stating that the boat fulfils all the technical requirements determined by the DKP. The *Fisheries Act* even goes further by requiring a licence for persons intending to build, import or modify a fishing boat.¹²⁵ This strict condition might have been driven by the fact that most Indonesian fishing fleets are in very poor

condition. Although the intention of this provision is good, it is scarcely implemented because the DKP has no power to supervise the vessel industry and the import of fishing vessels into Indonesia.

Another important aspect of the GR No. 54/2002 is the possibility to reduce the number of granted licences and revoke licences if the government thinks that the fishing fleets are depleting fish stocks to unsustainable levels.¹²⁶ However, the implementation of this provision has never been seriously enforced by the DKP.

The process of obtaining a fishing licence requires at least 10 steps from the lodging of the application to final approval. The whole process is conducted and assessed by the *Ditjen Perikanan Tangkap* (Directorate General of Capture Fisheries).

The *Fisheries Act* prohibits foreign fleets from fishing within Indonesia's territorial sea.¹²⁷ However, foreign fleets are allowed to fish in the EEZ, provided they have a valid Indonesian licence for catching and for their vessels.¹²⁸ If they are operating as a business from Indonesian territory, they also need a fishing business licence. The licence conditions for foreign businesses have to be negotiated by the government of Indonesia and the government of the flag state of the ship.¹²⁹

In addition to access regulations, the *Fisheries Act* also prohibits certain activities and the use of certain equipment that are considered not environmentally sound. Article 8, for instance, prohibits catching methods that use chemicals, explosives or other equipment that could endanger the sustainability of fisheries resources or the environment. Furthermore, it is forbidden to own, carry or use fishing gear that does not comply with the size or standards determined by legislation.¹³⁰ The *Fisheries Act*, however, does not specify the size or standard of vessel and fishing gear

124 GR No. 54/2002, Article 8(2)a.

125 Article 35(1) of the Fisheries Act.

126 GR No. 54/2002, Article 12.

127 Article 29 of the Fisheries Act.

128 *Ibid.*, Articles 27 sec. 2 and 28.

129 *Ibid.*, Article 30.

130 *Ibid.*, Article 9.

to be prohibited. This is to be elaborated in government regulations or ministerial decrees. Unfortunately, such subsidiary legislation has not yet been promulgated by the government.

The *Fisheries Act* requires the government to undertake activities and programmes aimed at the conservation of fisheries resources on a regular basis. The Act also requires the government to participate in international and regional cooperation on fisheries management.¹³¹

The *Fisheries Act* also imposes standards on the fish processing industry. The processing industries have to obtain a Quality Control Certificate from the government before they commence operation.¹³² The Act also requires every person involved in the export and import of fish products to obtain a health certificate, before export or import is carried out.¹³³

Furthermore, the *Fisheries Act* restricts the breeding, the use of genetically modified fish, and the use of medicines if they endanger native fish resources or the environment.¹³⁴ In addition, this Act restricts the use of fish feed that could harm human health and the environment.¹³⁵ Once more, while the law refers to specifications in governmental regulation, these are still widely lacking.

Apart from the *Fisheries Act*, the Parliament recently enacted another act that has a serious impact on coastal fisheries management. This act is called *Undang-Undang No. 27/2007 tentang Pengelolaan Wilayah Pesisir dan Pulau-Pulau Kecil* (Law No.27/2007 regarding Coastal Zone and Small Island Management).¹³⁶ The main objective of this law is to create synergy between central, provincial and district governments for the establishment of strategic plans on coastal and small island management and development.¹³⁷

Article 7 of this Act introduces four planning categories for the development of coastal zones and small islands: (i) strategic plans, (ii) zoning plans, (iii) management plans, and (iv) action plans. The Act clearly states that the government should cooperate in establishing these planning categories and should integrated them into their long-term development policy.

These articles seem to be in line with the *Fisheries Act*, but some of the Act's provisions create a new dimension for coastal fisheries because it recognizes the rights of individuals or Indonesian companies to have *hak pengusahaan perairan pesisir* (management rights over coastal waters and the seabed). This has created tension among coastal people because they are afraid of losing their privileges over the use of their coastal zones. In addition, since this right can be granted to the beneficiary for 20 years, this law may create injustices toward coastal communities as they may not be able to compete with wealthy individuals or companies. Therefore, the author submits that the government should consider these implications before promulgating Regulations implementing the new Act.

While the Act has several weaknesses, it has several good provisions on environmental management. For example, Articles 21 and 22 clearly state that environmental considerations must be taken into account when the government establishes coastal zone strategic plans. In addition, government should take into account the results of public consultation before granting management rights to a particular individual or company.

b) Traditional rules and modern regulation

Apart from the *Fisheries Act*, the *hukum adat* (customary law) or traditional wisdom in certain islands still plays an important role in fisheries management and access to fish resources. One of the most important

131 Ibid., Article 10.

132 Ibid., Article 20.

133 Ibid., Article 21.

134 Ibid., Article 12(2)-(4).

135 Ibid., Article 23(1)

136 State Gazette, 2007 No. 64.

137 See Law No.27/2007 regarding Coastal Zone and Small Island Management, Articles 4, 5 and 6.

hukum adat on fisheries management is called *sasi laut*. *Sasi laut* is a broad set of rules and regulations that govern resource use.¹³⁸ *Sasi laut* can also be referred to as a traditional resource management institution, even though it has other functions and its focus has changed through time.¹³⁹ *Sasi laut* is only practiced in Maluku in the eastern part of Indonesia.

With regard to access, *sasi laut* introduces certain regulations on *sasi* governed areas, activities that are permitted in those areas, and seasonal rules of entry and harvest. It also regulates the use of poisonous plants, destructive nets and gears such as *bagan* (lift net) and other aspects of fisheries. In the past, *sasi laut* was strictly followed by the community, since it was enforced by a traditional institution called *kewang* (traditional police). Members of *kewang* are elected by the community based on *adat* law. However, the role of *sasi laut* in fisheries management has become less significant nowadays¹⁴⁰ because the *Fisheries Act* does not specifically recognize the existence of such laws. As a result, the significance of *sasi laut* as a management tool has been reduced by the *Fisheries Act*.

A similar practice can also be found in other islands such as in Sumatra¹⁴¹ and in Sulawesi, especially in relation to freshwater fish. Their role has also been marginalized by formal legislation. *Hukum adat*, however, can still be used to manage fisheries resources at the rural and village level because the sense of 'community' in these areas is still strong.

As a management tool, *sasi laut* has very limited rules as it only regulates the fishing season, protected areas, species protection and gear used. Traditionally, *sasi laut* does not address issues of marketing fish or micro-credits for the empowerment of small-scale fishers.

In the past, breach of *sasi laut* could bring traditional sanctions to the offender, such as exclusion

from the community and participation in village affairs. However, such sanctions these days have a very limited deterrent effect on people, as the *kewang* has no full authority to enforce the *sasi laut* anymore. The authority of the *kewang* has been gradually diminished by the formal government apparatus.

However, *sasi laut* can still be used to complement formal legislation because many villages in Maluku still regard *sasi laut* as the main regulation of fish resources. The government can also use various *hukum adat* institutions to convey the 'message of development' because they are close to the heart of the society. Since the core objective of *sasi laut* and the *Fisheries Act* is similar, they can be used as complementary measures to protect stocks.

c) *Control and enforcement measures*

One of the main weaknesses of fisheries management in Indonesia is the lack of implementation and enforcement. Similar problems are found in offshore fisheries because the same authorities are also responsible for the control and enforcement of offshore fisheries policies and regulations. Since EEZ fisheries involve a more sophisticated administrative process, larger vessels and more advanced fishing gear and cover a wider range of fishing zones, enforcement measures need special efforts in the EEZ.

Government institutions that have the power to enforce the *Fisheries Act* and its subsidiary legislation are the DKP, provincial and district governments, the police and the navy.

In order to enhance the level of enforceability and coordination among government agencies, the *Fisheries Act* introduced its own specific rules of procedure and a special court to deal with fisheries cases. In its rules of procedure, the Act states that the powers to investigate fisheries-related cases lie with: (i) DKP civil service investigators, (ii) naval officers, and (iii) the

138 Harkes, I. (1999). 'An Institutional Analysis of Sasi Laut: A Fisheries Management System in Indonesia'. Paper presented at the International Workshop on Fisheries Co-management, 23-28 August, Penang, Malaysia.

139 Zerner, C. (1994). 'Through a Green Lens: The Construction of Customary Environmental Law and Community in Indonesia's Maluku Island'. *Law and Society Review* 28(5): 1079.

140 For a more comprehensive account of *sasi laut*, see Harkes, *supra*, note 138.

141 See Indah, Susilowati. (1999). 'An Analysis of Co-Management Fisheries in West Sumatra Province, Indonesia: A Case Study of Ikan Larangan'. Proceedings of the International Workshop on Fisheries Co-Management, 23-28 August 1999, Penang, Malaysia.

general police.¹⁴² In the past, criminal cases were only investigated by the police and the navy. The introduction of the civil service investigator under the *Fisheries Act* was designed to remedy the lack of knowledge within the police and the navy on fisheries management matters.

In relation to the enforcement of the Act, especially on the infringement of criminal provisions, such as the use of illegal fishing methods and gear, arrest of foreign illegal fishers, the above government bodies have the full power for investigations. However, due to the limited capacity of the DKP to patrol the Indonesian sea, most enforcement measures are conducted by the navy and the police. The power of the DKP, the police, and the navy to investigate and to make an arrest is specified under Article 73 of the *Fisheries Act*. The Minister of the DKP can also coordinate the enforcement of the Act with the police and the navy.

Under Article 73(4), the DKP investigator, the police, and the navy have the power to investigate, to arrest, and to confiscate documents and vessels as evidence. For the purposes of investigation they can take a person into custody for up to 20 days. Once the investigation is completed, a report is provided to the public prosecutor for formal prosecution. Formal prosecution is conducted as in any other criminal case and brought to the general court.

The DKP has developed a strategic plan to improve the level of enforcement, which includes: (i) intensifying coordinated patrols between the DKP, navy, air force and police in nine vulnerable areas; (ii) building international cooperation, especially with ASEAN countries to conduct coordinated patrols; (iii) developing fisheries supervision agencies in Bitung, Tual, Pontianak, Belawan and Jakarta; (iv) establishing five special fisheries courts in Belawan, Jakarta, Pontianak, Bitung and Tual; (v) prosecuting government officials involved in illegal fishing; (vi)

capacity building amongst those involved in fisheries management; and (vii) developing networks of people to oversee the enforcement of fisheries legislation.¹⁴³

It is also important to recognize that in the last five years, the Indonesian government has developed certain mechanisms to supervise the implementation of offshore fisheries legislation. The DKP in cooperation with the police and the navy has regularly conducted coordinated patrols in targeted fishing zones. The main objective of these patrols is to catch illegal foreign fishers within Indonesian waters and at the same time to try to detect any Indonesian fishers that may be using illegal gear or fishing outside their designated fishing zones. For example, in May 2007 a DKP patrol boat successfully caught four Vietnamese boats fishing in Indonesian fishing zones with 135 crew members. In total, from January-June 2007, DKP patrol boats caught 618 fishing boats and successfully brought 69 boats to justice. Among those 69 boats were 36 foreign fishing boats. Unfortunately, the DKP only has 20 patrol boats to guard the entire coastline and EEZ of Indonesia.¹⁴⁴ This makes coordinated patrols with the police and the navy essential.

Another instrument used by the Indonesian government is the application of transmitters and Vessel Monitoring Systems (VMS) in order to intensify control and enforcement measures on commercial fishers. For example, since 2003 the DKP has donated and installed VMS on 1,500 vessels with a capacity of more than 100 GT. The VMS is a tool to monitor the movement of vessels in the ocean. If the equipment is activated, the DKP can track the movement of the vessel so as to determine whether a particular vessel is fishing within its licence zone or not. However, only 50% of these vessels activate their VMS. Most fishing operators are reluctant to buy and activate VMS because it will cost them extra money. One VMS costs around US\$ 1,200 to US\$ 1,600. This additional cost makes most fishing operators reluctant to install it on their fishing fleets.

142 Article 73 of the Fisheries Act.

143 DKP (2005). 'Langkah Strategis Penanggulangan Illegal Fishing' (Strategic Planning for the Prevention of Illegal Fishing). DKP National Workshop. Available at <http://www.dkp.go.id/content.php?c=1985> (consulted: 5 February 2008).

144 'DKP Tangkap 4 Kapal Vietnam' (DKP Catches 4 Vietnamese Boats). KOMPAS. 7 June 2007.

According to the latest DKP report, 729 VMS have been installed and activated by commercial fishing vessels at their own initiative. The DKP hoped that by the end of 2007, about 70-80% of fishing vessels with 100 GT would have VMS equipment, and by the end of 2008, all fishing vessels with 100 GT and more would have installed their own VMS, so that the DKP could remove their donated VMS and reinstall them on smaller vessels.¹⁴⁵

In order to make VMS compulsory for all foreign vessels operating in the EEZ and for Indonesian vessels with a capacity of more than 60 GT, the DKP established a regulation called *Peraturan DKP Nomor PER 05/MEN/2007 tentang Penyelenggaraan Sistem Pemantauan Kapal Perikanan (DKP Regulation Number PER 05/MEN/2007 on the Vessel Monitoring System)*. This regulation explicitly states that every fishing vessel

with a capacity of more than 60 GT shall install and activate VMS on their vessel. The contravention of this rule is sanctioned under Article 100 of the *Fisheries Act*.¹⁴⁶

These control measures should be sufficient to deter illegal and unregulated fishing, but the level of enforcement is still far from perfect. According to some analysts, there are at least five factors that hinder the enforcement of fisheries legislation: (i) the lack of personnel to supervise the implementation of the legislation, (ii) the lack of supporting facilities for civil service investigators, the police, and the navy to patrol and investigate illegal, unreported and unregulated (IUU) fishing, (iii) the lack of knowledge and skill of law enforcers to carry out their jobs, (iv) acute corrupt practices among law enforcers, and (v) sectoral rivalry among government departments at the national level.

III. The impact of and coherence with international agreements and organizations

1. Fisheries management

As a member of the international community, Indonesia is bound by several international treaties on fisheries and marine resources. However, Indonesia is only a party to 'general conventions' such as the *United Nations Convention on the Law of the Sea* (UNCLOS).¹⁴⁷ Indonesia has not ratified the following 'specific conventions': (i) *Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas*;¹⁴⁸ (ii) *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*.¹⁴⁹

a) UNCLOS

i) Coastal zone and archipelagic waters

Since Indonesia is only bound by UNCLOS which has very limited provisions on fisheries management in coastal zones and archipelagic waters, Indonesia's responsibility is limited to general responsibilities. Several provisions that may have important implications for fisheries management are stated in Part XII, which calls upon member states to: (i) protect and preserve its marine environment;¹⁵⁰ (ii) prevent, reduce and control pollution of the marine environment from any source, in accordance to its capabilities;¹⁵¹ (iii) not to transfer, directly or indirectly, damage or hazards from one area to another or

145 'DKP Laksanakan Pemasangan Alat VMS bagi Kapal Ikan' (DKP Installing VMS Equipment in Fishing Boats). ANTARA News Agency. 7 August 2007.

146 DKP Regulation Number PER 05/MEN/2007 on the System of Fishing Vessel Observation, Article 24(1).

147 (1982) 21 International Legal Materials 1261. Indonesia ratifies UNCLOS on 3 February 1986.

148 (1994) 33 International Legal Materials 968.

149 (1995) 34 International Legal Materials 1542.

150 UNCLOS, Article 192.

151 Ibid., Article 194.

transform one type of pollution into another;¹⁵² and (iv) cooperate on a global and regional basis to formulate international rules and standards.¹⁵³

Apart from the above general responsibilities, Indonesia, being a sovereign nation, has full sovereignty to engage in fishing activities within the territorial sea or coastal zone.¹⁵⁴ The above obligations can be used to hold Indonesia responsible if fishing methods used in its territorial sea cause marine pollution or environmental damage to other countries. However, the core problem of fisheries – overfishing – is not tackled by UNCLOS.

ii) EEZ

Part V of UNCLOS establishes several important rules that have implications for off-shore fisheries. The coastal state has sovereign rights of exploitation but is also bound to ensure sustainability. The state is required to determine the TAC. If the state does not have the capacity to harvest the entire allowable catch, it shall, through agreements, give other states access to the surplus.¹⁵⁵ UNCLOS also provides basic rules on highly migratory species,¹⁵⁶ marine mammals,¹⁵⁷ restriction on transfer of rights,¹⁵⁸ and enforcement of laws and regulations of the coastal states.¹⁵⁹

It is justifiable to say that UNCLOS has significantly influenced fisheries management regimes in Indonesia. One obvious example of the impact of UNCLOS on Indonesia is the enactment of the *Law No. 5/1983 on Indonesian Exclusive Economic Zone*. This Act declares an Indonesian EEZ and fixes its geographical limits. It goes on to specify the rights and duties of the Indonesian government concerning the EEZ with Part V of UNCLOS in mind.

b) CBD

As a party to the *United Nations Convention on Biological Diversity* (CBD),¹⁶⁰ Indonesia is also responsible for preserving its marine environment. Since the CBD is not directed specifically towards fishing activities, Indonesia's responsibility under the Convention follows the general requirements of the Convention such as to:¹⁶¹

- (a) Integrate consideration of the conservation and sustainable use of biological resources into national decision-making;
- (b) Adopt measures relating to the use of biological resources to avoid or minimize adverse impacts on biological diversity;
- (c) Protect and encourage customary use of biological resources in accordance with traditional cultural practices that are compatible with conservation or sustainable use requirements;
- (d) Support local populations to develop and implement remedial action in degraded areas where biological diversity has been reduced; and
- (e) Encourage cooperation between its governmental authorities and its private sector in developing methods for sustainable use of biological resources.

On the whole the obligations imposed by UNCLOS and the CBD are too general to be used as a precise standard by the Indonesian government for developing national policies and legislation on fisheries.

152 Ibid., Article 195.

153 Ibid., Article 197.

154 For more explanation, see de Yturriaga, J.A. (1997). *The International Regime of Fisheries: From UNCLOS to the Presential Sea*, pp.99-103. The Hague: Martinus Nijhoff.

155 UNCLOS, Article 62(1) and (2).

156 Ibid., Article 64.

157 Ibid., Article 65.

158 Ibid., Article 72.

159 Ibid., Article 73.

160 (1992) 31 *International Legal Materials* 818.

161 CBD, Article 10.

c) *FAO Code of Conduct*

The *1995 FAO Code of Conduct on Responsible Fisheries* is more specific than UNCLOS and CBD. It employs a voluntary approach but incorporates some elements of binding international agreements such as UNCLOS, the *Compliance Agreement* and the *Straddling Stock Agreement*. The *FAO Code* covers all fisheries activities including those within a coastal state's territorial waters or EEZ as well as those on the high seas.¹⁶² The *FAO Code*, however, suffers from being too broad and too vague, as can be seen in the following provision.

*States should prevent overfishing and excess fishing capacity and should implement management measures to ensure that fishing effort is commensurate with the productive capacity of the fisheries resources and their sustainable utilization. States should take measures to rehabilitate populations as far as possible and when appropriate.*¹⁶³

That particular provision is left undefined and difficult to understand as there is no exact explanation on how states may implement these measures, by what means states should prevent overfishing, and what in fact constitutes overfishing. These loose provisions may create problems at the implementation level because every state can interpret it differently based on their national interests and needs.

In spite of its vagueness, the *FAO Code* has a major impact on Indonesian national policies and legislation on coastal and off-shore fisheries. As demonstrated in several provisions of the *Fisheries Act* discussed in coastal fisheries, Indonesia has incorporated several management instruments derived from the *FAO Code* in its national legislation and policy. In fact, the *FAO Code* has become the jargon of the Indonesian government in disseminating the message of responsible fisheries since the establishment of the DKP.

d) *CCSBT*

An important international organization for the region is the *Commission for the Conservation of Southern Bluefin Tuna* (CCSBT). The establishment of this organization was triggered by the fact that Southern Bluefin Tuna (SBT) was being heavily exploited. In the early 1960s, the annual catch of SBT was about 80,000 tonnes and continued to decline due to the significant decline of mature fish. In the 1980s, several countries that were heavily involved in SBT fishing realized that without proper management, the SBT would be in danger.¹⁶⁴ As a result, Japan, Australia and New Zealand initiated the establishment of a special convention for the conservation of SBT called the *1993 Convention for the Conservation of Southern Bluefin Tuna* (hereinafter SBT Convention).¹⁶⁵

The main objective of the *SBT Convention* is “to ensure, through appropriate management, the conservation and optimum utilization of southern blue fin tuna”.¹⁶⁶ The Convention also provides several measures to ensure sufficient protection of SBT by asking its member states to exchange scientific information and other relevant data that are considered important for conservation purposes.¹⁶⁷

While the objectives of the *SBT Convention* are important for the conservation of SBT, the convention may not be sufficient to protect SBT in general because several principal nations that are involved in SBT fishing such as Indonesia, Philippines and Taiwan are not Parties to the *SBT Convention*. The Republic of Korea, one of the main fishing nations, only joined the Commission on 17 October 2001. As a result, the effectiveness of the Convention is limited.

In order to maximize its effectiveness, the *SBT Convention* opens up the possibility for non-member states to be actively involved in the management of

162 For a general discussion of the *FAO Code*, see Edeson, W.R. (1996). ‘The Code of Conduct for Responsible Fisheries: An Introduction’. *International Journal of Marine and Coastal Law* 11: 233.

163 *FAO Code of Conduct for Responsible Fisheries*, Article 6(2).

164 See official website of CCSBT at <http://www.ccsbt.org/docs/about.html> (consulted: 4 February 2008).

165 Full text of the SBT Convention available online at http://www.ccsbt.org/docs/pdf/about_the_commission/convention.pdf. This Convention entered into force on 20 May 1994 (consulted: 5 February 2008).

166 *Ibid.*, Article 3.

167 *Ibid.*, Article 5.

SBT, although without voting rights. In its 2003 meeting, for instance, the Commission of the Convention invited cooperating non-members like South Africa, the Philippines and the EU to participate in the business of the *SBT Convention*. Indonesia, however, has never formally lodged its application as cooperative non-member of the *SBT Convention*.¹⁶⁸

Since Indonesia is not a member to the *SBT Convention*, the influence of the Convention on policy formulation in Indonesia is limited. However, being one of the main producers of SBT, Indonesia should seriously consider its involvement in the Convention as it will benefit Indonesia in the long run.

2. International trade agreements

As a member of the World Trade Organization (WTO), Indonesia is bound by WTO rules.

Certain practices relating to shrimp products, such as an import ban on shrimp, except for shrimp seeds, from Thailand and Viet Nam have been criticized as contradicting WTO rules. In defending its position, the government argues that the Indonesian import ban of shrimp is based on health considerations because heavy doses of antibiotics are applied during shrimp raising.

Indonesian policy and legislation on promoting fisheries and fisheries-related products can also be considered consistent with international trade agreements. Indonesia has never been involved in a dispute with other countries over fish or fish-related

In conclusion, Indonesia's *Fisheries Act* and other national policies on fisheries have, to some extent, followed a modern approach as required by some of the international treaties and standards. As discussed above, certain requirements in catch and access restrictions and other technical measures are adopted from widely accepted international practices. It is fair to say that at the legislation and policy level, Indonesia has complied with pertinent international conventions. However, serious deficits remain at the level of setting specific standards and enforcement.

products. Nonetheless, policies on subsidies for artisanal fishers and coastal communities may be challenged as not being in line with WTO rules.

To avoid possible criticism from WTO members, in the WTO Negotiation Group on Rules held in Geneva in July 2007, the Indonesian delegation proposed several exemptions from fisheries subsidies, especially for artisanal and small-scale fishermen. According to this proposal, artisanal and small-scale fishing should receive special and differential treatment. These exemptions should be made conditional on there being no present or future detrimental effect on fisheries resources. Financial assistance to improve food safety and food security should also be allowed. Assistance that would encourage IUU fishing and market distortions, however, should not be allowed.¹⁶⁹

3. Fisheries organizations promoting fisheries

Apart from global fisheries instruments, several regional fisheries organizations play a role in shaping regional and national offshore fisheries regimes. Indonesia, as one of the global players on fisheries, is also affected by regional fisheries organizations. In fact, under the

Fisheries Act, the government has an obligation to play an active role in regional and international fisheries organizations.¹⁷⁰ Among others, the following organizations have a significant impact on Indonesian fisheries policies.

168 Supra, note 164.

169 WTO. 'Fisheries Subsidies: Proposed New Discipline-Proposal from the Republic of Indonesia#'. Available online at http://www.oceana.org/fileadmin/oceana/uploads/WTO_Documents/TN.RL.GEN.150_INDONESIA_2_JULY_2007.doc (consulted: 5 February 2008).

170 Fisheries Act, Article 10(2).

Indonesia is a member of the *1985 Agreement for the Establishment of the Intergovernmental Organization for Marketing Information and Technical Advisory Services for Fisheries Products in the Asia and Pacific Region* (INFOFISH).¹⁷¹ The main objectives of this agreement are to help member states in the region to develop their fisheries resources in accordance with market demand, to modernize and to contribute to a more balanced supply and demand of fish products, and to maximize export opportunities within and outside the region.¹⁷²

The Southeast Asian Fisheries Development Center (SEAFDEC) is an autonomous inter-governmental body established as a regional treaty organization in 1967 for the promotion of fisheries development in Southeast Asia. The main objective of this organization is:

*to contribute to the promotion of the fisheries development in Southeast Asia by mutual cooperation among the member governments of the Centre ... and through collaboration with international organizations and governments external to the Centre.*¹⁷³

In order to achieve these objectives, the SEAFDEC is actively involved in training staff from member states on fisheries technology, marine engineering, post-harvest technology, and aquaculture. The Center also conducts research on fishing gear technologies and fishing ground surveys. Another important function of the Center is facilitating the transfer of technology to member states in the region.¹⁷⁴

Another important regional organization that contributes to the development of fisheries policies is the Asia-Pacific Fishery Commission (APFIC). This

organization was established by the FAO in 1948 under Article XIV of its constitution. APFIC is one of the oldest regional fisheries bodies.¹⁷⁵ This organization also represents the biggest producers of fisheries and aquaculture in the world because it has 20 member states, including Indonesia.¹⁷⁶

As a consultative forum, APFIC works in partnership with other regional organizations, arrangements and members. It provides advice, coordinates activities, and acts as a clearing house to increase knowledge on fisheries and aquaculture in the Asian-Pacific region. APFIC aims 'to promote the full and proper utilization of living aquatic resources by the development and management of fishing and culture operations by the development of related processing and marketing activities in conformity with the objectives of its members'.¹⁷⁷

In relation to the development of fisheries policies in the Asian-Pacific region, APFIC has successfully initiated several programmes which can be divided into four stages:¹⁷⁸

- (i) Early development (1948-1962). During this period, it concentrated on the promotion of fisheries research development in its member States.
- (ii) Action-oriented period (1962-1980). In this period, the Commission concentrated on practical features of fishing industries and fisheries planning issues;
- (iii) EEZ programme period (1980-1990). During this period, the Commission's major efforts were directed towards developing regional and inter-regional programmes aimed at assisting

171 Full text of the INFOFISH Agreement available at <http://www.fao.org/legal/TREATIES/020t-e.htm> (consulted: 5 February 2008).

172 Ibid., Article 3.

173 Full text of the 1967 Agreement Establishing the Southeast Asian Fisheries Development Center (SEAFDEC Agreement) available at <http://iea.uoregon.edu/texts/1967-SoutheastAsianFisheriesDevelopmentCenter.EN.htm> (consulted: 9 February 2009). See Article 1.

174 Ibid., Article 2.

175 For more information, see APFIC official website at <http://www.apfic.org/> (consulted: 15 February 2008).

176 Member States of APFIC are: Australia, Bangladesh, Cambodia, PR China, France, India, Indonesia, Japan, RO Korea, Malaysia, Myanmar, Nepal, New Zealand, Pakistan, Philippines, Socialist Republic of Viet Nam, Sri Lanka, Thailand, United Kingdom, United States of America.

177 Supra, note 175.

178 Deb, Menasveta. (2000). APFIC: Its Changing Role, pp.75-77. Bangkok: APFIC Secretariat.

its member States to achieve self-reliance in the development and management of fisheries in their EEZ; and

- (iv) In the last decade, efforts have been directed towards assisting member States in achieving sustainable fisheries development by promoting responsible fisheries and aquaculture practices.

Apart from the above activities, APFIC also focuses its efforts on the following activities: (i) policy documentation of its member States; (ii) code of

conduct of responsible fisheries; (iii) trade, certification and food safety; (iv) statistics, trend, and information; (iv) regional issues on fisheries and aquaculture; and (vi) maintaining a close relationship with the FAO Department of Fisheries and Aquaculture.

A positive contributions of APFIC to Indonesia is the development of the *Strategic Planning for Development of Marine and Fisheries Affairs From 2005-2009*,¹⁷⁹ assisting the Indonesian government in rebuilding the fisheries sector after the tsunami disaster in Aceh in 2004.¹⁸⁰

IV. Special provisions of fisheries governance for the Exclusive Economic Zone

1. Management tools

The *Fisheries Act* serves as an umbrella act covering all Indonesian seas, including the EEZ.¹⁸¹ As already noted, the EEZ boundary is specifically regulated under the *Law No. 5/1983 on Indonesian Economic Exclusive Zone* (hereinafter *IEEZ Act*). The *IEEZ Act* contains nine chapters and 21 articles. The provisions that have relevance for fisheries management are Articles 4-8. Article 4 lays down the sovereign rights and duties of the Indonesian government in the IEEZ. For example, the Indonesian government has the right to explore and exploit natural resources within its EEZ, but at the same time has duties to protect and conserve its environment.¹⁸² In addition, other states may explore and exploit the IEEZ, but they have to obtain the permission from the Indonesian government and make sure that their operation will not harm the environment of the EEZ.¹⁸³

In relation to fisheries operations in the EEZ, the Act states that:

... exploration and exploitation of natural resources of the Indonesian EEZ ... by any person or legal entity or government of other States are allowed if

*the utilization of such resources is beyond the capacity of the Indonesian people and government.*¹⁸⁴

The *Fisheries Act* states that foreign fishing boats with no proper licence should store their fishing gear inside their ship if they are within Indonesian fishing zones. Similarly, foreign fishing fleets with a proper licence should only use one type of fishing gear and refrain from using others. They should also operate only in the particular fishing zone specified in their licence.¹⁸⁵ Detailed requirements for fishing fleets operating in the IEEZ are regulated under specific ministerial regulations and will be discussed in detail below.

Although there is no specific act governing EEZ fisheries, detailed requirements for fishing fleets operating in the EEZ are regulated under the *Peraturan Menteri Kelautan dan Perikanan No. PER.17/MEN/2006 tentang Usaha Perikanan Tangkap (Regulation of Minister of Marine Affairs and Fisheries No. PER. 17/ Men/2006 on Capture Fish Business* (hereinafter *CFB Regulation*).¹⁸⁶ This regulation aims to specify fisheries management (coastal and offshore) in general but has specific impacts on EEZ fisheries because industrial

179 The summary of the Strategy is available at <http://www.apfic.org/modules/xfsection/article.php?articleid=29> (consulted: 5 February 2008).

180 For more information, see <http://www.apfic.org/modules/mylinks/viewcat.php?cid=9> (consulted: 5 February 2008).

181 Fisheries Act, Article 5(1).

182 IEEZ Act, Article 4(1).

183 Ibid., Article 5(1) and (2).

184 Ibid., Article 5(3).

185 Fisheries Act, Article 38 (1) and (2).

186 Full text of CFB Regulation can be obtained from the Office of the Ministry of Marine Affairs and Fisheries, Jakarta.

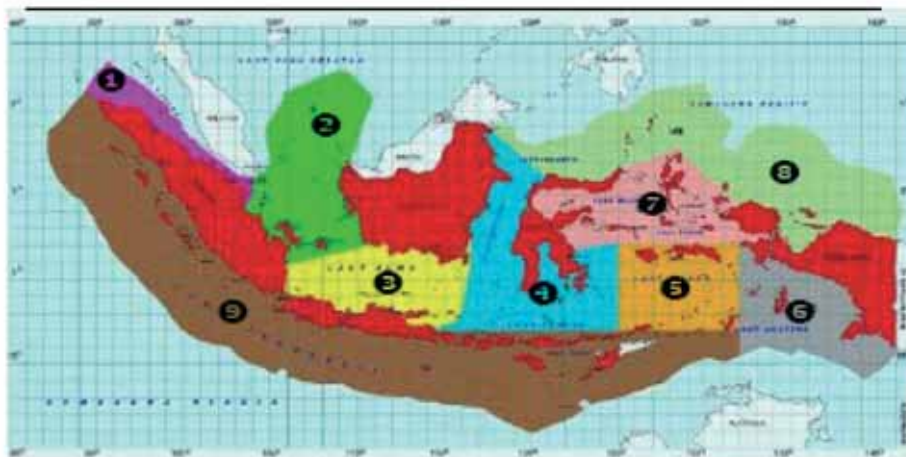
fishing companies mostly operate in the EEZ and because the regulation introduces special conditions for foreign fishing fleets operating in the EEZ. Since all requirements for Indonesian fishing fleets are still the same and have been discussed earlier, the following section will only discuss the offshore fisheries aspect of the regulation.

The main objectives of this regulation are to explain the provisions and to give full effect to the *Fisheries Act*. Another important feature of this regulation is its explicit statement that fisheries management in Indonesia has to consider the *Straddling Fish Stock Agreement* and the *Code of Conduct for Responsible Fisheries*.¹⁸⁷ This is also evidence of the positive influence of global fisheries agreements on Indonesian fisheries laws and policies.

The *CFB Regulation* is quite detailed by Indonesian standards as it has 83 Articles and 19 chapters. This regulation specifies nine fishing zones that can be used by domestic and foreign fishing fleets (see Figure 4). These zones are:¹⁸⁸

- a. Malaka Strait (Fishing Zone 1);
- b. South China Sea, Karimata Strait and Natuna Sea (Fishing Zone 2);
- c. Java Sea and Sunda Strait (Fishing Zone 3);
- d. Flores Sea and Makassar Strait (Fishing Zone 4);
- e. Banda Sea (Fishing Zone 5);
- f. Arafura Sea, Aru Sea and Eastern Part of Timor Sea (Fishing Zone 6);
- g. Maluku Sea, Teluk Tomini Water and Seram Sea (Fishing Zone 7);
- h. Sulawesi Sea and Pacific Ocean (Fishing Zone 8); and
- i. Indian Ocean, Western part of Timor Sea, Bali Strait and Sewu Sea (Fishing Zone 9).

Figure 4. Fishing zones



Source: DKP, National Plan of Action (NPOA) for the Management of Fishing Capacity, Directorate of Fisheries Resources Directorate General of Capture Fisheries, 2006.

187 See the Consideration in the Preamble of the CFB Regulation.

188 CFB Regulation, Article 3(3).

These fishing zones are mostly located in the eastern part of Indonesia which is believed to be underexploited, compared to the western part. The establishment of these zones is also considered as a conservation measure as big fishing fleets can only operate in these predetermined locations. Article 5 of the *CFB Regulation*, for instance, states that for the purpose of fish conservation, a particular fishing zone can be closed by the government with a specific ministerial decree.¹⁸⁹

In order to improve the efficiency of fishing management, this regulation obliges the Directorate General to give the applicant the Instruction to Pay (*Surat Perintah Pembayaran*) within 11 working days. Once the applicant pays the licence fee, the Directorate General shall grant the licence within five working days.¹⁹⁰ Another effort by the government to maximize efficiency when processing fishing licences is the introduction of 'bulk applications'. Under this scheme, a fishing company that owns fish transportation vessels can include the vessel licence in one fishing licence application.¹⁹¹ It is important to note that all fishing licence applications require a physical examination before the government can grant the licence. In a physical examination, the applicant has to submit the ship's registration, seaworthiness certificate, a copy of the ship's design, fishing gear, and other physical evidence.¹⁹²

As regards conservation measures, this regulation has no detailed provisions as it has been incorporated into the *Fisheries Act*. The *CFB Regulation* only concentrates on the management aspect of coastal and offshore fisheries. However, a few provisions indirectly touch on conservation measures. For example, the designation of nine fishing zones can be considered as a conservation measure because it prohibits commercial fishing in already overfished zones. Similarly, the

prohibition of several types of fishing gear such as trawl nets, and fishing methods such as use of explosives and poison, can also be considered a conservation measure. Lastly, the provision on the use of a VMS on every foreign vessel and Indonesian fishing vessels with more than 100 GT capacity can also be considered a conservation measure.¹⁹³

It is also important to note that there is no rights-based management system in the EEZ fisheries. However, there are some fisher communities in the eastern part of Indonesia such as Timor, Buton and other islands that can fish in the EEZ and even travel into Australian waters.¹⁹⁴ Such practice is still recognized by the Australian government as documented under the *MoU regarding the Operations of Indonesian Traditional Fishers in Areas of the Australian Fishing Zone and Continental Shelf* in 1974.¹⁹⁵ This MoU recognizes the rights of access for traditional Indonesian fishers in the shared waters to the north of Australia. This access was granted in recognition of the long history of traditional Indonesian fishers that had been fishing the area.¹⁹⁶ This MoU also enables Indonesian traditional fishers to fish their target species such as *trepang*, *trochus*, Abalone and sponges.¹⁹⁷

Such practice is not recognized by Indonesian law as rights-based management. In fact the Indonesian government has discouraged Indonesian fishers from fishing in Australian waters since it creates political tensions between the two countries due to shark finning. Under the 1989 interpretation of the Australian government of the MoU, not all traditional fishers can be classified as such because some of them use non-traditional boats and gear. Some of the boats even have inboard engines. This new interpretation has made some Indonesian traditional fishers lose their privileges under the 1974 MoU.¹⁹⁸

189 Ibid., Article 5(1).

190 Ibid., Article 21.

191 Ibid., Article 23(2).

192 Ibid., Articles 35-37.

193 Ibid., Article 78(1) and (2).

194 See 'Authorities Swoop on Indonesian Fishers', Media Release of the Office of Senator Ian Macdonald, 6 July 2004.

195 Full text of the MoU available at <http://epress.anu.edu.au/apem/boats/html/frames.php> (consulted: 3 February 2008).

196 For more comprehensive information, see Stacey, N. (2007). *Boats to Burn: Bajo Fishing Activity in the Australian Fishing Zone*. Canberra: ANU E Press.

197 For more information and the development of this MoU, see the Department of Agriculture, Fisheries and Forestry of Australia at <http://www.daff.gov.au/fisheries/international/regional/indonesia> (consulted: 5 February 2008).

198 Stacey, supra, note 196, Chapter 5.

It is also important to understand that apart from licence fees, every commercial fishing company has to pay certain fees if they use services provided by the government. The amount is determined by the government based on the size of fishing fleets. These fees are considered as non-tax revenues and are specifically regulated under the *Government Regulation No. 62/2002 on Tariff and Types of Non-Tax Revenue of the Department of Fisheries and Marine Affairs* (hereinafter *GR. No. 62/2002*).¹⁹⁹ Under this regulation, a commercial fisher has to pay the following fees: fish levy, port services, fish quality control, quarantine, and rent of port facilities. An Indonesian fisher with more than 30 GT or more than a 90 horse power engine and operating outside 12 nautical miles is required to pay such fees. Similarly, every foreign fisher operating in the EEZ is subject to such fees. However, foreign fleets have to pay more than to Indonesian fishing fleets.²⁰⁰

Another restriction imposed by the Indonesian government on EEZ fisheries is similar to the one imposed on coastal fisheries. The use of the following types of fishing gear and methods is prohibited: trawl, shrimp and fishing nets operated by two boats; chemicals, explosives, poison and electricity.²⁰¹ In addition, the Indonesian government has also established several guidelines for commercial fishing boats. For example, every fishing boat operating in the EEZ must have a seaworthiness certificate, and its size, engine, fishing gear and supporting gear, crew, etc. should fulfil all the administrative requirements established by the government.²⁰²

Another management instrument that is recognized by the *Fisheries Act* is the establishment of TACs. Unfortunately, up to now the DKP has not set TACs for coastal and EEZ fisheries. This instrument

has not been fully utilized for managing the fisheries industry in Indonesia. For instance, Indonesia has no national TAC for SBT and other important species. The Indonesian TAC for SBT is determined by the CCSBT because Indonesia is classified as a cooperating non-member and observer of the CCSBT. Under this mechanism, the CCSBT allocates a 750-tonne TAC for Indonesia per year for the period of 2009-2011.²⁰³

The main reason for this is that the Indonesian government does not have sufficient scientific data and information on the state of its fish resources, especially in the EEZ. It is unfortunate that this important instrument is not used as the main management tool to develop and manage Indonesian fisheries. Therefore, it is important for the DKP to maximize their efforts in order to enhance their capacity to develop an acceptable model and technical capacity to determine TAC in every Indonesian fishing zone.

The *CFB Regulation* imposes several restrictions on foreign fishing industries that plan to invest in the EEZ fisheries.²⁰⁴ Foreign individuals or companies, for instance, must establish a processing unit before they apply for a fishing licence in the IEEZ. That processing unit has to be registered and located in Indonesia.²⁰⁵ This regulation also requires a foreign company to have an Indonesian partner with at least a 20% share in such an investment.²⁰⁶ The main reason behind this regulation is to provide and create new jobs for coastal communities and the Indonesian people in general. Such a policy also aims at integrating coastal communities with foreign fishing companies, which usually sell their harvest to foreign markets or foreign fishing processing industries. As a result, the Indonesian government loses some potential benefits from foreign fishing companies.

199 'Peraturan Pemerintah No. 62/2002 tentang Tarif atas Jenis Penerimaan Negara Bukan Pajak yang Berlaku pada Departement Kelautan dan perikanan' (Government Regulation No. 62/2002 on Tariff and Types of Non-Tax State Revenue of the Department of Fisheries and Marine Affairs). State Gazette, 2002, No. 118.

200 GR No. 62/2002, Article 7. For more detail of the fee structure for foreign fleets, see Appendix of this Regulation.

201 Fisheries Act, Article 8(1). See also DKP. 'Identifikasi Beberapa Alat Penangkapan Ikan yang Diperbolehkan dan yang Di larang oleh Pemerintah' (Identification of Allowable and Prohibited Fishing Gears by the Government). DKP News. 14 February 2006.

202 DKP. 'Juklak Prosedur Pengukuran dan Pengujian Kelayakan Kapal Perikanan' (Implementing Guidelines on Measuring and Testing Procedures of Fishing Boat Seaworthiness). DKP. 1 February 2006.

203 See CCSBT website at <http://www.ccsbt.org/docs/management.html> (consulted: 5 February 2008).

204 CFB Regulation, Article 46(1).

205 Ibid., Article 47(1).

206 Ibid., Article 48(1).

This regulation has been criticized by several scholars and practitioners for being too rigid and preventing licence applications from foreign fishers. This policy may contradict the main objective of fisheries development, in which the Indonesian government actively promotes Indonesia as a profitable place to invest in fish industries. Other critics, such as most Indonesian fishers, think that it is necessary to have such policies, if the government wants to empower the local fishing industry. According to them this policy not only protects domestic fishers from the flow of foreign fishers, but also protects Indonesia's fish stocks from overexploitation.

Apart from the conditions mentioned above, this regulation also provides administrative and criminal sanctions for non-compliance. Article 68 clearly states that the government can impose administrative and criminal sanctions for non-compliance. These

2. Institutional/organizational structures

The institutional structure of EEZ fisheries management is dominated by a top-down instead of a bottom-up approach. The use of the top-down approach is reflected by legal instruments where international law and formal national legislation dominate the management of EEZ fisheries. Such legislation grants significant powers to the central government in managing the EEZ. As has been briefly discussed in coastal fisheries, district governments have the power to manage their coastal areas up to four miles out from the shore, while provincial governments have the power to manage sea areas beyond four miles up to 12 miles.²⁰⁹ Thus, all aspects of fisheries management in the EEZ belong to the central government, i.e., the DKP.

The role of the DKP in EEZ management is specified under the *Fisheries Act* and *CFB Regulation*. The *Fisheries Act*, for instance, explicitly states that all commercial fishing operations taking place within Indonesian fishing zones or the EEZ, including catch,

administrative sanctions can be in the form of a warning letter, freezing of a licence, and licence revocation.²⁰⁷ In addition, criminal enforcement can be imposed on more serious infringements, such as the use of explosives, chemicals and other prohibited gear such as trawl nets, or fishing in Indonesian waters without a proper licence.²⁰⁸

We can conclude that basic fisheries management instruments are in place, but they need to be developed into more detailed regulations. For example, Indonesia needs to establish TACs in every fishing zone. Indonesia also needs to develop its licence system because up to now, it has no species-based licence, even though the *Fisheries Act* recognizes such a management tool. Without such implementing regulations, these instruments have very limited potential for the management of EEZ fisheries in Indonesia.

transport, processing and marketing, have to obtain a licence from the Minister.²¹⁰ Similarly, foreign companies that intend to fish in the EEZ also have to obtain a fishing agreement and access agreement from the government of Indonesia,²¹¹ before they can apply for a fishing licence in the EEZ. In such an agreement, the foreign government must guarantee that fishing fleets flying their flag will comply with their agreement or licence conditions.²¹²

Detailed provisions on power distribution between the central, provincial and district governments in managing commercial fishing within Indonesian fishing zones and the EEZ are specified by the *CFB Regulation*. As mentioned in previous sections, the main government institution in fisheries management is still part of the central government. This also reflects the dominant top-down approach in offshore fisheries management.

207 For detailed information on administrative sanctions, see *ibid.*, Articles 68-70.

208 See *Fisheries Act*, Articles 84-105.

209 See Law No 32/2004 on Local Government, Article 18(4).

210 *Fisheries Act*, Article 26.

211 *Ibid.*, Article 30(1).

212 *Ibid.*, Article 30(2).

It is also important to note that unlike with coastal fisheries, the role of informal institutions or community-based organizations in offshore fisheries management is very limited. This may be because most traditional fishers don't have the capacity to fish in deeper waters.

With regard to transparency in offshore fishing management, the DKP, according to the *Fisheries Act*, should provide information such as: fisheries management plans, TACs, fishing zones and seasons, areas affected by disease, and other relevant information such as pollution prevention and the minimum size and weight for allowable catch.²¹³ In addition, the government has an obligation to provide a fisheries information system and statistical data on fisheries infrastructures, fish processing and marketing, and

socio-economic aspects of fisheries management.²¹⁴

Unfortunately, some important information that should be provided by the DKP, such as TACs and the minimum size and weight of allowable catch, has not yet been determined by the DKP. Similarly, the decision-making process on fisheries-related policies is less transparent because the DKP has the final say in fisheries policies.

It is also important to note that unlike enforcement issues, the influence of corruption in the institutional structure of fisheries management has no direct correlation. Such influence may only exist in the preparation process of particular government regulations, but it can safely be said that such influence is minor.

V. Empirical case study on coastal and offshore fisheries management

The main objective of this case study is to demonstrate the importance of marine protected areas (MPA) as a management tool in fisheries management. This case study covers coastal and offshore fisheries because MPAs in Indonesia are regulated under the same law.

1. Legal basis

The legal basis for the establishment of MPAs in Indonesia can be found in the following legislation:

- (i) *Law No 5/1990 on Natural Resources and Ecosystem Conservation*;
- (ii) *Law No. 31/2004 on Fisheries*;
- (iii) *Law No 41/1999 on Forestry (Forestry Act)*;
- (iv) *Government Regulation No. 60/2007 on Fish Conservation (GR on Fish Conservation)*; and
- (v) Several ministerial decrees and provincial and local government decrees.

However, several national parks in Indonesia were established before the enactment of these laws so their establishment was based on old laws and ministerial decrees.

Since the Bali Barat National Park is connected to the Java Sea and Indian Ocean and is considered one of the most important MPAs in Indonesia, it represents well the actual condition of MPAs in Indonesia.

Some articles of these laws emphasize the importance of MPAs as a management tool to protect sensitive and important marine sites. For example, Article 30 of *Law No. 5/1990* states that a conservation zone has the function to protect ecosystems and the sustainable use of natural resources. Similarly, Article 7 (1) a of the *Fisheries Act* states that the Minister can establish fish sanctuaries. Article 6(1) of the *Forestry Act* states that the forest has three functions, namely: conservation, protection and production.

More detailed provisions on MPAs are found in the *GR on Fish Conservation*. As an implementing regulation of the *Fisheries Act*, this regulation states that fish conservation is the responsibility of the central, provincial and district governments.²¹⁵ It also states that

213 Ibid., Article 7.

214 Ibid., Articles 46-47.

215 GR on Fish Conservation, Article 3.

fish conservation includes: ecosystem conservation, fish species conservation, and fish genetic resources conservation.²¹⁶ This regulation also states that ecosystem conservation is done for all types of ecosystems that are related to fish conservation.²¹⁷ Furthermore, Article 12 states that individuals, research and educational institutions, community organizations, government institutions and NGOs can propose conservation areas.

Although the GR provides a firm basis for MPAs, most MPAs are part of national parks established by the Ministry of Forestry. This is so because MPAs usually have some forest component as a supporting system of the marine park. Since there was no DKP in the past, the power to establish a MPA belonged to the Ministry of Forestry.

Several important and large MPAs were established by the Ministry of Forestry. For example, Bunaken National Park in North Sulawesi was designated in 1991 by the *Decree of Minister of Forestry No. SK/730/Kpts-II/9*. This park is arguably one of the most beautiful diving sites in the world. Similarly, Taka Bone Rate National Park in South Sulawesi was also established in 1992 by the *Decree of the Minister of Forestry No. 280/Kpts-II/1992*. This park covers about 530,765 hectares and has attracted many tourists from all around the world.²¹⁸ The Bali Barat National Park was established by *Decree of the Minister of Forestry No 493/Kpts-II/95*.

The Indonesian government has been aware of the fact that MPAs are one of the management tools

2. Geographical conditions

Bali Barat National Park is located in Bali Province with the geographical position of 114°25' - 114°34' E; 8°05' - 8°15' S.²¹⁹ The Province of Bali consists of the main island of Bali and some small islands around Bali. Bali is unique compared to other provinces in

to protect and conserve Indonesian fish and their ecosystems. So far the Indonesian government has established several MPAs which fall into the following categories: (i) KKLD (*Kawasan Konservasi Laut Daerah* or Regional Marine Conservation Area), (ii) TNL (*Taman Nasional Laut* or National Marine Park), (iii) TWAL (*Taman Wisata Alam Laut* or Marine Nature Tourism Park), (iv) CAL (*Cagar Alam Laut* or Marine Nature Reserve), (v) SML (*Suaka Margasatwa Laut* or Marine Animal Reserve), (vi) DPL (*Daerah Perlindungan Laut* or Marine Sanctuary), (vii) DPM (*Daerah Perlindungan Mangrove* or Mangrove Protection Area), and (viii) SP (*Suaka Perikanan* or Fisheries Reserve).

These classifications are made based upon the size, the importance, and the objectives of any particular MPA. KKLDs, for instance, are established by provincial or district governments. A KKLD is usually smaller than a national park and is usually less important than a national park. The legal form for the establishment of KKLD is a governor's decree or the decree of the head of district government whilst TWAL and DPL are usually established by district or provincial governments.

This section, however, will not discuss the whole system of MPAs in Indonesia, but will concentrate on one particular national marine park called *Taman Nasional Laut Bali Barat* (Bali Barat National Park). This park is regarded as one of the most successful in Indonesia.

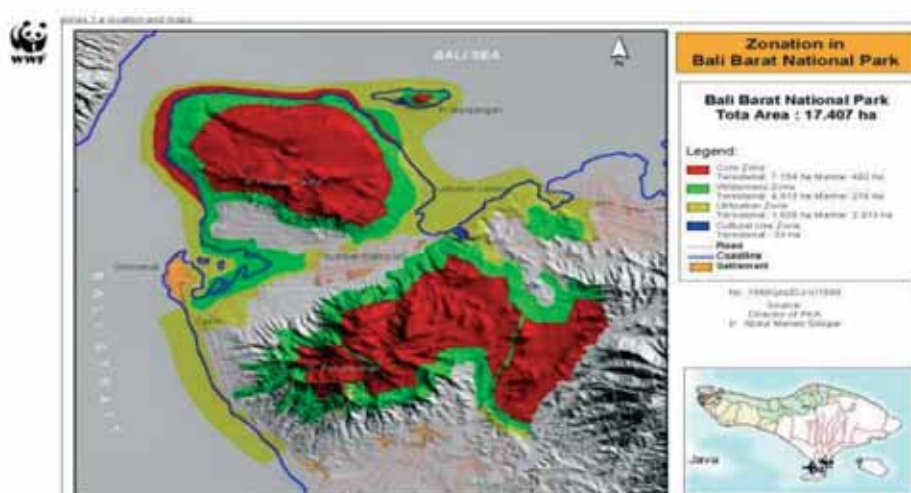
Indonesia because most of its population embrace Hinduism. Bali is also one of the most populous islands in Indonesia and its most important tourist destination. The tourism industry is the backbone of Bali economy besides agriculture.

216 Ibid., Article 4.

217 Ibid., Article 5.

218 Brochure of the Takabonerate National Park, Proyek Pengembangan Kawasan Konservasi Prop. Sulsel, SBKSDA Dep. Kehutanan Sulsel, Makassar, 1998.

Figure 5. The island of Bali and Bali Barat National Park



Source: WWF Indonesia.

The Bali Barat National Park consists of primary monsoon forests, mangrove forests, lowland rain forests, savannah, sea-grass type vegetation, coral reefs, sandy beaches, and both shallow and deep-sea waters. It was established by the Dutch in 1941 with the main objective of protecting the Bali starling. The park was then designated by the Indonesian government in 1995

with the *Forestry Ministerial Decree No 493/Kpts-II/95*. The total area of the park is 19,002.89 hectares including the marine part. The park is located in the Buleleng and Jembrana districts of the Province of Bali, and is surrounded by six villages with various ethnic populations (Balinese, Javanese, Madurese and Bugis).²²⁰

219 For more detailed information on the Bali Barat National Park, see <http://www.wonderfulbali.com/westbali/balibarat.htm> (consulted: 5 February 2008).

220 See official website of the Bali Barat National Park at http://www.tnbalibarat.com/tentang_kami.html (consulted: 5 February 2008).

The Bali Barat National Park possesses a high species richness considering its small area. According to a 1998 report, the park has 110 species of coral belonging to 18 families, of which 22 species belong to the mushroom coral family (there are just 29 species of mushroom coral recorded worldwide!). Researchers also found at least 27 species of *Acropora* coral in its two-hectare seabed area. The park is also home to at least 226 reef-related fish species.²²¹ For such a small park, these are impressive figures in terms of species richness.

Since the marine part was only included later, the coral reef was severely damaged in the meantime, by: (i) blast and cyanide fishing, (ii) habitat destruction through land clearance around the park, (iii) uncontrolled tourism development, (iv) lack of environmental awareness of the people and government, (v) uncontrolled dumping of waste, (vi)

differing and conflicting stakeholder interests, and other destructive activities. In addition, El Niño in 1997-1998 contributed to serious coral bleaching within the park. About 70-100% of the coral cover was affected by El Niño and it has only started to recover in the last six years. However, human activities are the main cause of all the problems of the park.²²²

In order to mitigate further damage, in 2000 the provincial government and other stakeholders such as the park authority, district governments of Buleleng and Djembrana, local people, the private sector (hotels and diving operators), traditional fishers, community leaders from various villages, and national and local NGOs initiated an informal forum to discuss the problems of the park and to find some meaningful solutions to save the park from further destruction. This endeavour was initiated by WWF and other NGOs.

3. Co-management

After long discussions and several attempts to persuade other stakeholders, especially the government, the park authority, tourism industry and people around the park, in February 2001, all stakeholders agreed to establish a vision and mission of the co-management of the park. Even before this initiative, the government had developed a management plan for the Bali Barat National Park but this was never fully implemented by the government and the people around the park. When WWF approached the government to contribute to the development of the park, the provincial and two district governments that had the authority to manage the park welcomed the idea.

The implementation of co-management was carried out through the establishment of a stakeholder's forum called Coastal Care Community Communication Forum of Bali Barat National Park or FKMPP-TNBB. This forum was then used as a vehicle to discuss all the park's problems and to find better and workable solutions to save the park from further damage. Only a few months after the first

meeting all stakeholders agreed to establish a work plan that was considered as a priority. This and further work plans reached by mutual agreement undertook to implement co-management of the park with clear tasks and responsibilities including regular patrols and sustainable financing.

The FKMPP-TNBB alleged that most government regulations on park conservation were never implemented as most stakeholders felt that all government regulations were top-down and they were treated as 'objects' instead of 'subjects'. The government never consulted local stakeholders on how to manage the park. As a result, the local community, dive operators, and tourism industry, did not cooperate with the government and tended to oppose all regulation of the park. This condition made all legislation useless because it remained unenforced.

To avoid a similar situation, in April 2002, the FKMPP-TNBB successfully established the 'new law' of the park which they called the *Code of Conduct of*

221 Supra, note 219.

222 See WWF programme at: http://www.panda.org/about_wwf/where_we_work/asia_pacific/where/indonesia/wwf_indonesia_conservation/bali_barat/the_background/climate_change_peril/index.cfm (consulted: 5 February 2008).

the Park. This Code of Conduct consists of the following seven simple rules:²²³

- (i) do not throw litter, waste or pollute the park;
- (ii) do not touch the reefs or walk on them;
- (iii) do not destroy or take living or dead animals/plants;
- (iv) do not feed the fish;
- (v) remind the boatman not to anchor but to use mooring or free floating boat only;
- (vi) make sure that diving equipment is securely attached to your body; and
- (vii) respect these rules whenever and wherever you go diving.

These simple rules were then communicated to the community, dive operators, and the tourism industry. It is also important to note that these simple rules are similar to the government regulation, so there is no contradiction between formal legislation with the code of conduct of the park. The only principal distinction between the Code of Conduct and the formal government regulation is the drafting process. The government regulation never involved local communities and other stakeholders in its drafting process, while the code of conduct was the result of all stakeholders contributing. Therefore, local communities and other stakeholders have a sense of

ownership toward the code compared to the formal regulation produced by the parliament and the central government. The Park Code of Conduct has strengthened the government regulation.

Once all stakeholders had enough information on the new code of conduct, they decided to conduct joint patrols with the park authority. At the same time, all stakeholders were also involved in capacity building and environmental education to enhance the environmental awareness of the people around the park. They developed suitable infrastructure in the park in order to carry out tasks effectively.

Another key issue is the willingness of stakeholders, especially the government and the private sector, to contribute financially to the implementation of the conservation programmes in the park. Financial support from the government and private sectors is managed by FKMPP-TNBB in a transparent way, so all parties involved in the management of the park know how the money received from the government, private sector and international donors, is used.

Strong and continuous support from the provincial and district governments has also played an important role in the success of this programme, creating a conducive environment for the work of other stakeholders who are strongly committed to saving the park from further destruction.

The model of co-management of the park can be seen in the following chart.

223 Neneng, Setiasih. (2003). Co-Management Approach for Marine Protected Area at Bali Barat National Park. WWF.

Figure 6. Co-management model



Source: Neneng Setiasih, *Co-Management Approach for Marine Protected Area at Bali Barat National Park*, WWF, 2003.

This figure shows that all stakeholders have a direct interest in the park. At first, there was strong disagreement between local people, the government, the private sector and NGOs because each party had its own interest. Local people, for instance, lived around the park and had depended on fish and forest-related products of the park for generations. Unfortunately, the way they interacted with the sea and the forest was very destructive as some of them used explosives and poison to fish. Similarly, they also took wood and other non-timber forest products from the park. Most NGOs wanted to see any destructive activities banned in the

4. Challenges

Even though the management of Bali Barat National Park can be classified as one of the success stories of Indonesia's MPAs, it still has some flaws that need to be fixed. One of the main challenges is that at least two separate agencies are involved in the management of the park. This is caused by the fact that the park was established by the Decree of the Minister of Forestry. Since the establishment of the DKP, in theory at least, the marine component should be managed by the DKP. However, since the promulgation of the *Autonomy Law*,

park. By contrast, tourist operators wanted to seize as much land as possible to develop hotels and other tourist attractions. The government claimed to accommodate all of these interests but most of the time they favoured the private sector since it provided local jobs.

However, all parties have become aware that they have a common interest towards the park. Aware of such common ground, the FKMPP-TNBB found it easy to convince all parties involved that they would have to work together to achieve their common goal.

the provincial and district governments also have powers to manage the park. This situation not only creates legal uncertainty, but also problems in the management of the park. For example, the government found it difficult to decide which government institution should fund the management of the park. So far, the Ministry of Forestry is responsible for providing funds, but they have very little knowledge of the marine component of the park.

This has to be solved at national, provincial and district government levels because it cannot be solved by the local community, NGOs or diving operators. The Minister of Forestry and the Minister of DKP must develop programmes or propose policy changes at the national level to avoid dualism in park management. Such a policy change is urgently needed so that provincial and district governments will have clear guidance to develop and manage the park. However, the drafting of new policies must involve other stakeholders enabling them to contribute to the policy change.

Another significant challenge faced by the park is artisanal fishers from the eastern part of Java. They have become regular visitors to the park because fish stocks in their coastal area have significantly declined over the last 10 years. Since they are outsiders, they were not included in the process of establishing the code of conduct, so they feel they can fish within the park. This situation has created tensions between the local people of Bali Barat and the visitors and requires

5. Expanding MPAs

It is fair to say that the establishment of the DKP in 1999 is a significant step towards fisheries management reform. The establishment of the DKP not only changed the old assumption that fisheries resources is a 'second-class' sector, it also lifted the status of fisheries and other marine resources to the same position as other sectors such as agriculture, mining and industry. However, the DKP is still struggling to deal with MPAs such as the Bali Barat National Park because the DKP does not have a clear mandate on how to deal with already established parks. Since the Department of Forestry is no longer the main government institution responsible for the management of MPAs, most MPAs are neglected with the exception of several parks that have a co-management system such as Bali Barat National Park. This needs to be fixed as soon as possible because it has created uncertainty in the management of all marine parks.

While the government has put many efforts into the reformation of fisheries management which culminated in the *Fisheries Act* in 2004, the law itself

regular patrols to guard the park from them. Unfortunately, regular patrols require a lot of resources and are ineffective in protecting the park from 'illegal visitors'. Therefore, it may be necessary to include and educate traditional fishers from neighbouring villages in the community meetings. Since the patrol is conducted by 'civilians' (i.e., representatives of local stakeholders) they have no formal powers to detain people. Only the park authority, police, navy and DKP inspectors have such powers.

The park has also suffered from overcrowded tourism during the high season because the park is the only good diving site in Bali. So far there are no rules to limit the number of tourists entering the park. In fact, dive operators and hotels are competing to attract holiday makers. This situation is delicate because dive operators help protect the park but at the same time they are also the reason for the overcrowding. So far, there is no formal agreement among stakeholders to solve this problem.

still needs to be further developed as it only addresses some general aspects of fisheries management. Several aspects of fisheries management are not sufficiently addressed by existing laws and regulations such as: licence systems, MPAs, and the issue of co-management of MPAs which were established before the birth of the DKP and the *Fisheries Act*.

In order to address the above problems, the Indonesian government must develop a strategic plan on MPAs at a national, provincial and district level because the existing mechanisms have several weaknesses. For example, formal legislation on MPAs has very limited provisions for co-management and on how to involve local people around the park to participate in the marine park management. Since most legislation is drafted without involving local people, its enforcement is difficult to implement at the local level.

Learning from the experience of Bali Barat National Park and other MPAs such as Bunaken

National Park²²⁴ and Komodo National Park,²²⁵ it is important for the government to pursue the idea of co-management and to involve all stakeholders around the park.

Due to the political instability after the fall of Suharto in 1998, the real reform of fisheries governance and MPAs has only started in the last five years and is gradually being developed by the current government. However, only a small proportion of the envisaged reforms introduced by the DKP, the *Fisheries Act*, and its regulations have been realized. For example, the government planned to establish 85 MPAs covering 10 million hectares by 1990 and they were to be expanded up to 50 million hectares by the year 2000. However, these targets have not been fulfilled, as by the year 2000, the Indonesian government had only established 51 MPAs, covering only about 6.2 million hectares.²²⁶

VI. Conclusions

Indonesia is one of the main fish producers in the world but its supporting ecosystems such as mangrove forests and coral reefs are heavily damaged due to population pressures, blast fishing, the use of poison, illegal fishing gear and other illegal fishing methods. The quality of Indonesian waters is also affected by land-based pollution and land reclamation in many major cities.

Indonesia has a relatively adequate basic legislation for coastal and offshore fisheries management and has successfully incorporated several management tools derived from international and regional agreements. However, some provisions of the existing legislation, especially the licensing system and TACs are too general and require implementing regulations to be effective.

Aware of this, the Indonesian government needs to expand the size of its MPAs, enhance the quality of existing MPAs, and create mutual collaboration with all stakeholders that are affected by the establishment of an MPA. In addition, the government needs to strengthen its commitment by providing an adequate budget for the development of existing and future MPAs across the archipelago. The government, especially the DKP, should take the lead in proposing policy changes for MPAs because the existing legislation and policy has created difficulties in management.

It is hoped that the above recommendations will improve the quality of marine ecosystems in general and enhance the quality of coral reefs in MPAs in Indonesia. The government must act quickly because the quality of Indonesian marine ecosystems is gradually declining.

The enforcement of existing legislation is still problematic because of the following factors: (i) lack of personnel to supervise implementation of the legislation, (ii) lack of support for civil service investigators, the police, the park authority, and the navy to patrol, (iii) lack of knowledge and skill of law enforcers to carry out their jobs, (iv) acute corruption among government officials and law enforcers, and (v) sectoral rivalry among government departments at the national level.

Indonesia has the potential to become one of the major players in the fisheries industry if the government of Indonesia seriously commits itself to fixing all the problems of fisheries governance identified in this report.

224 For more information about this park, please visit <http://www.north-sulawesi.org/bunaken.html> (consulted: 3 January 2008).

225 For more information about this park, please visit <http://www.komodonationalpark.org> (consulted: 3 January 2008).

226 Burke, L. Selig, E. and Spalding, M. (2002). *Reefs at Risk in Southeast Asia*, p.38. Washington, DC: World Resources Institute.

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2 Promotion and Management of Marine Fisheries in Kenya

Evanson Chege Kamau,* Andrew Wamukota** and Nyawira Muthiga***

Summary

With a coastline of 500-650 km and a variety of marine and wetland habitats, the marine sub-sector is host to 5,000-12,000 fishers, of which 95% are artisanal. Fishing is carried out in the near-shore areas using simple boats, and is heavily dependent on the monsoon wind patterns. The annual catch has fluctuated between 4,000-10,000 tonnes for the last 20 years with some areas reporting overfishing. While sport fishing and aquaculture are also important economic activities on the Kenyan coast, the offshore fisheries zone, which is believed to contain vast and valuable stocks of fisheries resources, is exploited by vessels from Distant Water Fishing Nations.

Apart from fishing, the Kenyan coastal zone hosts a multiplicity of other demands ranging from agriculture to tourism, shipping and ports, marine dredging, offshore oil exploration, curio trade, mining and fossil coral extraction and mangrove harvesting. All these demands on the coastal zone have led to, *inter alia*, declining fishery production, habitat destruction, resource use conflicts and a decline in biodiversity. Resource-overuse, tourism, prawn trawling and salt production firms have been blamed for the decline in fish catches.

The decline in the marine fishery is generally attributed to overfishing brought about by increased human population. The increased fisher population has seen traditionally non-fisher tribes joining the fish trade in addition to migrant fishers, and has witnessed an upsurge of destructive fishing practices. The overuse of the reef area is particularly evident through the

declining numbers of finfish and the increased numbers of sea urchins. Fish habitats have also been negatively affected by the activities of the salt recovery industries, tourism and prawn trawling.

Domestic legal instruments are thorough enough and are theoretically sufficient to deal with problems of unsustainable use of marine resources. The Fisheries Act of 1989, for instance, empowers the Director of Fisheries, with the approval of the Minister, to issue regulations to promote the development of fisheries and aquaculture and to ensure the proper management of specific fisheries. This includes the possibility of declaring closed seasons and/or areas, access limitations, and restrictions on fishing methods, gear, and the characteristics of fish that may be caught. The Act further establishes the basis for the registration and licensing of local and foreign fishermen and fishing vessels, enforcement in terms of prohibited methods of fishing, including the use of chemicals and trade in fish illegally caught, as well as prohibition on fishing for marine mammals in Kenya waters. The Wildlife (Conservation and Management) Act, on the other hand, enforces regulation although only within marine protected areas (MPAs).

However, effective implementation of these laws has suffered several setbacks, *inter alia* the lack of enforcement capacity/personnel especially in the EEZ, and overlapping administrative responsibilities between the administrative authorities for fisheries, wildlife protection and forestry.

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Against this backdrop, the encouragement of responsible fishing practices and co-management structures, curtailment of destructive fishing methods, and the development of MPAs have been suggested. Nonetheless, the incorporation of traditional fisheries management with a formal regime through the Beach Management Unit (BMU) is seen as a lasting solution.

policy provides for better coordination between fisheries management and research. The policy too has an important reform agenda, although the cost of implementation is colossal. Nevertheless, better collaboration between stakeholders is expected to strengthen the synergies and make management more effective.

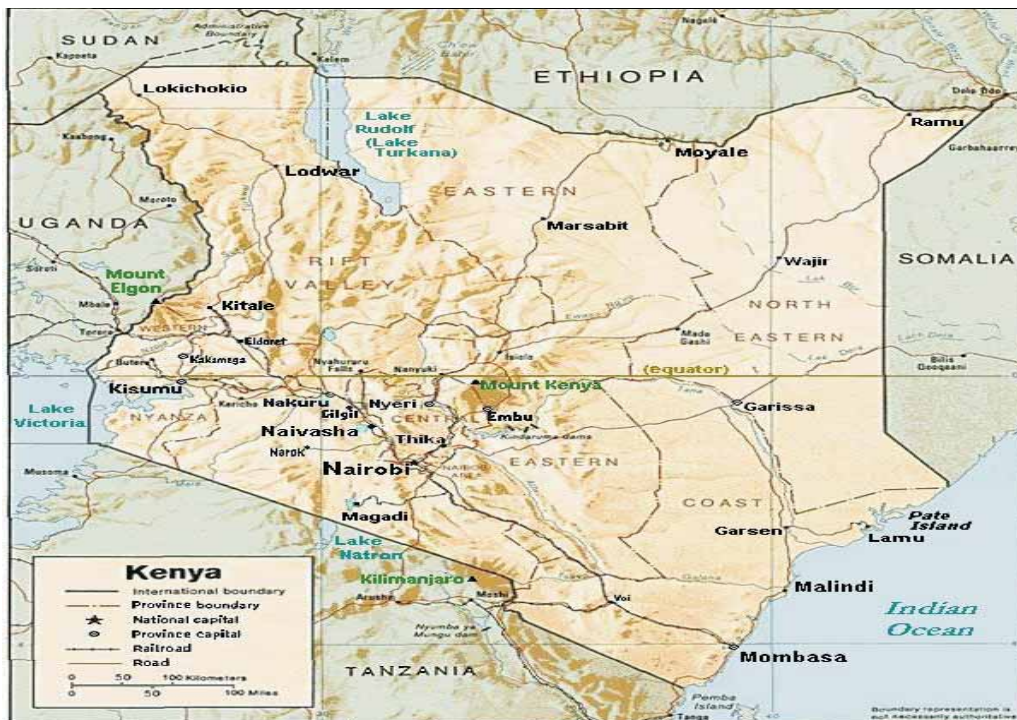
In recognition of the fundamental prerequisite for fisheries development, the Fisheries Department's draft

I. Environmental and socio-economic background

The Kenyan coast is located between latitudes 1°41'S and 5°40'S. The coast has a narrow continental shelf with an estimated area of 19,120 km² that stretches

from its border with Tanzania to the south and Somalia to the north (see Figure1).

Figure 1. Map showing the Kenyan Coast province with districts marked in green¹



The width of the continental shelf is less than 5 km, but extends to almost 60 km out to sea near the mouth of the Tana River and near Lamu. The total area of the Kenyan EEZ is about 230,000 km².² A variety of marine and wetland habitats occur along the Kenyan coast including coral reefs, sea-grass beds, mangroves

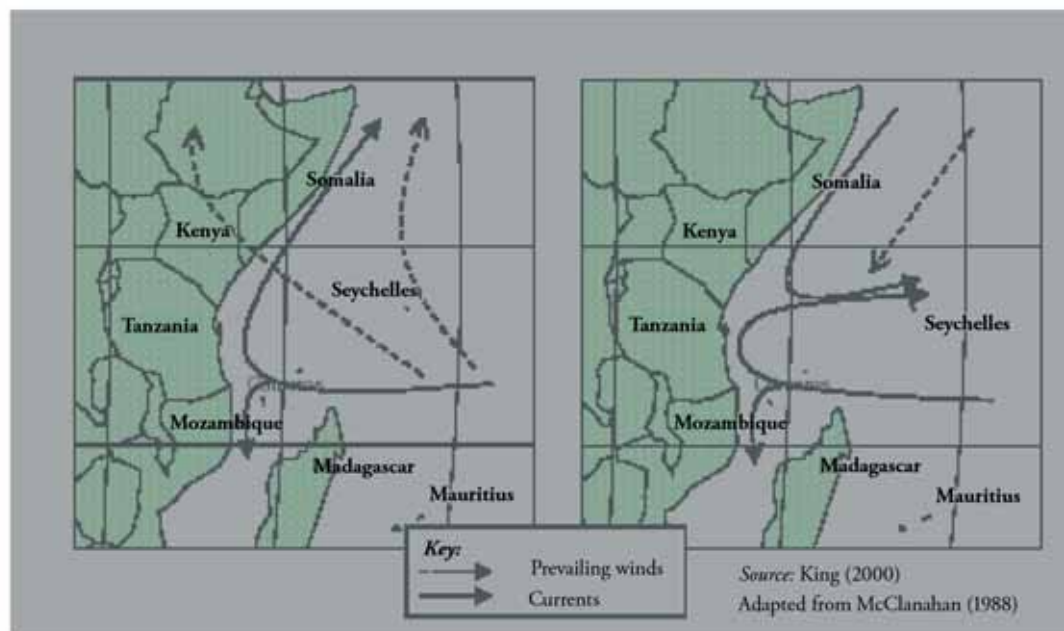
and salt marshes.³

The Inter-Tropical Convergence Zone (ITCZ) (Figure 2) influences the weather conditions on the Kenyan coast.

1 Source: <http://en.wikipedia.org/wiki/File:Kenya-relief-map-towns.jpg>

2 Gitonga, N.K. and Achoki, R. (2003). 'Fiscal Reforms for Kenya Fisheries'. Paper prepared for FAO Workshop on Fiscal Reforms for Fisheries (Rome, Italy, 13-15 October 2003).

3 UNEP. (1998). *Eastern Africa Atlas of Coastal Resources*. Nairobi: United Nation Environment Programme.

Figure 2. Seasonal wind and current patterns.

This is a zone of low pressure, which moves north and south of the equator according to the movement of the sun and the influences of the monsoon. The south-east monsoon winds (*kusi*) and north-east monsoon winds (*kaskazi*) alter sea temperatures, rainfall, wind and sea conditions. The south-east monsoon winds occur from April to October and are characterized by cool temperatures (mean = 26.4°C, max = 30°C), long heavy rains (55-272 mm/month), rough seas and strong winds (0.5-0.75 m/s); while the north-east monsoon occurring from November to March is characterized by warm temperatures (mean = 28.4°C, max = 31-32°C), light rains (8-84 mm/month), calm seas and steady light winds (<0.25 m/s).⁴

Marine fishing in Kenya is mostly artisanal and is carried out in the near-shore areas. The artisanal fish

catch is reduced during the south-east monsoon winds,⁵ as access to fishing grounds is restrained by strong winds and general rough sea conditions.

During the north-east monsoon winds, fishing conditions are enhanced by favourable climatic conditions. In addition, the southerly flow of the upwelling nutrient-rich waters along the Somali coast results in high productivity in the water column and a subsequent increase in fisheries yields.⁶ During this period, fish are generally more abundant and large in size especially in the Lamu Archipelago. The southern coast has low productivity due to the fact that the East African coast is a downwelling area, which is characterized by low nutrient contents.⁷

4 UNEP, *ibid.*; Obura, D.O. (2001). 'Kenya'. *Marine Pollution Bulletin* 42(12): 1264-1278.

5 McClanahan, T.R. (1988). 'Seasonality in East Africa's coastal waters'. *Marine Ecology Progress Series* 44: 191-199; Rubens, J. (1996). An Analysis of the Benefits and Costs of Marine Reserves Regulations at Diani, Kenya. MSc Dissertation, Department of Marine Science and Coastal Management, University of Newcastle, UK; Malleret-King, D. (2000). A food security approach to marine protected areas. Impacts on surrounding fish communities. PhD Thesis, University of Warwick, UK. Malleret-King, D. et al., (2003). 'Review of marine fisheries for Kenya: Understanding fisheries associated livelihoods and constraints to their development in Kenya and Tanzania'. FMSP project R8196.

6 Kemp, J. (2000). 'East Africa Marine Ecoregion Biological Reconnaissance', p.90. Annex 1. Report to WWF Eastern Africa Programme.

7 Bell, B.E. (1972). 'Marine Fisheries'. In: Morgan, W.T. (Ed.). *East Africa: Its people and resources*, pp.243-244. London: Oxford University Press; McClanahan, *supra*, note 5.

1. State of the relevant fisheries resources

Kenya's fisheries resources comprise of freshwater (lakes, rivers and dams) and marine sub-sectors. However, Lake Victoria is the main source of fish production in the country as it contributes over 90% of the total fish landings. The rest is shared among other freshwater sources and the marine sub-sector.

The fisheries contribution to the country's economy is through employment creation, generation of income and foreign exchange earnings. The fisheries sector also promotes other auxiliary industries such as net making, packaging material industries and boat building among others. The sector makes a small but increasing contribution to Kenya's GDP. Between 1971 and 1981, the sector accounted for an average 0.2% of the country's annual GDP. This increased so that by 1989/90 fishing accounted for about 2% of the GDP from the non-monetary economy and 4.4% from the monetary sector's GDP. In 2004, the sub-sector accounted for 5% of the GDP. It is estimated that the

country earns about 4 billion Kenya shillings (KShs) (approx. US\$ 50 million) in foreign exchange and the fishers over 7 billion KShs.

The relatively small but increasing contribution to the national GDP notwithstanding, fishing industry is the lifeline for the Kenyan riparian and coastal communities. In 1995, for instance, the fisheries department estimated that 798,000 Kenyans were, directly or indirectly, supported by the sector in comparison to 720,000 in 1993. In the same year (1995), there were 34,000 fishermen with an estimated 238,000 dependants and about 526,000 other people engaged in the provision of support and ancillary services such as trade in fish inputs, fish handling, processing and marketing.

Fish landings increased from 22,810 tonnes in 1975 to 214,709 tonnes in 1999 but decreased to 128,276 tonnes in 2002 (see Table 1).

Table 1. Total fish production and value in Kenya: 1996-2002⁸

	Quantity (in tonnes)	Value ('000 KShs)
1996	180,984	6,667,945
1997	164,044	4,714,093
1998	179,413	6,813,867
1999	214,709	7,753,584
2000	202,651	7,964,301
2001	164,276	7,918,179
2002	128,276	7,668,371

Kenya's known marine inshore fishing grounds include the rich inshore grounds around the Lamu Archipelago, Ungwana Bay, the North Kenya Bank and the Malindi Bank. The bulk of the marine catch is taken in shallow inshore waters mainly by artisanal fishers using simple boats and gear including gillnets, shark nets, hook-and-line and traps. The main species caught along the Kenyan coast are reef/seagrass/sand-

associated demersal fish species constituting 38% of the catch.⁹ These include Parrot fish (Scaridae), scavengers (including Lethrinidae, Lutjanidae and Haemulidae) and Rabbit fish (Siganidae).¹⁰ Pelagic species including King fish, Jacks and tuna are also landed, though less than demersals.¹¹ Other fish landed include sharks and rays. Apart from these, crustaceans especially crabs, prawns and spiny rock lobsters,

8 Gitonga and Achoki, supra, note 2.

9 UNEP, supra, note 3.

10 Ibid.; Malleret-King, supra, note 5; McClanahan, T.R. and Mangi, S. (2004). 'Gear-based management of a tropical artisanal fishery based on species selectivity and capture size'. *Fisheries Management and Ecology* 11: 51-60.

11 Ibid.

octopus and squids are exploited.¹² A few freezer trawlers fish the shallow waters of Ungwana Bay for shrimp, but trawling opportunities are limited because coral outcroppings cover most of the nearshore floor. Additionally, the shelf slopes steeply to depths of a hundred fathoms or more within a few kilometres of the reef.

In spite of varying figures about Kenya's marine fish potential, research done so far¹³ in the Kenyan south coast indicates that the fisheries resources are overexploited and that they are declining. Diani is quoted as one of the most overfished areas.¹⁴ This is evident from the high numbers of sea urchins (*Echinometra mathaei*) indicating a decline in sea urchin predators, the Orange striped triggerfish (*Balistsapus undulates*) and the Tripletail wrasse (*Cheilinus trilobatus*).¹⁵ The overfishing of triggerfish from Kenya's coral reefs has been estimated to lead to a 500% increase in sea urchins.¹⁶

Catch data from eight landing sites from Kenyatta Beach to Kinondo between 1995 and 1999 showed a decline in fish catch in spite of constant effort.¹⁷ In Diani, the catch per day per fisherman is 4-6 kg at the most productive site during the most productive season, while it is less than 1 kg during the least productive season.¹⁸

The offshore fisheries zone is exploited by vessels from Distant Water Fishing Nations (DWFNs). There is little information concerning the status of the Kenyan EEZ in spite of an increase in offshore fisheries in the region beginning in the early 1990s.

Vessels and gear

Estimates of the number of fishers for the whole coast vary from 5,000 to 12,000 fishers.¹⁹ More recent data from the Fisheries Department (FiD) indicate that there are currently 10,154 fishermen on the Kenyan coast, over 95% of them artisanal.²⁰ The number of people depending directly on fishing varies between 25,000-56,000, excluding fish traders and processors who are estimated at 1,000.²¹

Only 10% of the fishing vessels are motorized; most fishing vessels are non-motorized dugout canoes, outrigger canoes and dhows. While information on the total number of powered boats is not collected by the Fisheries Department, anecdotal information indicates that there are 32 purse seiners and 75 longliners, operating under fishing licences issued by the FiD, with no obligations to land, tranship or declare catches in the country. This arrangement limits the country's benefits from its EEZ fisheries especially from value-added activities associated with transshipment, landings for processing or even trade in bycatch. Currently there is only one Kenyan long-line vessel, which started operating in the middle of 2005. According to the Seychelles Fishing Authorities tuna bulletin for the year 2004, 100 purse seiners transhipped 51,404 tonnes of tuna through the port of Mombasa.

The gear used ranged from traps, hand lines, fence traps, spears, sticks, nets and spear guns. There is no information at the national level about gear distribution or catch per gear. However, at Diani, spear guns and

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- 12 Malleret-King, D. (1996). *Les systèmes de production de l'agriculture et pêcheurs de biga, petite communauté de pêcheurs*. DESS Development Agricole-Memoire. Paris 1 : Panthéon-Sorbonne, Institut d'Etude du Développement Economique et Sociale; ibid.
- 13 McClanahan and Mangi, supra, note 10; McClanahan, T.R. (1995). 'Fish predators and scavengers of the sea urchin *Echinometra mathaei* in Kenyan coral-reef marine parks'. *Environmental Biology of Fishes* 43: 187-193; Rubens, supra, note 5; Malleret-King, ibid.; Malleret-King, supra, note 5; Glaesel, H. (1997). *Fishers, Parks and Power: The Socio-environmental Dimensions of Marine Resource Decline and Protection on the Kenyan Coast*. PhD Thesis, University of Wisconsin – Madison; King, A. (2000). *Managing without institutions: The role of communication networks in governing resource access and control*. PhD Thesis, University of Warwick, UK.
- 14 McClanahan, T.R. and Kaunda-Arara, B. (1996). 'Fishery recovery in a coral-reef marine park and its effects on the adjacent fishery'. *Cons. Biol.* 10(4): 1187-1199.
- 15 T.R. McClanahan, supra, note 13.
- 16 McClanahan, T.R. and Muthiga, N.A. (1988). 'Changes in Kenyan coral reef community structure and functioning due to exploitation'. *Hydrobiologia* 166: 269-276.
- 17 McClanahan and Mangi, supra, note 10.
- 18 Obura, supra, note 4; King, supra, note 13; Rubens, supra, note 5.
- 19 UNEP, supra, note 3.
- 20 Ndegwa. Personal communication.
- 21 Obura, D.O. (1999). 'Status Report Kenya'. In: *Coral Reef Degradation in the Indian Ocean: Status report and project presentations*, pp.33-36. Stockholm: CORDIO/SAREC.

beach seines constituting 39.3% and 25.9% respectively were most widely used.²²

Certain fishing methods are of great concern due to their destructive and indiscriminate nature.²³ Beach seine is known to damage coral reefs because its small mesh size collects fish indiscriminately and it involves walking and overturning corals.²⁴ Apart from beach seines, the use of dynamite has been reported in some areas. The use of destructive gear together with poaching (meat, eggs and oil) and beach development have reduced sea turtle populations to critical levels.²⁵ Trawling, long-line fishing and drift netting result in many other fish species being caught besides the target species. The bycatch, which is not usually utilized, comprises 70% of the marine catch.²⁶

Fish and fish products export

Kenya has a long history of fishing. Nonetheless, until 20 years ago nearly all the fish caught in Kenya were consumed within the country. Kenya only started exporting fish in the early 1980s when fish processing factories were established around Lake Victoria.

About 92% of harvested fish comes from Lake Victoria, and the rest from the Indian Ocean (4%), inland lakes and rivers (3%) and aquaculture (1%). Nile perch, which constitutes about 50% of the fish caught in Kenya, is the main export earning about US\$ 50 million annually. Other commercially important species in the domestic market are the small sardine fish called *dagaa* (30%) and tilapia (10%). Of the 18 fish processing and export firms now in Kenya, 10 specialize in Nile perch products while seven handle marine products such as shrimp, other crustaceans and tuna.²⁷

There is enormous fishing potential in the Kenyan Exclusive Economic Zone (EEZ) whose resources, as already mentioned, are currently being exploited by DWFNs without commensurate returns from the resource.²⁸ Kenya has not entered into any access agreements with DWFNs. Currently, marketing of fish to the EU, the main importer of Kenyan fish, is carried out through bilateral agreements with individual EU Member States. Fish exports for 2004 are shown in Table 2.

Table 2. Kenyan fish exports for the year 2004

Product	Weight (tonnes)	Value (million KShs)	Destinations
Tuna	10,596	475	Italy and Spain
Lobsters	131	61	India, Japan, Greece, U.K., Hong Kong, Seychelles and Italy
Prawns	234	176	U.K., Netherlands, Spain and Italy
Octopus	504	102	Netherlands, Italy, Portugal and France
Cuttlefish	17	33	Greece and India
Live lobsters	5	19	Hong Kong, U.A.E. and S. Africa
Live crabs	12	1,3	Singapore, U.A.E., Lebanon and S.Africa

Source: Provincial Statistics office, Mombasa.

22 McClanahan and Kaunda-Arara, supra, note 14.

23 Shumway, A. Caroly, (1999). *Forgotten waters: Freshwater and marine ecosystems in Africa. Strategies for biodiversity conservation and sustainable development*. The Biodiversity Support Program, Boston University, New England Aquarium and USAID.

24 Ibid.

25 Okemwa, G.M, Nzuki, S. and Mueni, E.M. (2004). 'The Status and Conservation of Sea Turtles in Kenya'. *Marine Turtle Newsletter* 105.

26 Mueni, E. and Mwangi, J. (2001). *A survey of the use of the Turtle Excluder Device (TED) in trawlers along the Kenyan Coast*. KWS Technical Series.

27 Abila, R.O. (2003). *Food Safety in Food Security and Food Trade. Case Study: Kenyan Fish Exports*. Washington, DC: IFPRI. Also Focus 10, Brief 8 of 17, September 2003, http://www.ifpri.org/2020/focus/focus10/focus10_08.pdf.

28 Gitonga and Achoki, supra, note 2.

The fish trade is hampered by poor road networks and a lack of chilling facilities for preservation. Since there are no auction systems for fish in Kenya, this has contributed to high price differentials between locations. These factors translate into significant post-harvest losses, which in turn limit market expansion efforts.

Sport fishing as a recreational activity has been taking place all along the Kenyan coast within the confines of various registered clubs and at times on an individual basis. The FiD aim at streamlining it to improve professionalism, create employment, generate income through tourist attraction, increase revenue and above all, exploit the resource on a sustainable basis. Fishing takes place up to 15 nautical miles out along the entire coastline. Different species are caught at different seasons of the year. Sailfish are present in sufficient numbers from October through March while Blue marlin and Striped marlin from 25 kg upwards in weight are present from January through March.

There are about 400 sport fishermen along the coastline. However, the number is known to be higher as a number of them register as ordinary fishermen. The most popular species are Big-eye tuna, Long tail tuna, Skipjack tuna, Yellowfin tuna, Wahoo, Barracuda, Cobia, Dolphin, Kingfish, Blue marlin, Striped marlin, Sailfish, Hammerhead shark, Mako shark, Silvertip shark, Tiger shark, Broadbill swordfish, Bluefin trevally, Giant trevally and Rainbow runner. Catching

2. Overview of multiple demands on the coastal zone

Demands on coastal resources range from fishing, agriculture, tourism, shipping and ports, marine dredging, offshore oil exploration, curio trade, mining and fossil coral extraction amongst others. While the economy in urban centres is characterized by maritime and harbour activities, commerce and tourism; in rural areas, demand for coastal resources arises from the need for agricultural land, small-scale enterprises, retail services and fisheries.

ornamental fish is currently at a low level though with a high potential. Some of the most popular species exported include Surgeonfish, angelfish, blennies, Butterfly fish and wrasses. The earnings from aquarium fish range from US\$ 3 to US\$ 50 per fish depending on the species. In 2004, Kenya exported over 102,000 live aquarium fish worth slightly over KShs 16 million to Europe, Asia and North America.²⁹

Aquaculture

Aquaculture in Kenya includes freshwater fish farming and mariculture. Kenya's ministry of Livestock and Fisheries Development recognizes that fisheries play an important role in sustaining rural and urban livelihoods in Kenya.³⁰ During the preparation of the Poverty Reduction Strategy Paper for the Agriculture sector, aquaculture was targeted as one of the core activities that could contribute to poverty alleviation in rural Kenya.

In order to realize this objective, the ministry is currently encouraging and facilitating the sharing of information among fish farmers, researchers and extension officers through field days and farmer training sessions. The Ministry is focusing on commercial fish farming through the application of research results in the field with the use of contact farmers. The ministry has taken these steps in order to reduce fishing pressure in the light of declining fish stocks against the backdrop of an increasing population and multiple demands on other natural resources.³¹

The nine mangrove species found in Kenya (*Ceriops taga*, *Rhizophora mucronata*, *Sonneratia alba*, *Avicennia marina*, *Bruguiera gymnorrhiza*, *Lumnitzera racemosa*, *Heritiera littoralis*, *Xylocarpus granatum* and *X. mollucensis*) are exposed to various threats.³² Mangroves are exploited for firewood, poles for building, dye, floaters and timber among other uses. However, overexploitation led to the banning of mangrove exports in 1982 and later for domestic use

29 Provincial statistics, 2005.

30 Gitonga and Achoki, supra, note 2.

31 Ibid.

32 Kairo, J.G. and Bosire, J. (2005). 'Planting and Management of Mangroves'. In: Wamukota, A.W. (Ed.). *Proceedings of the Exposure & Exchange Workshop on Marine Life Management*, Plaza Beach Hotel, Mombasa, 10-15 April 2005.

in 1997. In spite of the bans, mangrove forests continue to be overexploited through logging and by being turned into saltpans and fish pans³³ despite their important ecological role.

The destruction of mangroves has far-reaching consequences. Environmentally, mangroves serve as fish spawning grounds. They reduce soil erosion, as well as reducing the effects of wave action. Apart from these, mangroves act as habitats for birds, crabs and crocodiles as well as other fauna. Economically, mangroves are used for construction, firewood, as dye and for fish farming. Sedimentation arising from the erosion caused by clearing mangroves also kills coral colonies, prevents settlement and affects sexual reproduction.³⁴ The degradation of coral reefs and mangrove forests leads to reduced fishery productivity, coastal erosion, reduced income from tourism and a loss of employment for workers in the tourism, fishing and wood industries. It is argued that if one cuts a mangrove, one loses five times in terms of fish.

Tourism has been growing steadily both in terms of numbers and generated revenue since independence and continues to be one of the most important economic sectors in the country.³⁵ In 2003, the tourism sector recorded a marginal improvement despite the adverse travel advice issued by the United Kingdom and the United States of America. Tourism earnings increased from KShs 21,734 million in 2002 to KShs 25,768 million in 2003. International visitor arrivals increased by 14.5% from 1,001,300 in 2002 to 1,146,100 in 2003.³⁶ The coastal region is the main tourist destination accounting for 60% of all the occupancy in hotels.

In Mombasa alone, tourism accounts for 45% of all the economic activities and employs 40,000 workers.

Tourism has led to extensive privatization of land along the coastline and this in turn has led to beach access problems. Tourists trample on corals and also collect marine trophies leading to the destruction of coral reefs and hence loss of the rich reef biodiversity, which attracts tourists to the coast. Some hotel construction interferes with the delicate marine ecosystems (lagoons, fragile sandy beaches and coral reefs) due to a lack of consideration of the environmental impacts (e.g., loss of habitats and aesthetic value of the tourism facilities) before construction. Sea walls pose a major threat to the coastal and marine ecosystems by impairing physical oceanic processes and coastal erosions.

Agricultural practices along the coast of Kenya are predominantly small-scale with the exception of a few coconut and sisal plantations. Important food crops include cassava, sweet potatoes, maize, coconut, cowpeas and rice. Bananas, mangoes and pineapples are grown for domestic consumption and export while cashew nuts and sisal are grown for export. Other crops grown include cotton, rice and sugarcane. Nearly 50% of the arable land is under tree crops, which consist mostly of cashew nuts, coconuts, citrus and mangoes.³⁷

Pollution from agricultural chemicals e.g., through pesticide and fertilizer runoff is a major concern for fisheries. Chemicals in pesticide runoff become more concentrated and toxic as they work their way up the food chain. They accumulate in the bodies of fish and other higher-level organisms. Agricultural pollution is also considered a threat to coastal fisheries as more than 90% of all chemicals, refuse and other material entering the coastal waters remain in the sediments, wetlands, fringing reefs and other coastal ecosystems.³⁸ Municipal pollution is also known to increase eutrophication, leading to an increase in nitrate concentrations.³⁹ Eutrophication has also been shown to interfere with

33 Ibid.

34 Samoilys, M. (1988). 'Abundance and Species Richness of Coral Reef Fish on the Kenyan Coast: The Effects of Protective Management and Fishing'. *Proc. In. Coral Reef Symp.* 6(2): 261-266.

35 UNEP, *supra*, note 3.

36 Economic survey, 2005.

37 UNEP, *supra*, note 3.

38 Munyao, T.M. (1998). 'Environmental Effects of Coastal Sedimentation. A Case Study of Shirazi-Funzi Lagoon'. In: Hoorweg, J. (Ed.). *Dunes, groundwater, mangroves and birdlife in coastal Kenya*. Nairobi, Acts Press.

39 Cole, J.J., Peierls, B.L., Caraco, N.F. and Pace, M.L. (1993). 'Nitrogen loading of rivers as a human-driven process'. In: McDonnell, M. and Pickett, S. (Eds). *Humans as components of ecosystems*, pp.141-157. New York: Springer-Verlag.

the sensory ability of visually guided aquatic organisms in Lake Victoria, raising concerns about its impact on reproduction.⁴⁰

Maritime commercial activities, including transportation and the handling of goods and passengers, represent 15% of the economy of the coast. While the main centres of maritime commerce are the ports of Mombasa and Lamu, secondary commercial activities are shared by the ports of Funzi, Kilifi, Kiunga, Malindi Mtwapa, Kilindini, Port Reitz Harbours, the 'Old Port', Port Tudor and the water fronts of Mombasa Island, Shimoni and Vanga. The Port of Mombasa serves the commercial, agricultural and industrial hinterland of Kenya and the great lake region of Eastern Africa. Exploration activities for the development of offshore oil fields are in progress in the northern coastal zone. These activities are supervised by the National Oil Corporation (NOC).

Various types of minerals are found along the Kenyan coast. Some of these are of economic significance and a few are currently being exploited. The mineral content of Mrima hill in Kwale is comprised of an association of pyrochlore, apatite, galena, iron ore and manganese. Of these, pyrochlore appears to have the highest potential.

The Vitengeni deposits in Kilifi District are being exploited for Barytes, with galena as a by-product. However, at Kinangoni, Galena is the dominant mineral with barytes and silver forming the subsidiary minerals. Gypsum is mined from sedimentary deposits at Roka in Kilifi District. Other gypsum deposits of possible economic significance have been discovered in the Tana River District (Assa, Hirimma, Bangale areas). At Jaribuni in Kilifi District, iron ore is being mined to supply the cement factories at Bamburi and Athi River in Kaloleni.

Sand for building is mined in many places along the coastal zone. Among the most important sites are Tiwi in Kwale District and Mazeras, which supply

Mombasa and Ngomeni for the Malindi area. Silica sands for glass manufacture are obtained from deposits in Arabuko-Sokoke (Kilifi) and Msambweni (Kwale). Clay is mined for brick works in the Port Reitz area of Mombasa.

Mining has the potential for being one of the most important activities along the Kenyan coast with the advent of the Titanium Mining Project, which is expected to push the contribution of the mining sector GDP from 1% to 3%. Tiomin is planning to mine heavy mineral sands in Kwale starting from 2007. Other titanium mining companies have taken an interest in exploring the heavy mineral deposits at Malindi and Kilifi while plans for port construction at Dongo Kundu are underway. There is already increasing interest in the other mineral occurrences like lead, copper and zinc around Mkangombe in Kwale District.⁴¹

Salt is recovered from seawater at Ngomeni northwards to the Lamu area where extensive salt works have been established at the Gongoni-Fundisa area and Kurawa. The total area dedicated to salt production is over 5,000 hectares which yield an average of over 170,000 tonnes of salt annually.

Other minerals mined include limestone-weathered shale, iron ore, pozzolana and gypsum. Coal and heavy fuel oil are imported. The consequences for fisheries of the different mining phases (exploration, mining/refining and mine closure) include impacts from waste, fluid and sewage disposal, water pollution, risk of oil spills, and socio-cultural and economic changes arising from the increase in micro-economic trade related to mining activities. In addition, chemical pollutants including halogenated hydrocarbons, heavy metals and petroleum products⁴² can cause tumours and diseases in coastal fish thus negatively impacting on the fishery. Plastic and other debris that may arise from these activities are known to kill a variety of marine animals including sea turtles and dugongs.⁴³

40 Seehausen, O., van Alphen, J. and Witte, F. (1997). 'Cichlid fish diversity threatened by eutrophication that curbs sexual selection'. *Science* 277: 1808-1810.

41 Wachenje. Personal communication.

42 NRC. (1995). *Understanding Marine Biodiversity: a research agenda for the nation*. Washington, DC: National Academy of Science.

43 Wamukoya, G.M. et al. (1997). *Sea Turtle Recovery Action Plan for Kenya-STRAP*. KCCT Technical Report TR-1; WWF Eastern Africa Marine Ecoregion. (2004). *Towards a Western Indian Ocean Dugong Conservation Strategy: The status of dugongs in the Western Indian Ocean region and priority conservation actions*. Dar es Salaam: WWF.

The most important issues arising from these multiple demands on the coastal zone are declining

fisheries productivity, habitat destruction, resource-use conflicts and a decline in biodiversity.⁴⁴

3. Public perceptions of basic fisheries issues

The decline in the marine fishery is generally attributed to overfishing⁴⁵ and oceanic climatic variations.⁴⁶ While growth overfishing reduces the size and yield of target species,⁴⁷ recruitment overfishing reduces the recruitment success of populations.⁴⁸ Ecosystem overfishing alters species interactions and habitat quality.⁴⁹

An increase in human population and the use of destructive fishing gear are seen to be responsible for the decline in fish landings.⁵⁰ Traditionally non-fisher tribes are joining the fisheries and there has been an upsurge of destructive fishing practices. The fishery has further attracted migrant fishermen whom local fishermen accuse of using small meshed beach seine nets and sometimes dynamite.⁵¹ Local fishermen have estimated a 90% drop in trap catch since the arrival of beach seines.⁵² In areas where the gear was excluded, catches were observed to be higher.⁵³ However, according to a study carried out in Mombasa, Malindi and Diani with regard to gear management,⁵⁴ traditional leaders were not viewed as discouraging the use of small-meshed nets.

Reef area degradation brought about by overuse is evident through the lower abundance of finfish and coral and the increased numbers of sea urchins,

increased turf algae cover, and lowered coral cover. Management initiatives suggested include the following: a) the general encouragement of responsible fishing practices and co-management structures; b) the curtailment of destructive fishing methods including the use of poisons, beach seines and spear guns; c) further development of Marine Protected Areas (MPAs) with both park (non-fishing) and reserve (fishing restrictions) sectors; and d) a resolution of conflicts arising from the migration of foreign nationals from Pemba Island and the northern Tanzanian coast into Kenya's south coast fishing areas where the foreign nationals are accused of using destructive fishing gear.

Although according to fishermen, catch per unit effort has declined significantly over the last 30 years,⁵⁵ there is a low degree of awareness that land-based activities, political and economic conditions could affect the condition of the resource. Instead, some fishermen associate a reduction in marine fish to the fish moving towards other locations, hiding or altering their behaviour apart from attributing it to traditional beliefs.

According to the local community, the introduction of the salt recovery industries at Malindi were seen not only to have taken farming land from

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- 44 Kimani, E. and Mwatha, G.K. (2005). 'Research and Management of Fish and Marine Resources'. In: Wamukota, A.W. (Ed.). *Proceedings of the Exposure & Exchange Workshop on Marine Life Management*, Plaza Beach Hotel, Mombasa, 10-15 April 2005.
- 45 Rose, G.A., de Young, B., Kulka, D.W., Goddard, S.V. and Fletcher, G.L. (2000). 'Distribution shifts and overfishing the northern cod (*Gadus morhua*): a view from the ocean'. *Can. J. Fish. Aquat. Sci.* 57: 644-664.
- 46 Lauck, T., Clark, C.W., Mangel, M. and Munro, G.R. (1998). 'Implementing the precautionary principle in fisheries management through marine reserves'. *Ecol. Appl.* 8: 72-78; Drinkwater, K.F. and Mountain, D.G. (2002). 'Climate and oceanography'. In: Boreman, J., Nakashima, B.S., Wilson, J.A. and Kendall, R.L. (Eds). *Northwest Atlantic groundfish: perspectives on a fishery collapse*, pp.3-25. Bethesda, MD: Amer.Fish Soc.
- 47 Koslow, J.A., Hanley, F. and Wicklund, R. (1988). 'Effects of fishing on reef fish communities at Pedro Bank and Port Royal Cays, Jamaica'. *Mar. Ecol. Prog. Ser.* 43: 201-212.
- 48 Jennings, S. and Lock, J.M. (1996). 'Population and Ecosystem Effects of fishing'. In: Polunin, N.V.C. and Roberts, C.M. (Eds). *Reef Fisheries*, pp.193-218. (London: Chapman and Hall.
- 49 McClanahan, supra, note 13.
- 50 McClanahan, T.R., Glaesel, H., Rubens, J. and Kiambo, R. (1997). 'The effects of traditional fisheries management on fisheries yields and the coral-reef ecosystems of southern Kenya'. *Env. Conservation* 24(2): 105-120.
- 51 KESCOM. (2005). *Enhancing Community Participation in the Conservation and Management of Sea Turtles in Kenya*. UNDP GEF/SGP Project Report.
- 52 McClanahan and Kaunda-Arara, supra, note 14.
- 53 McClanahan and Mangi, supra, note 10.
- 54 McClanahan, T.R., Maina, J. and Davies, J. (2005). 'Perceptions of resource users and managers towards fisheries management options in Kenyan coral reefs'. *Fisheries Management and Ecology* 12: 105-112.
- 55 Malleret-King, supra, note 5.

the locals and rendered the few remaining farms unproductive due to salt water intrusion, but contributed to the decline in fish catches in adjacent areas due to changes in the marine environment arising from increased salinity.⁵⁶ Tourism development is also cited as contributing to coral deaths since its activities

sometimes involve stepping on live corals, thereby interfering with reef fishery habitat. Inshore prawn trawling in Ungwana bay is also perceived to have depleted local fisheries through habitat destruction, leading to a decline in fish landings.⁵⁷

II. The legal regimes governing fisheries

1. Global and regional international legal instruments affecting Kenya

Table 3. Global legal instruments

Agreements	Date of signature	Date of ratification/accession	Date of entry into force
United Nations Convention on the Law of the Sea (Montego Bay)	10 December 1982	02 March 1989	16 November 1994
Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (New York 1995)	04 December 1995	13 July 2004	
FAO Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (Rome 1993)	29 November 1993		
Ramsar Convention on Wetlands (Iran 1971)	02 February 1971	05 October 1990	21 December 1975
Rome Declaration on the Implementation of the (FAO) Code of Conduct for Responsible Fisheries (Rome 1999)	10 /11 March 1999		
Convention on Biological Diversity (Rio de Janeiro 1992)	11 June 1992	26 July 1994	24 October 1994
Agreement for the Establishment of the Indian Ocean Tuna Commission (Rome 1993)	25 November 1993		27 March 1996
Convention on the High Seas (Geneva 1958)	29 April 1958	20 June 1969	30 September 1962
Convention on Fishing and Conservation of the Living Resources of the High Seas (Geneva 1958)	29 April 1958	20 June 1969	20 March 1966
Convention on the Continental Shelf (Geneva 1958)	29 April 1958	20 June 1969	10 June 1964

⁵⁶ Omar Mshamu. Personal communication.

⁵⁷ Fulanda, B. and Moton'gwa, H. (2001). 'Bottom shrimp trawling in Malindi: A preliminary survey of its impacts on the artisanal fishery'. Paper presented at the WIOMSA symposium, Dar es Salaam, 22-25 October 2001.

Table 4. Regional international legal instruments/regional fisheries bodies

Organization/body	Date of signature	Date of ratification/accession	Date of entry into force
Indian Ocean Tuna Commission (IOTC) (Rome 1993) – drawn up (at Rome) under Article XV of the FAO Constitution and approved by the FAO Conference at its 27th Session	25 November 1993	9 January 2004	27 March 1996
South West Indian Ocean Fish Commission (SWIOFC) – established by the FAO Council at its 127th Session under Article VI(1) of the FAO Constitution	November 2004		
Southern Indian Ocean Fisheries Agreement (SIOFA) (Rome 2006)	12 July 2006		
Western Indian Ocean Marine Science Association (WIOMSA)			
Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region of 1985 and its protocols (Nairobi Convention)	21 June 1985		

2. Overview of domestic legislation

The main laws governing fisheries activities are the Fisheries Act Cap 378 (hereinafter Fisheries Act or FA) and the Wildlife (Conservation and Management) Act Cap 376 (hereinafter Wildlife Act or WA).

a) *Fisheries Act*

The Fisheries Act is implemented by the Ministry of Livestock and Fisheries in conjunction with other State organizations, such as the Fisheries Department. It aims at controlling fishing activities and subsequent processing.

The Fisheries Act 1989 (Act No. 5 of 1989; revised 1991) applies to both marine and inland fisheries. It is set out in six parts and 26 sections. In addition to the Act, there are the Fisheries (General) Regulations (Legal Notice 34) of 1991; and the Fisheries (Foreign Fishing Craft) Regulations (Legal Notice 35) of 1991; which concretize the provisions of the Act. Like the Act, they are structured in parts and sections known as

regulations. Unless otherwise indicated, in this chapter FA will refer to the provisions of the Fisheries Act, FGR to the provisions of the Fisheries General Regulations and FFFCR to the provisions of the Fisheries (Foreign Fishing Craft) Regulations.

The Act establishes bases for the following:

- a) Registration of fishing vessels (obligation to register fishing vessels and definitions of governing conditions);
- b) Licensing provisions;
- c) Offences and enforcement;
- d) General provisions
 - i) Ban on fishing for marine mammals in Kenyan waters.
 - ii) Specification of Minister's powers to make regulations (e.g., to organize and regulate marketing and distribution of fish; establish credit schemes, etc.).

Fisheries (General) Regulations

The Fisheries (General) Regulations (FGR) address more issues pertinent to local fishing vessels, fishermen, fish traders and processors of fish and fish products.

The FGR are divided into 12 parts containing 69 regulations. These provisions deal with:

- a) Registering local fishing vessels;
- b) Licensing fishermen;
- c) Administering licences, permits and certificates of registration;
- d) Format for publishing notices in the gazette;
- e) General management measures;
- f) Regulating trout fishing and trout fishing activities;
- g) Importing live fish;
- h) Restricting purchase of fish;
- i) Preventing pollution, and protecting and conserving fisheries waters;
- j) Issuing private property marks for fishing gear;
- k) Enforcement.

In Schedules 1-4, the FGR also contain samples of general (fishing) application forms, lists of fees for registration and specific licences and permits, lists of designated landing stations, diagrams of fish measurements, etc.

Fisheries (Foreign Fishing Craft) Regulations

The FFFCR are made up of five parts with 47 regulations. The provisions deal with the following:

- a) Licensing foreign fishing vessels (FFVs);
- b) Controlling FFV in Kenya's waters;
- c) Fisheries scientific research;
- d) Miscellaneous (powers of authorized officers, observers, security, penalties).

The FFFCR also contain samples of application forms, foreign fishing craft licences, a list of fees and calculations for royalties.

b) Wildlife Act

The Wildlife Act of 1976 (amended 1989) is implemented by the Ministry of Environment and Natural Resources (MENR) and other relevant government agencies such as the Kenya Wildlife Service (KWS). It aims at preservation and control of wild fauna and flora by ensuring that they flourish naturally in their habitats. However, most of its provisions relate to animal wildlife issues and dryland parks and reserves, with little mention of fisheries. Therefore, the KWS is in the process of developing marine-park and reserve-specific regulations.⁵⁸

The WA is structured in nine parts with 68 sections. Its prime objective is to ensure that wildlife is managed and conserved in such a manner as to yield benefits for the nation and individual areas (in particular) without prejudicing proper management and conservation. It has provisions on the following:

- a) Administrative structures (director, officers, game wardens, delegation of powers);
- b) National parks, reserves and sanctuaries (power of Minister to declare any area a specially protected area, management of parks, etc.);
- c) Control of hunting;
- d) Trophies and live animals;
- e) Enforcement;
- f) Wildlife fund;
- g) General provisions.

Regulation concerning parks and reserves was originally described in the Kenyan government Sessional Paper No.3 of 1975 and later in the WA. Protected areas are divided into parks and reserves. Previous subsidiary legislation to the Act only referred to Kisite Marine National Park,⁵⁹ and the Mpunguti and Kiunga Marine National Reserves⁶⁰ under parks and reserves, respectively. The new Wildlife (Conservation and Management) (National Parks) (Amendment) Regulations 2005 which entered into force on 1 July,

58 McClanahan, T.R., Mwangi, S. and Muthiga, N.A. (2005). 'Management of the Kenyan coast'. *Ocean and Coastal Management* 48: 901-931.

59 Legal Notice 92/1978, 13/1983, 18/1983, 100/1983, 13/1984.

60 Legal Notice 75/1976, 91/1978, 186/1979, 187/1979, 261/1979, 290/1979, 291/1979, 300/1979, 13/1983, 101/1983.

2006⁶¹ divided the parks into five groups, 'A-D' and 'Special'. All marine parks and reserves are grouped under category 'C' without specifically naming them.

Within national parks, there are restrictions on extractive activities, but visitation, education and research activities are allowed. In the national reserves, controlled extraction of resources in addition to visitation, education and research activities is allowed.

Apart from the above legislation, the Forest Act and the Environmental Management and Coordination Act (EMCA) play a vital role in marine fisheries.

c) *Forest Act*

The Forest Act was first enacted in 1962 (Cap 385) and was subsequently revised in 1982 and 1992. It was implemented by the Forest Department of the MENR and addressed preservation, protection management, enforcement and utilization of forest resources in forest areas. According to the Act, 'a forest area means an area of land declared under section 4 to be a forest area'. It covered, among other things:

- a) The power of the Minister to gazette, alter boundaries, and de-gazette forest reserves (Section 4).
- b) The declaration of nature reserves (an area deemed to require extra protection for the purpose of preserving its natural amenities and wherein the exploitation of forest products is prohibited, except with the permission of the Director of Forestry in consultation with the chief game warden) within forest reserves, and regulation of activities within nature reserves (Section 5).

- c) Licences for activities within forest reserves (Section 7).
- d) The prohibition of activities in forest reserves (Section 8).
- e) The enforcement of provisions of the Act, penalties and powers (Sections 9-14).
- f) The power of the Minister to make rules with respect to sale and disposal of forest products, use and occupation of land, licensing and entry into forests (Section 15).
- g) Miscellaneous:
 - a. Community use of forests for fuel wood, medicinal plants etc.
 - b. Power of local forester to license community use.

The Forest Act is important to fisheries as it regulates all activities pertaining to forests, including mangrove forests,⁶² which act as breeding ('nurseries') and feeding areas for fish⁶³ and other invertebrates,⁶⁴ enrich coastal waters,⁶⁵ stabilize the shoreline⁶⁶ and help in trapping silt and waste from upland run-off.⁶⁷ It had a number of shortcomings which left the way open for potential negative impacts on fisheries. These included:

- i) A lack of clear definition of 'forest', which left room for speculation as to whether non-closed canopy forests such as mangroves are forests *per se*.
- ii) The de-gazettement power it bestowed on the Minister which the Minister could use, for example, to allow excision of forests for other purposes.
- iii) Limited involvement of communities in forest management.

61 See The Wildlife (Conservation and Management) (Amendment) Regulations, 2006, <http://www.kws.org/images/new-tariffs-2006.pdf>.

62 Mangrove forests are the only woody halophytes (plants adapted to living in a saline environment or growing naturally in very salty soil) living at the confluence of land and sea.

63 Marshall, N. (1994). 'Mangrove conservation in relation to overall environmental considerations'. *Hydrobiologia* 285(1-3): 303-309; Beck, M.W., Heck, K.L. Jr, Able, K.W., Childers, D.L., Eggleston, D.B., Gillanders, B.M., Halpern, B.S., Hays, C.G., Hoshino, K., Minello, T.J., Orth, R.J., Sheridan, P.F. and Weinstein, M.P. 'The role of nearshore ecosystems as fish and shellfish nurseries'. Available at: <http://www.epa.gov/watertrain/issue11abstr.html>; Alongi, D.M. (2002). 'Present state and future of the world's mangrove forests'. *Environmental Conservation* 29: 331-349; cf. Sasekumar, A., Chong, V.C., Leh, M.U. and D'Cruz, R. (1992). 'Mangroves as a habitat for fish and prawns'. *Hydrobiologia* 247(1-3): 195-207: Mangrove inlets and creeks in Selangor, Malaysia are the habitat for 119 species of fish and nine species of prawns. The majority of fish and all prawns sampled in the inlets were juveniles.

64 Beck et al., *ibid*.

65 Marshall, *supra*, note 63; Beck et al., *ibid*.

66 *Ibid*.

67 Marshall, *supra*, note 63.

As a result of these and other shortcomings, a draft bill was tabled in parliament, which aimed at, *inter alia*, broadening the definition of 'forest', limiting the power of the Minister and ensuring closer involvement of the local communities in the management of forests. The bill, which was initially rejected, was finally passed in July 2005, giving way to a new Act, the Forest Act 2005.

The Forest Act 2005 gives a broad definition of 'forest', which embraces all types of woody vegetation⁶⁸ and specifically categorizes mangrove forests under indigenous forests (Part I, Preliminary). It also states that '[A]ll indigenous forests (...) shall be managed on a sustainable basis for purposes of', among others, '(...) fisheries in mangrove forests' (Section 40(1)h). The Act slashes the power of the Minister to allow arbitrary removal of forests.⁶⁹ From now on, the Minister will have to give notice of intention to de-gazette forestland after which Kenyans will be consulted on the matter.⁷⁰ In addition, an environmental impact assessment (EIA) will have to be carried out by an independent organization.⁷¹ Finally, the parliament will still have to approve any decision of excision.⁷²

d) The Environmental Management and Coordination Act

The state of the environment is vital to the existence of marine life and its ability to flourish. To ensure a well-managed environment, the State must have environmental laws that are capable of counteracting activities which lead to degradation, such as pollution and overexploitation. Kenya lacked such laws prior to the EMCA of 1999, which entered into force in 2000.⁷³ The Act is implemented by the MENR through various

government agencies, the principal one being the National Environment Management Authority (NEMA) (NEMA is a government parastatal and hosts the focal point office of the Ministry of Environment and Natural Resources.⁷⁴ It is in charge of environmental policy implementation in Kenya).⁷⁵ The EMCA is divided into 14 parts containing 148 sections.

The Act synchronized and widened the spectrum of environmental concerns, which were initially haphazardly scattered throughout various laws.⁷⁶ It made way for the integration and implementation of new ideas in line with international conventions and treaties to which Kenya was party (Section 124) such as the CBD,⁷⁷ and for the establishment of environmental quality criteria and standards,⁷⁸ e.g., for water for fisheries (Section 71(b)(v)). It also introduced EIAs (Sections 58-67) prior to commencement of any project (Section 58(1)) including fish processing (Schedule 2, 9(o)), as well as environmental audits and monitoring (Sections 68-69).

Other provisions of importance to fisheries deal with:

- a) The conservation of biological diversity. Section 50 gives NEMA authority, in consultation with relevant lead agencies, to, *inter alia*:
 - a. Identify, prepare and maintain an inventory of biological diversity of Kenya;
 - b. Determine which components of biological diversity are endangered, rare or threatened with extinction;

68 It defines a forest as 'any land containing a vegetation association dominated by trees of any size, exploitable or not, capable of producing wood or other products, potentially capable of ameliorating climate, exercising an influence on the soil, water regime, and providing habitat for wildlife'. Swallow, B., Onyango, L. and Meinzen-Dick, R. (2003). 'Catchment Property Rights and the Case of Kenya's Nyando Basin'. Available at: <http://www.iwmi.cgiar.org/assessment/FILES/pdf/publications/WorkshopPapers/CatchmentPropertyRights.pdf>; Matiru, V. 'Forest cover and forest reserves in Kenya: policy and practice'. Available at: <http://www.iucn.org/places/earo/pubs/forest/forestcover.pdf>.

69 Swallow et al., *ibid*; Matiru, *ibid*; Ojanji, W. (2005). 'What you might not know about the Forest Act'. *The Standard*, 2 December. Available online at: http://www.eastandard.net/archives/cl/hm_news/news.php?articleid=33031, accessed on 17 July, 2006.

70 Ojanji, *ibid*.

71 *Ibid*.

72 *Ibid*.

73 For details see Kamau, E.C. (2005). 'Environmental law and self-management by industries in Kenya'. *Journal of Environmental Law* 17(2): 229-244, at 229-231.

74 See East African Region, http://www.unep.org/regionalseas/Publications/parts_data/Convention.doc.

75 *Ibid*.

76 Kamau, *supra*, note 73.

77 E.g., the question of access to genetic resources, EMCA, Section 53.

78 Kamau, *supra*, note 73, 241.

- c. Identify potential threats to biological diversity and devise measures to remove or arrest their effects;
 - d. Undertake measures so as to integrate conservation and the sustainable use ethic in government or private activities affecting biological diversity;
 - e. Protect indigenous property rights of local communities in respect of biological diversity.
- b) The conservation of biological resources *in situ* (Section 51). NEMA has the mandate to issue guidelines, in consultation with relevant lead agencies, for:
- a. Land-use methods that are compatible with conservation of biological diversity;
 - b. The selection and management of protected areas so as to promote the conservation of the various terrestrial and aquatic ecosystems under the jurisdiction of Kenya;
 - c. The selection and management of buffer zones near protected areas;
 - d. Special arrangements for the protection of species, ecosystems and habitats threatened with extinction;
 - e. Prohibiting and controlling the introduction of alien species into natural habitats; and
 - f. Integrating traditional knowledge for the conservation of biological diversity with mainstream scientific knowledge.
- c) The protection of the coastal zone (Section 55):
- a. The power of the Minister (by notice in the Gazette) to declare an area a protected coastal zone and to issue, in consultation with relevant lead agencies, appropriate regulations to prevent, reduce and control pollution or other forms of environmental damage.
 - b. The power of the Authority (NEMA), in consultation with relevant lead agencies, to prepare a survey of the coastal zone containing, e.g., an inventory of the state of the coral reefs, mangroves and marshes found within the coastal zone, areas within the coastal zone of special value for research in respect of fisheries, erosion and its impact on the coastal zone, an estimate of the extent, nature, cause and sources of coastal pollution and degradation etc.
 - c. The prohibition against and penalty for pollution.

Probably one of the greatest steps the Act makes is to acknowledge the importance of leading international legal principles through statutory recognition of what has in the recent past evolved as generally accepted international principles in the field of environment as a whole.⁷⁹ The Act outlines a number of principles of sustainable development⁸⁰ – as defined in the Brundtland Report of 1987.⁸¹ These are anchored in part II of the EMCA (Section 3) and include:

- a) The principle of public participation in the development of policies, plans and processes for the management of the environment;⁸²

79 Several principles and concepts of environmental law have emerged in the more than two decades since the Stockholm Conference in 1972. Some of these, which first appeared as 'soft law' in such documents as the Stockholm Declaration on the Human Environment, 1972 (UN Doc. A/Conf. 48/14/Rev. 1, United Nations, New York, 1973); the World Charter for Nature, 1982 (GA Res. 37/7, 37 UNGAOR. Supp. No. 51, UN Doc. A/37/51, United Nations, New York, 1982); and the Rio Declaration, 1992 (Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-4 June 1992, Vol. 1, United Nations, New York, 1992) have subsequently been incorporated into treaty law and national legislation of a number of pioneering States.

80 Section 3(5); for further reading see Ogolla, B.D. and Ojwang, J.B. (1999). Kenya Section. In: *International Encyclopaedia of Environmental Law*, p.24 ff. Kluwer Law International.

81 See World Commission on Environment and Development. (1987). *Our Common Future*, p.43. Oxford University Press ('Brundtland Report'). The Brundtland Report defines sustainable development as 'development that meets the needs of the present without compromising the ability of future generations to meet their needs'. The inspiration for this concept appears to have crystallized after the Stockholm Conference on the environment in the 1970s. However, its clear legitimacy and acceptance came with the 1992 Earth Summit in Rio when the official document of the summit provided a blueprint for harmonizing the imperatives of economic development and those of a healthy environment. Cf. Nyamu, J.G. (2000). 'Environmental law and practice – a big step forward'. *The Lawyer* 14. Agenda 21 stressed the need for national capacity for sustainable development in developing countries by using national environmental legislation and building up institutional frameworks to deal with the management of the environment.

82 See Ministry of Environment and Natural Resources (MENR). (1994). *The Kenya National Environment Action Plan Report*, p.137 ff. Nairobi: Government Printer.

- b) The cultural and social principles traditionally applied by any community in Kenya for the management of the environment or natural resources in so far as the same are relevant and are not repugnant to justice and morality or inconsistent with any written law;
- c) The principle of international cooperation in the management of environmental resources shared by two or more states;
- d) The principles of inter-generational and intra-generational equity;⁸³
- e) The polluter-pays principle;⁸⁴ and
- f) The precautionary principle.

These principles guide the elaboration of environmental laws, as well as all activities that affect the environment.

3. Institutional structures

Fisheries Department

a) Director

The Fisheries Act establishes the office of the Director who is the main authority charged with the administration of the provisions of the Act subject to the directions of the Minister (Section 3(1)). He is assisted by an assistant Director.

In order to discharge his powers, the Director is mandated to delegate, in writing, powers and functions conferred upon him by the Act to authorized officers at his own discretion (Section 3(2)).

The Director is endowed with regulatory powers aimed at promoting traditional and industrial fisheries, fish culture and related industries⁸⁵ (Section 4), as well as imposing management measures – with the approval of the Minister (Section 5).

The Director receives applications for licences from foreign fishing vessels and issues licences (Section

e) Scope of application in the coastal zone and EEZ

As already mentioned above, Kenya does not have a separate law on governance of fisheries in the EEZ. The subsidiary regulations to the Fisheries Act known as 'The Fisheries (Foreign Fishing Craft) Regulations', or 'EEZ Regulations', is the only legislation which could be referred to as EEZ-specific. Consequently, most of the measures used to govern the EEZ apply equally to the coastal zone. Therefore, the instruments of promotion and management of fisheries considered in Sections 4 and 5 below are largely applicable to both coastal and exclusive economic zones.

12(1)). He may also receive applications from local fishing vessels if no fisheries officer has been designated by him to do so (Section 9(1)). It is his responsibility to ensure that a register of all vessels registered under the Fisheries Act is kept (Section 7(4)), and that all licensees comply with any requirements that the Director may establish concerning the making of statistical returns and the collection of information (Section 8(4)). He may revoke or suspend a licence for a local or foreign fishing vessel at any time if necessary (Sections 10(2) and 13(2)). With the Minister's approval, the Director may exempt a local vessel, in writing, from paying the whole or part of the registration fee (FGR, 3(3)). The Director may also compound offences and order the release of any vessel or other thing seized by receiving a sum of money not exceeding the maximum fine specified for the offence, or the value of the vessel or other thing, respectively, if the offender admits in writing to having committed the offence (Section 20(1)). Finally, the Director may assign an observer to any foreign fishing craft (FFFCR, 44(1)).

83 See Government of Kenya. (1965). *Sessional Paper No. 10 (1965): African socialism and its application to planning in Kenya*, p.39. Nairobi: Government Printer.

84 See Government of Kenya. (1989). *Development Plan 1989-1993*, para. 8.30. Nairobi: Government Printer.

85 To this end the Director shall cooperate with other appropriate agencies and other Government departments.

b) Fisheries officers

Fisheries officers may be divided into two groups depending on their function: 'white-collar' and 'field' fisheries officers.

'White-collar' fisheries officers mainly perform office duties, which include receiving applications for licences from local fishing vessels and issuing licences through designation by the Director and subject to his instructions (Section 9(1) and (2)). They may require any vessel to be inspected by an authorized officer prior to issuing a licence (FGR, 3(4)). They also receive fees for licences (Section 9(2) and allot identification numbers to vessels, as well as ensuring that the allotted number is entered in a register (FGR 3(5)). Field fisheries officers, on the other hand, are mainly involved in the enforcement of the provisions of the Act and regulations made thereunder (Sections 17 and 18). They are generally referred to as 'authorized officers' and are comprised of fisheries officers of the FiD, police officers of or above the rank of inspector, officers of the Kenyan Navy or other armed force, or persons appointed by the Minister, by notice in the Gazette, for the same purpose (Section 2).

According to Section 18, authorized officers are empowered to 1) stop and board any fishing vessel in Kenyan waters so as to inspect such vessel, its cargo, supplies, fishing gear and equipment; 2) stop and inspect any vehicle transporting fish; 3) demand and examine licences and any other documents required

4. Instruments promoting fisheries

a) Education

The Fisheries Act broadly empowers the Director of fisheries to undertake fishery development measures in cooperation with appropriate agencies and other government departments. These include, *inter alia*, providing extension and training services, conducting research and surveys, promoting cooperation among fishermen, promoting arrangements for the orderly marketing of fish, providing infrastructure facilities, stocking waters with fish, as well as supplying fish for stocking.

under the Act or regulations made thereunder and take copies thereof; 4) require to be produced and examine any fish, net or any other fishing gear; or 5) impound any fish to be taken as samples and issue a receipt in the prescribed form. They also have the power to enter premises which have either been used, or are suspected to have been used for offences, arrest persons believed to have committed offences, and seize any fish, gear, vessel, vehicle etc. used or believed to have been used in the committing of an offence.

Authorized officers may exercise any of the powers and functions of the Director if delegated by him in writing (Section 3(2)). They may also conduct any prosecution for any offence under the Act or the regulations made subject to the direction of the Attorney General (Section 21). In such cases, the authorized officer will have all the powers conferred upon a public prosecutor by the Criminal Procedure Code (Section 21).

c) Minister

The Minister gives directions to the Director in discharging his powers (Section 3(1)), and approval in imposing management measures (Section 5(1)). He has general regulatory powers to 'make regulations for the better carrying into effect of the provisions of this Act' (Section 23(1)) and may change or abrogate the decisions or actions of the Director at the appeal of an aggrieved party (Section 6(2)).

b) Structural policies

In order to facilitate policies promoting fisheries, the Fisheries Act Cap 378 makes a provision in Section 24 allowing the Minister to prepare schemes, with the Treasury's approval, for modernizing fishing methods. These schemes aim to provide fishers (and fish farmers) with financial assistance so that they can achieve the following:

- a) Acquire or modernize fishing vessels;
- b) Acquire equipment e.g., gear, nets etc.;
- c) Develop fish farms; or
- d) Purchase inputs.

This law was made in the 1970s and was intended to help fishers benefit from loan schemes without them necessarily having any guarantees for repayment prior to receiving loans: it was based on good faith.⁸⁶ Unfortunately, administration of the scheme was difficult and chaotic with some fishers defaulting and others dying without leaving any arrangements for repayment, etc.⁸⁷ As a result, the Government suspended it and restructured its policies.⁸⁸ Though defunct, this provision was nevertheless neither repealed nor revised and remains on the statute books today as it was before the Government suspended the scheme (Section 24).

Currently, the only subsidy available to fishermen is the duty-free import of fishing gear. There are no development banks or micro-finance schemes specifically accessible to fishers. Increasingly, fishers have set up groups, associations or committees that are taking over the role of fisher cooperative societies. A total of 10 such groups are in existence.

Under restructured policies, fishers and fishers' groups, associations or committees (hereinafter organization(s)) are supposed to hold direct negotiations with financial institutions.⁸⁹ One such institution is the Agricultural Finance Corporation (AFC).⁹⁰ The fisher or fishers' organization, subject to prior consultation with the financial institution, prepares a proposal and presents it to the financial institution, which looks at it and decides whether it qualifies for a loan.⁹¹ Unlike the government scheme, however, the fisher or fishers' organization is expected to show evidence of guarantees or securities, preferably in the form of property, before the loan is granted.⁹² If the conditions are satisfied, the loan is granted.⁹³

In 2001, the Kwale District Development Plan identified the need for fisheries development initiatives such as the provision of boats suitable for use on the outer reef, development of an efficient marketing system, improved access to development loans to enable fishermen to purchase suitable gear and boats, maintenance workshops for boat repairs, hygienic landing depots with cold storage facilities and the construction of slipways to the fish landing site. This was done in the belief that economic constraints had contributed to pressures on the fishery, by affecting gear choice and forcing fishermen into the lagoons and near shore where resources were already overexploited, as they were unable to invest in more seaworthy vessels due to inaccessibility of credit.

The failure to offer fishermen appropriate subsidies, the subsequent effect on gear choice and the combined implications on resource exploitation led to a rethink of the fisheries management regime through the incorporation of traditional management systems into a formal management regime (see below, BMUs).

c) *Market organization*

The control of trade and price regulation was introduced in Kenya by the colonial government (1901-1962).⁹⁴ The newly formed government adopted this system of administrative organization of the market after independence.⁹⁵ In 1980, Kenya undertook reforms (Structural Adjustment Programmes (SAPs)) under the aegis of the International Monetary Fund (IMF) and the World Bank, which gradually brought about, among other things, liberalization of trade, interest rates and exchange rates. In addition, there was the privatization of public sector enterprises, removal of price controls and government subsidies.⁹⁶

86 Interviewee, FiD.

87 Ibid.

88 Ibid.

89 Ibid.

90 Ibid.

91 Ibid.

92 Ibid.

93 Ibid.

94 Cf. Bokea, C. and Ikiara, M. (2000). 'The macroeconomy of the export fishing industry in Lake Victoria'. In: *Socio-economics of the Lake Victoria Fisheries*. Report No.7. Nairobi: IUCN-EARO.

95 Ibid.

96 ILO, Kenya: Meeting the employment challenges of the 21st century, Eastern African Multidisciplinary Advisory Team (EAMAT), Addis Ababa, November 1999. Available at: <http://www-ilo-mirror.cornell.edu/public/english/employment/strat/cepr/download/kenya.pdf> (accessed 27 July, 2006).

Today, fishing is a free enterprise: the Government does not, for example, apply administrative pricing any more.⁹⁷ Hence, prices regulate themselves depending on the economy,⁹⁸ markets, supply and demand.⁹⁹ Nonetheless, since many fishers' cooperatives had collapsed even before liberalization, fishers carry out price negotiations independently ('one to one').¹⁰⁰ However, the value added based on the quality of the

fisher's product is another factor, which determines demand and price for that particular fisher and his ability to compete in the market.¹⁰¹

As there is no governmental subsidy scheme, the question of compatibility with WTO treaty requirements does not arise.

5. Instruments of fisheries management

a) Access restrictions

As mentioned above, the Fisheries Act Cap 378 gives the Director and Minister, under Sections 5, 6 and 23, the power to undertake concrete measures for promotion and management of both marine and inland fisheries. However, as this is a general regulation, there are subsidiary rules which regulate specific issues such as endangered fish species, prohibited gear, permitted fishing methods etc. These are the Fisheries (General) Regulations, Legal Notice 34/91, and the Fisheries (Foreign Fishing Craft) Regulations, Legal Notice 35/91.

Licences

General licence

No person is permitted to fish in Kenyan waters unless he either possesses a valid fishing licence or is fishing for his own consumption (Section 8(1), FGR 9(1)(a)).¹⁰² A licence is obtainable, subject to the Director's approval, through application to him in the

required form and on payment of the specified fees (FGR, 9(2)).¹⁰³

A fishing licence is just a general authorization to catch fish,¹⁰⁴ but does not allow these activities to be carried out indiscriminately. The licence indicates the species of fish, fishing gear, method of fishing and area for which the licence is valid (Section 8(3)). For certain species of fish, a supplementary licence must be applied for.

Trader's licence and movement permit

A trader need not necessarily be a fisher. For purposes of trade, a trader's licence and a fish movement permit (FGR 15, 18)¹⁰⁵ may be granted upon application, for fish other than crustaceans and bêche-de-mer (FGR 16, 17), as well as fish products (FGR 15(1)).¹⁰⁶ The fish that are going to be sold must have been landed at a landing station designated under FGR 42 (FGR 15(5)).¹⁰⁷

97 Interviewee, FiD.

98 Cf. Bokea/Ikiara, supra, note 94.

99 Interviewee, FiD; cf. *ibid.*

100 *Ibid.*

101 *Ibid.*

102 This must be done, however, according to the Minister's order published in the Gazette, which defines the quantity of fish deemed to be fish for domestic consumption. According to one fisheries officer, fish for domestic (or own) consumption is estimated at six (6) pieces of fish of a length of approximately forty-two (42) centimetres.

103 A sample of the licence (Form DF/L1) and list of fees are printed in the first and second schedules of FGR, respectively. The licence demands compliance with the provisions of the FA and the regulations made thereunder, and contingency to conditions specified thereunder. The cost of a fisher's licence depends on the use or non-use of craft, the type of craft, i.e., whether mechanized or not, and its length.

104 Although FGR 9(1) (a) raises the question as to whether two licences, for fishing and for the vessel, are required before full authorization to engage in fishery activities is attained, Sections 9(4), 11(1) and FFFCR 3 clearly suggest that a licensed vessel receives permission to enter into Kenya's fishery waters, as well as to conduct fishing activities. In addition, FFFCR 6(2) explicitly waives the registration requirement under Section 7 for foreign fishing vessels. Local fishing vessels registered under FGR 3, on the other hand, are deemed to have a licence required under Section 9. It's probable that Section 9 is meant to seal any loophole that might exist between fishing for domestic consumption and commercial fishing without vessels.

105 A fish movement permit allows the trader to freely move fish and fish products from one place to another. A licensed fisher or fish farmer does not require a trader's licence and fish movement permit.

106 This does not apply to fish already prepared as food and sold by catering institutions for eating by their patrons.

107 Regulation 42 lists designated landing stations: they present a good opportunity for different types of control – Regulation 42(2)(a), for example, provides for the weighing of fish by fisheries officers at designated fish landing stations. This could be a strategic point at which to control quotas, sizes and species.

Licence for specific species

As mentioned above, the Fisheries Department has the discretion to limit or abolish activities that may negatively affect certain species or types of fish, e.g., species in danger of extinction. The harvesting of such species is subject to a specific licence for that particular species. The licence defines the terms and conditions under which that given species shall be caught. These species include the following:

- a) Aquarium fish (requires an aquarium fisherman's licence);
- b) Oysters (requires an oyster collector's licence) – the use of mechanical apparatus for gathering oysters from any oyster bed is forbidden. An oyster collector's licence specifies the area where the licensee is permitted to collect oysters and may be marked out on the ground before collection commences.¹⁰⁸ The licence may be cancelled immediately, or amended in whole or in part, if the Director is of the opinion that the licensee's activities are detrimental to the proper management of oyster resources in the area specified;
- c) Trout (requires a trout fishing licence);
- d) Crustacea (requires a crustacea dealer's licence); and
- e) Bêche-de-mer (requires a licence to trade in bêche-de-mer) – any person wishing to export this type of fish must pay royalties based on the value and quantities exported. The rates are determined and prescribed by the Director.

Generally, a fishing licence and all the other licences and permits do not allow for movement of live fish from one water catchment area to another (FGR, 25),¹⁰⁹ or the import or export of fish (Reg. 26) –

including live fish. For these activities, separate licences must be applied for, e.g., export of aquarium fish (Reg. 23),¹¹⁰ or specific formalities observed.¹¹¹

b) Catch and effort restrictions

The Fisheries Act and subsidiary legislation do not specify how the Total Allowable Catches (TACs) for local fishing vessels are determined. For foreign fishing vessels, the Act implicitly suggests the existence of a form of TAC and ITQ under Section 12(2)(a) and (b) respectively. It says that the Director may issue a licence to a foreign fishing vessel only if there are surplus fishery resources (...), which may be harvested. From the surplus, he allocates a specific quantity, presumably an ITQ, that the vessel is permitted to harvest. The EEZ Regulations refer to this requirement under FFFCR 6(1)(f), 7(1) and 7(2)(b). It seems that Section 5(1)(d), FGR 31(2)(a) and FFFCR 10(a), which empower the Director to limit catches, landings and trading of fish based on the amount (weight and quantities), size, age, sex, species etc. could also be interpreted as a kind of TAC.

Section 6(1), which empowers the Director to limit the number of persons, vessels, nets, etc. employed in a fishery, suggests a total allowable effort (TAE). Logically, if an amount of fish to be harvested (ITQ) is fixed as a licence condition, it presupposes that a (general) TAC or TAE, which may alternatively be the basis for the calculation of individual quotas, has previously been set for the stock or species as a whole.

Some of the above instruments do not explicitly address the activities of either local or foreign vessels and therefore could be used to regulate both.

There are currently, however, no records indicating that establishment of TACs takes place in practice before ITQs are issued or TAE is determined. It is

108 If marking out is necessary, the licensee must bear the costs.

109 This prerogative belongs to the fisheries department and is meant to avoid the spread of disease and destabilizing the ecosystem (e.g., the unwarranted introduction of Nile perch in Lake Victoria has caused a drastic reduction of traditional species as Nile perch is a predator fish).

110 A licence for the export of aquarium fish must be surrendered to the collector of customs at the port of export. Its expiry will depend on which event occurs first: the date of expiry as specified in the licence, or the shipment of the consignment.

111 FGR 57(1) requires that any live fish being imported into Kenya be presented to a fisheries officer at the port of entry for verification of any disease. The inspecting officer shall order any fish contaminated with a disease to be destroyed.

possible that ITQs are allocated based on non-statistical knowledge of existing fishery potential, among other possible grounds.

c) *Technical measures*

The Fisheries Act empowers the Director of fisheries to impose closed seasons for designated areas, species of fish or methods of fishing. Additionally, it considers the limitations on the methods or gear¹¹² or mesh sizes of nets and the limitations on the amount, size, age and other characteristics and species or composition of species of fish that may be caught, landed or traded, respectively (also FGR 31-32(1)).

The law totally prohibits all fishing activities in breeding areas (FGR 50). Consequently, any person who disturbs any spawn or spawning fish in a breeding area is guilty of an offence punishable by fine, imprisonment or both (FGR 50).

Due to the extreme and constant mobility of marine mammals and turtles, all marine zones of Kenya are declared by law to be marine mammal and turtle sanctuaries (FGR 51). All activities that might threaten, harass, disturb their behaviour or breeding habits are prohibited (FGR 51). Any marine mammal or turtle caught or taken unavoidably during fishing must be put back into the water whether alive or dead (FGR 51). It is an obligation for all fishing vessels to have a turtle excluder device (TED) in place (Kenya Gazette notice no. 7565).

The Director has the power to refuse to issue or renew licences, impose a special licence and catch fees, issue preferential licences in fisheries other than the one desired by the applicant, or revoke or suspend licences (Section 6(1), 10(2)). This is meant to limit the number of persons, vessels, nets or areas in a specific fishery so as to avoid overfishing (Section 6(1), 10(2)). A licensing officer is also empowered under FGR 30(1) to refuse to issue a licence for any reason he thinks fit. However, he must give a full account of his decision to the Director, who has the power to uphold, vary or reject the decision of the licensing officer in case of a complain by an aggrieved party. This provision gives

licensing officers an opportunity to enforce good practice in fisheries activities although their decisions might not always pass.

This instrument is weakened by two major factors. First, a party aggrieved by the Director's or licensing officer's decision may appeal to the Minister or Director, respectively, whose decision is final (Section 6(2), FGR 30(3)). Second, the Minister has the power to exempt any vessel or person from any provision of this Act (Section 23(2)(l)). According to his mandate, the Director is in a better position to know the status of fishery resources than a Minister. If the Director makes a decision to deny, revoke or suspend a licence based on necessity for proper management, it is still within the Minister's power to abrogate it. These kinds of overlapping and conflicting mandates are unhelpful and are likely to have a negative impact on the proper administration of fisheries.

The law makes provision for public or consumer involvement in controlling unlicensed fishing and/or fish trade, which could also be considered as a technical measure. This is done by restricting the purchase of fish by any person from an unlicensed fish dealer, fisher, fish farmer or fisherman's cooperative society, and prescribing penalty measures for contravention of the regulation (Reg. 58). Although this provision might not have been meant to act as a management measure, or be based on public awareness of environmental issues, it can be used as a tool to fight unlicensed fishing and fish trade in environmental public awareness campaigns. This will of course only make sense if the licensing authorities educate fishermen on the need for sustainable fishing and include terms expedient to sustainability in fishing licences.

d) *Requirements for vessels*

Any local fishing vessel wishing to carry out fishing activities in Kenyan waters must be registered as required by Section 7 of the Fisheries Act and issued with a certificate of registration in the form provided by regulation 3(2) of LN 34/91.¹¹³ The licensing officer may require the vessel to be inspected to ascertain whether it complies with the provisions of the Act

112 According to Section 5(2) of the Fisheries Act, the Director may, by notice in the Gazette, prohibit the possession of gear in the area where it has been prohibited.

113 A sample of the required certificate (Form DF/CR1) is printed in the first schedule of FGR.

before registration (FGR 3(4)). After registration, the vessel is issued with an identification number which is subsequently entered in the register of registered vessels (FGR 3(5)) and is deemed to have a licence required for a local fishing vessel (FGR 8). The number must be painted on each side of the bow of the vessel and must be clear, legible and visible at all times (FGR 4(1)(a), (b)). The change of ownership of a registered vessel must be applied for by the person transferring and the person to whom ownership is being transferred (FGR 6(1)).

A registered vessel must be seaworthy before proceeding on a fishing trip (FGR 7(1)). If a fisheries officer, upon inspection of such a vessel, finds it unseaworthy, he must detain it until it is made seaworthy and a certificate of seaworthiness from an authorized examiner is produced (FGR 7(2)).

All of the above are general management measures, which are applicable in both inland and marine waters. However, in the past they have been used mainly in inland waters. As a result, the FA did not place any concrete restrictions on gear use in the EEZ except for a provision in Reg. 10(b) of FFFCR stating that the Director may include the types, size and amount of fishing gear as a condition for a fishing licence. The only other provision, which could be interpreted as applying to EEZ, is Reg. 43(2) of FGR which states

that a 'seining net with mesh sizes less than 50 mm when diagonally stretched is prohibited fishing gear except for fishing for *Rastrineobola* (Omena)'. Although the fish species referred to as an exception in this provision is most likely found in inland waters, there is no indication that the provision is addressed exclusively to inland waters, and hence may be equally applied in the EEZ.

In 2001, a number of specific restrictions for marine fisheries were put in place including seasonal restrictions on trawling, the need for an approved TED on trawlers, a ban on the use of monofilament nets, seine nets, harpoons and spear guns (Kenya Gazette notice no. 7565). The legal notice number 214 of 2003 prohibited the use of scuba gear and spear guns for fishing lobster and bêche-de-mer. These laws have not been enforced except for beach seine used in some near-shore areas.¹¹⁴ However, the Fisheries Department has implemented a satellite monitoring system to monitor trawlers, and on-board inspections by fisheries officers are also carried out periodically.¹¹⁵

Apart from the general prohibition of gear, an absolute ban on any gear in a particular area (fishery) is permitted by law. In fact, the Director has the power in such cases to attach an additional ban by forbidding the mere possession of such gear in that area by notice in the Gazette (Section 5(2)).

6. Special fisheries management measures in the EEZ

a) *Institutional structures*

The EEZ is mainly governed by the Fisheries Act Cap 378 and subsidiary legislation. By virtue of this Act, the main institution involved in the promotion and management of fisheries in 'Kenya's fishery waters'¹¹⁶ is the Fisheries Department. In spite of jurisdictional arrangements limiting KWS activities to marine parks and reserves, shortages of personnel and capacity in the Fisheries Department necessitate the KWS' involvement in the general coastal zone, as well as the EEZ, albeit to a limited extent, especially as far as

management efforts are concerned.¹¹⁷ Hence, the KWS is to be regarded here as the FiD's vital partner in the governance of the EEZ.

Fisheries Department

Observers

Observers are mainly allocated the duty of scientific data collection (FFFCR, 44(1)). Like authorized officers, they may also carry out management and enforcement activities (*ibid.*). However, they are

114 McClanahan et al., *supra*, note 58.

115 N. Muthiga. Personal communication.

116 'Kenya's fishery waters' are defined as inland waters and the waters of the marine zones (extending to 200 nm according to the Maritime Zones Act of 1989 (Rev. 1991)), and excludes Government and private fishponds and farms not established for commercial purposes.

117 Interviewee, KWS Nairobi.

assigned to foreign fishing vessels by the Director and may carry out those activities only at his authorization (*ibid.*).

Kenya Wildlife Service

As mentioned above, the activities of the KWS are limited to marine parks and reserves. However, since it is rich in personnel and capacity, it contributes immensely in the EEZ, mainly within the reef system through unregulated participation.¹¹⁸ This is mainly in research, monitoring and enforcement. The KWS has the capacity and personnel to carry out 24-hour surveillance.¹¹⁹ It has wardens, cadets, rangers and divers who can do underwater monitoring.¹²⁰ It also has other facilities such as offices, boats and vehicles, and carries out education and awareness programmes.¹²¹ The KWS has all along been able to finance all these activities from its own budget as it has always had a greater ability to attract donor funds through bilateral and project funding.¹²² It also collects entrance fees in its parks and reserves.¹²³ However, an ever-broadening mandate, and the need to share available funds between fund-generating and non-fund-generating parks and reserves has seen the KWS' budget diminish.¹²⁴

The KWS' contribution to the governance of the EEZ faces a number of challenges. Based on its legal background, the KWS believes in strict management and exploitation of resources based on proper knowledge thereof, and as a product (or benefit) of good management (*cf.* WCMA, preamble). It is therefore of the opinion that the FiD issuing too many licences, without proper knowledge of the status (of fish species) and behavioural patterns of marine resources, is contrary to good management and detrimental to sustainable fishing.¹²⁵ The KWS also

feels that the FiD does so irrespective of shortage of capacity and personnel to control, monitor and enforce regulations.¹²⁶

Probably the worst obstacle for the KWS is the lack of a legal basis for its activities in the EEZ: the KWS cannot enforce FiD measures especially curtailing exploitation, as the FiD has exclusive jurisdiction in the EEZ over this matter.¹²⁷ This results in conflicts and difficulties in collaboration between the two departments.¹²⁸

There are prospects for 'friction-free' collaboration between the FiD and the KWS once the Memorandum of Understanding (MOU), which is expected to clearly lay out their mandates and basis for sharing authority and management,¹²⁹ takes effect.

b) Requirements for foreign vessels

Licences

Apart from the formal conditions and procedures discussed below, licences for foreign fishing vessels should under normal circumstances be issued based on the ecological status of the fishery. Section 12 of the Act states that the Director may issue such a licence after determining '(...)' that there are fishery resources surplus to the Kenya fishery industry that may be harvested' under the licence. From that he may establish the quantity of the surplus that may be harvested and make that requirement a condition of the contract. He also specifies the period of validity of the licence (Section 13). Such licences may, however, be revoked or suspended due to lack of compliance or where such action is necessary for proper management of fisheries (Section 13, *cf.* FFFCR 16).

118 *Ibid.*

119 *Ibid.*

120 *Ibid.*

121 *Ibid.*

122 McClanahan et al., *supra*, note 58, p.920.

123 Interviewee, KWS; *cf. ibid.*, pp.906, 915, 920.

124 *Ibid.*

125 Interviewee, KWS: The interviewee quoted a case when Mexico proposed a deal to the FiD to import twelve (12) dolphins from Kenya. 'There was no information or prior study of the behaviour of dolphins, ecology, or even whether Kenya had any dolphins'. Fortunately, the 'request came to KWS' desk and was rejected'.

126 Interviewee, KWS.

127 *Ibid.*

128 *Ibid.*

129 McClanahan et al., *supra*, note 58, pp.906, 926.

These provisions are misleading as proper allocation of quotas can only take place when there is adequate knowledge of a fishery's resources, i.e., the species and stocks of fish available. Presently that knowledge is scarce¹³⁰ and in addition, monitoring and surveillance in the EEZ is poor.¹³¹ Hence, this law could be said to be on the statute books but not in use. It is possible that quotas are apportioned as Reg. 33 of FFFCR indicates when requiring notification of completion of quota. This is done though without proper understanding of how much damage the allocation could cause to the fishery. Depending on feedback and information from foreign fishing vessels concerning the fishery or their activities in the fishery cannot be a reliable solution.¹³²

According to Section 12 of the Act, an application for a licence may be made either directly to the Director or through a diplomatic representative of the flag state of the craft (FFFCR, 4, 5). The government of the flag state or the inter-governmental organization (e.g., Tuna Association)¹³³ to which the craft belongs ought to have signed a fisheries cooperation agreement with the Government of Kenya (FFFCR 6). As discussed later, the Kenyan Government has not signed any fisheries cooperation agreements with any country as yet.¹³⁴ Hence, no basis exists for the practical implementation of this provision.

A fishing plan must be approved by the Director (FFFCR 6, 7). This or any proposal to revise it may be submitted to the Director from time to time by the diplomatic representative of the country in respect to which an allocation of the allowable catch was made (FFFCR 7). It outlines the proposals for taking from Kenya's fishery waters the country's allocation and includes, *inter alia*, information concerning the following:

- a) The area in the EEZ in which fishing will be carried out by the country's vessel;
- b) The exact number of fishing vessels from that country that will be engaged;
- c) The estimated times for arrival in and departure from the EEZ of such fishing vessels;
- d) The proposed duration of the fishing plan;
- e) An outline of the calls into Kenyan ports to be made by the fishing vessels of that country during the duration of the fishing plan;
- f) An outline of all other proposed operations in support of the fishing vessels of that country in the EEZ during the duration of the fishing plan; and
- g) Any other information required by the Director in order to exercise his powers.

Other requirements include having a local representative for the vessel with authorization to act as well as accept legal responsibility on behalf of the owner and master of that vessel (FFFCR 8) and supplying a performance bond in respect to payment of royalties (FFFCR 6(1)(h)).

A licence for a foreign fishing vessel may contain such terms and conditions as the Director, with the Minister's approval, may determine. These may be such terms and conditions as listed under regulation 10(a)-(s) of LN 35/91 which include, *inter alia*:

- a) The stock, size, sex, weight and quantities of fish to be harvested;
- b) The types, size and amount of fishing gear that may be used or carried on board, and the modes of storage of that gear when not in use;
- c) The amount of bycatch that may be retained;

130 Cf. Gitonga and Achoki, *supra*, note 2.

131 Ibid.

132 Cf. *ibid.*: Long-liners unlike other foreign vessels, for example, are exempted from the annual fee of US\$ 20,000 because they claim that the fish are only available in Kenyan waters for approximately three months of the year. Unfortunately, the FiD is not able to prove how reliable this information is.

133 Cf. Mbithi Mwikya, S. (2005). Fishery access agreements with distant water fishing nations: critical negotiating issues, <http://www.ictsd.org/dlogue/2005-05-09/2005-05-09-Mbithi.pdf>, accessed on 15 August, 2006; Mbithi Mwikya, S. (2006). *Fisheries Access Agreements: Trade and Development Issues*. Geneva: ICTSD. Also available at: http://www.ictsd.org/pubs/ictsd_series/nat_res/Mbithi_2006.pdf, accessed on 15 August, 2006; Japan's fisheries agreements with coastal states, for example, do not involve the Japanese government. All arrangements permitting access to Japanese vessels into the EEZs of other countries are either signed between the Japanese Tuna Association and coastal countries or take the form of licence fee arrangements between a specific Japanese company and fisheries authorities of coastal countries.

134 Cf. Gitonga and Achoki, *supra*, note 2; cf. Okidi, C.O. 'Enforcement of Kenya's EEZ fisheries through access agreements'. <http://www.law.pace.edu/environment/2006-abstract-summaries.pdf>.

- d) The requirement to take on board authorized officers or observers;
- e) The inspection of any fishing or fishing-support vessel at any specified periods;
- f) The landing of fish in Kenya;
- g) The provision of statistical and other information, including statistics relating to catch and effort and reports as to the position of the vessel;
- h) The training of Kenyan citizens in the methods of fishing employed by the foreign fishing vessel and the transfer to Kenya of technology relating to fisheries;
- i) The marking of the fishing vessel and other means for its identification;
- j) The installation on the fishing vessel and maintenance in working order of a transponder or other equipment for the identification and location of the vessel and of adequate navigation equipment to enable its position to be fixed from the vessel;
- k) Directions, instructions and other requirements given or made by vessels or aircraft of the Kenya Armed Forces or other government vessels to the fishing craft that shall be complied with; and
- l) Fees and other related charges to be paid.

The Director may modify the fishing plan and/or the licence (FFFCR 11(1)) and shall subsequently notify the craft's local representative concerning the terms of the modification (FFFCR 11(2)). The licence must be kept on board at all times and in good condition in a place where it is safe and can be readily inspected by an authorized officer (FFFCR 14). If the Director determines that the foreign fishing vessel has failed to comply with the conditions of the licence, or deems the licence a threat or an impediment to the proper management of the fisheries, he may revoke or suspend it for the period he deems appropriate (FFFCR 16(1)). A notice of revocation shall be delivered by the Director to the local representative of the vessel after which the owner or master shall ensure that the licence is delivered to the designated person within 72 hours (FFFCR 16(2), (3)). A party aggrieved by the decision of the Director may make an appeal and the decision of the Minister shall be final (FFFCR 17).

Section 23(2) empowers the Minister also to make regulations to control fisheries. These include regulations on foreign participation in fisheries, licensing of foreign fishing vessels, handling, storage and processing of fish, inspection of fish trading and processing establishments and fish products, management and control of fishing ports and waters. He also has the power to exempt any type of fishing gear, vessel or any person from any provision of the Act, etc.

Fees

A foreign fishing craft must pay a non-reimbursable minimum fee of US\$ 20,000 annually, or at agreed intervals, and royalties (FFFCR, second schedule; Reg. 6(1)(g), (h)). The Director determines the percentage of royalties to be paid based on the total catch, as well as the value of tuna fish and bycatch assumed caught in Kenyan EEZ (FFFCR, second schedule).

Control measures

In order to control the activities of foreign fishing vessels in Kenya fishery waters, the law has laid down the procedure on how these should behave while in or leaving Kenyan waters. Any foreign fishing vessel that has not been licensed under reg. 6 of the EEZ (Fisheries (Foreign Fishing Craft)) Regulations must keep all fishing gear stowed in such a manner that it is not readily available for fishing (Reg. 19) and shall comply with specific provisions under Regulation 19(1)(a)-(d) regarding fishing gear, nets, trawl boards and weights, and bottom/skiff and helicopter for purse seiners. This also applies to any licensed fishing vessel before it receives port inspection (as it enters the EEZ from the high seas) or after it has been granted clearance to leave the EEZ (Reg. 19).

Any foreign fishing vessel intending to enter the Kenyan EEZ whether licensed, or for the purpose of furtherance of or making an application for a licence must notify the Director 24 hours in advance. The notification must indicate the name, call sign and flag state of the craft; the latitude and longitude of the point at which the craft will enter the EEZ; the port to which the craft will proceed for inspection; the species of fish

on board the craft, and the quantity and condition of each species (Reg. 21).

Any foreign fishing vessel wishing to tranship fish to another vessel in Kenyan fishery waters must do so at the port designated by the Director, at the time authorized for the purpose by him, or at the direction of an authorized officer (Reg. 20).

The Director may exempt any foreign fishing vessel from any inspection requirement(s) at his discretion (Reg. 24).

Every vessel must keep a fishery log at all times in duplicate whenever it is in Kenyan fishery waters. The log should have details of the daily fishing activities of the vessel concerning 1) the fishing methods used; 2) the fishing effort of the vessel (indicated in terms of the number of hauls of trawls or seine nets and in the case of set nets or long lines, the length of netting or number of hooks set per day); 3) the area in which fishing was undertaken specified in longitude and latitude; 4) the species of fish taken and the quantity and average size of fish of each species measured by weight; and 5) the species of fish returned from the vessel to the sea and the quantity. The vessel might be required to give any other information that the Director may consider necessary so as to ascertain the activities of the craft in the Kenyan fishery waters (Reg. 31). In addition, it must report weekly to the Director, or a person designated in the licence, with information concerning the identity of the craft, its geographical location, the quantity in kilograms of each species in the hold and those caught since the last port inspection or weekly radio report, depending on which one occurred last (Reg. 32). Fishing operations must be conducted in such a way as to avoid any intentional or negligent pollution that could cause harm to any fishery resource or marine mammals (Reg. 35). Any incident of pollution either through accident or necessity to rescue the craft or crew, or encountered by the vessel, must be reported immediately to the Director (Reg. 35). Lastly, the Director must be notified immediately the vessel has completed its quota. The quota is deemed

complete once the allotted amount has been harvested from any fishery in the EEZ, or after so much as may only be collected of the allocation from a specified area or by a specified method has been harvested (Reg. 33).

Research

Marine fisheries research activities may only be conducted in the maritime zones of Kenya with the express consent of the Kenyan scientific authority and a permit by the Director (Reg. 37(1), 39). Any state or competent international organization that is permitted to carry out such research must do it for peaceful purposes and to increase scientific knowledge of the marine environment in Kenyan waters (Reg. 37). The application must contain a comprehensive description of the nature and objectives of the research project, the name of the sponsoring institution, its Director and the person in charge of the research project, the names and biographies of all scientific personnel expected to be on board the research vessel and the methods and means to be used, including the name, tonnage, type and class of the research vessel and a description of the scientific equipment on board (Reg. 39). Also to be included is the precise geographical location in which the research project is to be conducted, the anticipated date of first appearance and final departure of the research vessel, or deployment of the equipment and its removal, and the extent to which Kenyan scientists can participate or be represented in the research project (Reg. 39). A copy of the research data must be surrendered to the Director before departure and results made available thereafter (Reg. 40(1)(e)).

c) Coherence with pertinent international law

The UNCLOS of 1982 gives coastal states the sovereign right to explore, exploit, conserve and manage fisheries resources located in their EEZ,¹³⁵ which extends to 200 nm from the low-water baseline of the territorial sea (Articles 55-57). The right to access the EEZ fisheries resources and their benefits is thus subject to the duty to conserve and optimally use (Art. 62) them.¹³⁶ Proper conservation is to be achieved by

135 Art. 56(1)(a). For further information on the fisheries regime of the exclusive economic zone see Dahmani, M. (1987). *The fisheries regime of the exclusive economic zone*. Dordrecht: Martinus Nijhoff.

136 See also Hey, E. (1999). 'The fisheries provisions of the LOS convention'. In: Hey, E. (Ed.). *Development in international fisheries*, pp.13-29, at 21 ff. The Hague/London/Boston: Kluwer Law International; Birnie, P. and Boyle, A. (2002). *International law and the environment*, pp.659 ff. 2nd Edition. New York: Oxford University Press.

determination of the maximum sustainable yield (MSY)¹³⁷ as qualified by environmental and economic factors and taking into account available scientific information (Art. 61).¹³⁸ Other states may be allowed access to the remainder (surplus) of the resources subject to conditions pertaining to conservation of resources and payment of allocated quotas (Art. 62 (4)).¹³⁹

Although proper conservation and optimal use is in the interest of the international community, the burden of ensuring that the resources are not depleted is left to the coastal state (Art. 61 (2)). Kenyan laws pertaining to access to and sustainable use of fisheries resources have evolved tremendously so as to conform to pertinent international and regional international agreements, and recommendations of international, regional and national research organisations. As a result, laws have been formulated introducing regulations concerning open and closed seasons for fishing, prohibiting certain gears and methods and demanding, as well as recommending, the introduction of certain devices e.g., TED and Vessel Monitoring System (VMS). The greatest challenge for Kenya is the lack of capacity to research in the EEZ in order to establish the status of the stocks therein, monitor and carry out surveillance of fishing activities and also enforce the EEZ regulations.

Due to a lack of sufficient research, monitoring, surveillance and enforcement, many activities may end up being allowed that are at odds with international

agreements and organizations. These include allocating quotas without proper knowledge of stocks or species and declaring a 200 nm EEZ without the capacity to control either IUU activities or even licensed ones. Again, this is mainly a matter of resources. The fact that even the most developed countries are not able to effectively manage and conserve fisheries in their EEZs¹⁴⁰ testifies that developing countries need a lot of help in this area. It is expected though that regional collaboration within SWIOFC, SIOFA and other such bodies will help to improve the situation not only in the general region but also in individual EEZs. Consequently, laws and fisheries activities are expected to become more coherent with time.

d) Interim remark

Current Kenyan law is comprehensive enough to ensure proper management of fisheries in the EEZ. Where it fails is in its implementation and enforcement due to a lack of resources and capacity. It is clear, for example, that most of the control of foreign fishing vessels is dependent on good faith and self-reporting. Meanwhile, the status of the fisheries in the EEZ is not well known as not enough research has been carried out. Unfortunately, the gains derived from licence fees are minimal, especially in the light of possible unsustainable fishing and damage done to the ecosystem. The expected introduction of VMS will probably ameliorate this situation, but without adequate human capacity and financial resources, it will still be hard to eradicate violations.

7. Special fisheries management measures in the coastal zone

a) Institutional organizational structures

There are a number of institutions involved in the governance of the coastal zone. These include the Fisheries Department (FiD), the Kenya Wildlife Service (KWS), the Forestry Department (FD), the Kenya Marine and Fisheries Research Institute (KMFRI), the Coastal Development Authority (CDA), Coral Reef

Degradation in Indian Ocean (CORDIO) and the Coral Reef Conservation Program (CRCP).

Fisheries Department

The Fisheries Department is the main institute mandated to manage fisheries in the coastal zone.¹⁴¹ This includes areas adjacent to marine parks and marine

137 Interviewee, FiD.

138 Hey, supra, note 136; Birnie and Boyle, supra, note 136.

139 Cf. Hey, *ibid.*, p.22.

140 Birnie and Boyle, supra, note 136, p.660.

141 Cf. McClanahan et al., supra, note 58, p.906.

reserves. Marine parks are exclusively managed by the KWS, whereas marine reserves are jointly managed by the FiD and the KWS.¹⁴² The FiD is primarily mandated for the promotion of fisheries,¹⁴³ which includes the development of traditional and industrial fisheries, aquacultures and related industries (FA, Section 4). The Act lists a number of measures for achieving this such as providing extension and training services, conducting research and surveys, promoting cooperation among fishermen, promoting arrangements for the orderly marketing of fish, providing infrastructure facilities, stocking waters with fish and supplying fish for stocking (FA, Section 4), and promoting modern fishing methods by providing financial assistance to fishermen (FA, Section 24). As has already been seen, some of these functions are defunct though still on the books.

Licensing is also seen as a quasi means of promotion in the sense of encouraging more exploitation of fisheries. This is especially important since the FiD no longer belongs to a ministry that is attached to the office of the president, and therefore no longer has such easy access to finances.¹⁴⁴ Hence, the FiD has to generate its own resources to cover its budget.¹⁴⁵ This has caused excessive licensing which has resulted in conflicts between the FiD and the KWS, especially in marine reserves which are governed by both institutions:¹⁴⁶ the KWS is considered too restrictive by the FiD.¹⁴⁷ It also conflicts with the management role of the FiD itself and that of the KWS¹⁴⁸ (see subsection b)i) below).

Kenya Wildlife Service

The Kenya Wildlife Service is primarily mandated to manage and conserve wildlife with a focus on protected

areas and endangered species.¹⁴⁹ The legislation issuing this mandate, the WCMA, does not address marine parks and reserves specifically but rather parks and reserves in general. Hence, certain features particular to marine resources may not be sufficiently addressed. However, in discharging its responsibilities, the KWS is guided by bylaws: in marine parks by fisheries' Gazettes, an approach which is more or less an amalgamation of the FA and the WCMA, and in marine reserves by the Local Authorities Act and Local Council bylaws, but still taking into account the FA and the WCMA.¹⁵⁰

Although, legally, promotion of fisheries is not a significant part of the KWS' role, tangible effects nevertheless ensue from its managerial role. The spillover effect from the no-take zones to surrounding areas not only shows the impact of KWS' ability to manage fisheries, but also testifies to its positive contribution towards promotion of fisheries.¹⁵¹ There is more breeding in the no-take zones thus providing more fish for the surrounding areas where fishing is allowed.¹⁵² The number and species of fish are greater in the marine parks and marine reserves.¹⁵³ Consequently, the tendency of fishermen to concentrate in certain areas believed to have more fish has changed: now they tend to pitch their nets and traps very close to marine parks.¹⁵⁴ This trend has also helped relieve former preferred fishing areas from the pressures of overexploitation.¹⁵⁵

Aside its management role, the KWS carries out research within MPAs mainly in close collaboration with the KMFRI.¹⁵⁶ It also cooperates with CORDIO, the CRCP and the WCS.¹⁵⁷

142 Ibid., p.911.

143 Ibid., p.906.

144 Interviewee, FiD; cf. Gitonga and Achoki, *supra*, note 2: One of the constraints of the fisheries sub-sector is low funding levels for the Fisheries Department and the sector.

145 Ibid.

146 E.g., Kiunga marine reserve: interviewee, KWS.

147 Interviewee, KWS.

148 A KWS interviewee quoted a case of licensing in Watamu marine reserve by the FiD without involving or informing KWS.

149 McClanahan et al., *supra*, note 58, p.911 (Table 3).

150 Interviewee, KWS.

151 Interviewee, KWS.

152 Ibid.

153 Ibid.

154 Ibid.

155 Ibid.

156 Ibid.

157 Ibid.

Forestry Department

The Forestry Department falls under the Ministry of Environment and Natural Resources. It is responsible for the management of forests (coastal and mangrove) including licensing of logging and reforestation.¹⁵⁸ Mangrove forests are vital breeding and feeding areas for fish¹⁵⁹ and they also perform other vital functions for fisheries.¹⁶⁰ It means that degazetting such forests as well as licensing community use of them for fuel wood, medicinal plants, etc. must be done with knowledge of the impact of such activities on fisheries and in consultation with other institutions such as the FiD and the KWS, and the KMFRI which are involved in the management of and research on fisheries, respectively. In the past, most legislation has failed to take into account the interests of all the relevant institutions. The Forest Act Cap 385 of 1962, for example, empowered the Minister to degazette forests or allow their excision on his own initiative (Section 4). The new Act of 2005 introduces consultation, EIA and the approval of parliament before degazetting or excising forests¹⁶¹ and states clearly that '[A]ll indigenous forests (...) shall be managed on a sustainable basis for purposes of', among others, '(...) fisheries in mangrove forests' (Section 40(1)h)).

The new developments in the regulation of forests are a signal of the need to go beyond immediate departmental considerations and to seek and encourage institutional consultation and collaboration where mandates overlap and/or conflict. Hopefully other ministries/departments will follow the same trend.

Kenya Marine and Fisheries Research Institute

The Kenya Marine and Fisheries Research Institute falls under the Ministry of Research, Technical Training and Technology.¹⁶² It is administered by a Board of Management constituted under the Science and Technology Act of 1979.¹⁶³ Unlike the KWS and other bodies involved in fisheries and aquatic research, its jurisdiction is nationwide¹⁶⁴ and has a wide spectrum

of research including all aspects of aquatic systems¹⁶⁵ and physical as well as social sciences – fisheries,¹⁶⁶ pollution, socio-economics, information and data management etc.

Fisheries research is an interdisciplinary subject that involves the study of productivity ecology, physical and chemical characteristics of water (oceanography and limnology) besides studies which are directly related to fisheries biology, fishery diseases, stock assessment, fish nutrition, fisheries quality and marketing. In order to better understand fisheries resources and their predictability (which is essential in exploitation and management), fisheries research aims to: establish quantities of fish stocks in inland and marine water bodies, innovate appropriate fishing technology for various types of fisheries organisms in different water bodies and habitats, document fish diseases that are a hindrance to fisheries development, and understand the biology and ecology of major species of fisheries organisms of economic and commercial importance for sustainable exploitation.

Socio-economic research looks at the use of aquatic resources not only from the point of view of monetary gain, but also the benefits of better health as a result of improved nutrition standards and conservation of resources through cultural and religious practices, which is one way of living in harmony with the environment. Furthermore, poverty alleviation and creation of employment are additional benefits.

Therefore, it aims at achieving cost-effective methods of sustainable exploitation of aquatic resources (and the environment) through participatory approaches with communities in order to guarantee benefits to the latter.

Information and data management research strives to create adequate information on the state of the marine environment and resources, facilitate informed

158 McClanahan et al., *supra*, note 58, p.911 (Table 3).

159 Marshall, *supra*, note 63; Beck et al., *supra*, note 63; Alongi, *supra*, note 63; cf. Sasekumar et al., *supra*, note 63.

160 Marshall, *ibid.*; Beck et al., *ibid.*

161 Marshall, *ibid.*

162 See East African Region, *supra*, note 74.

163 *Ibid.*

164 *Ibid.*

165 *Ibid.*

166 *Ibid.*

decision making and the formulation of technology-related policies and plans, sustainable development, and the rational use or management of the environment and natural resources. Information channels play an essential role between researchers and innovators, and users. They are necessary since they give scientists access to the results of previous work on which they can build. Hence, information and data management research aims at creating an authoritative aquatic information and data system for use in increasing food production, protecting the aquatic environment, and development planning. Additionally, it gives scientists and other users the chance to access aquatic science information and data from local and international sources. It also ensures that aquatic information and data collected in Kenya are archived, have undergone quality control and have been analyzed and interpreted for use by scientists.

Unfortunately, the low funding levels for research¹⁶⁷ and the lack of clarity of the system for sharing research data between the institute and the key players of the sector has also inhibited fisheries growth.¹⁶⁸

Coast Development Authority

The Coast Development Authority falls under the Ministry of Agriculture and Rural Development. It was established in 1990 by an Act of Parliament, the CDA Act (Cap 449). The Act provides for the establishment of an Authority to plan, facilitate and coordinate the implementation of development projects in the whole of the coast province.¹⁶⁹ The development areas covered are 'that part of the coast province within Lamu, Mombasa, Kilifi, Tana River, Kwale and the Taita-Taveta districts including the southern half of the Garisa District and the EEZ'.

The functions of the CDA include:

- a) To plan for the development of the coastal area;

- b) To initiate studies, carry out surveys and assess alternative demands on the natural resources of the coastal area, and to initiate, operate or implement projects in agriculture, forestry, wildlife, tourism, power generation, mining and fishing;
- c) To avoid the duplication of efforts by liaising with the operational agencies of the government, private sector and others;
- d) To implement projects with the primary aim of enhancing socio-economic development in the Coast province of Kenya; and
- e) To advocate for the effective management of natural resources by encouraging sustainable development projects that minimize negative environmental impacts.

Tourist Department

The Tourist Department falls under the Ministry of Tourism. Its role is to manage and regulate all tourism activities¹⁷⁰ including licensing. Overlapping mandates, for example, between the Tourist Department, the FiD and the KWS result in conflicts. Tourists receive licences, for example, for deep-sea diving from the Tourism Department without prior consultation with the MPA manager.¹⁷¹ Unfortunately, tour guides who possess no training on fisheries, and hence, are incapable of tracking unlicensed activities, escort the tourists.¹⁷² Tourists, for instance, destroy fishing nets at times by cutting them.¹⁷³ This creates conflicts between the KWS, fishers and divers.¹⁷⁴ It is therefore necessary that the Tourist Department consults and collaborates with relevant institutes/departments while discharging its power especially where mandates overlap.

Municipal councils/local government

Municipal councils are under the local government. They regulate, license and manage all city and town activities¹⁷⁵ through bylaws (*cf.* above, KWS). Actually, as mentioned above, the KWS is guided in discharging

167 Gitonga and Achoki, *supra*, note 2; Interviewee, KWS.

168 Gitonga and Achoki, *ibid.*

169 Cf. McClanahan et al., *supra*, note 58, p.911 (Table 3).

170 Tourism and recreational activities within MPAs include glass-bottomed boat tours, SCUBA diving, snorkelling, sailing, windsurfing and jet skiing: cf. McClanahan et al., *supra*, note 58, p.912 (Table 4).

171 Interviewee, KWS.

172 *Ibid.*

173 *Ibid.*

174 *Ibid.*

175 McClanahan et al., *supra*, note 58, p.911 (Table 3).

its activities in marine reserves by an amalgamation of the WCMA, the FA and local council bylaws.

Provincial/district administration

Provincial and district administration answer to the Office of the President and are charged with liaising with central government on all development activities at the grassroots level.¹⁷⁶ This should help the government not to come into conflict with any development policies and projects, including 'its own'. However, this is not always the case as there are often violations within the government by government officials.¹⁷⁷ Corruption also has an impact on fisheries and needs to be seriously fought against. Legally, legislative powers should be clearly delineated from powers to execute laws, on the one hand. On the other, implementation authorities must be granted legal security to enable them to function independently in their respective hierarchies without interference or coercion from above. But, there is a great need to transform the judiciary into a body free from corruption and with an exemplary prosecution record.

Coral Reef Degradation in Indian Ocean

Coral Reef Degradation in Indian Ocean¹⁷⁸ is an operational programme under the ICRI (International Coral Reef Initiative) which involves (approximately 50) researchers from 11 countries in the central and western Indian Ocean¹⁷⁹ – Kenya, Tanzania, Mozambique, Madagascar, Mauritius, Seychelles,

Comores, Reunion, Maldives, Sri Lanka and India.¹⁸⁰ The programme was created in 1999 to assess the widespread degradation of coral reefs throughout the region.¹⁸¹

Coral reefs are highly productive and sustain the livelihoods and the wellbeing of local communities throughout the wider Indian Ocean region by providing fish, other edible species and valuable natural resources.¹⁸² In addition, healthy coral reefs attract tourists and protect coastlines against coastal erosion.¹⁸³ As a consequence of coral degradation, there is a decline in the availability of fish and other resources throughout the Indian Ocean.¹⁸⁴

Gradually much of the research is focusing on the mitigation of damage to Indian Ocean coral reefs, which are severely degraded due to climate change and other stresses, including human activities,¹⁸⁵ and on alternative livelihoods for people dependent on them.¹⁸⁶

As mentioned earlier on, CORDIO not only shares research results with other institutions like the KWS and the KMFRI, but also collaborates closely especially with the KWS in coral reef restoration work.

Coral Reef Conservation Project¹⁸⁷

The Coral Reef Conservation Project was started in 1986 to study the effects of human influences on Kenyan coral reefs. The project is hosted in the country

176 Ibid.

177 Cf. interviewee, the FiD: Although, according to the interviewee, trawling is prohibited in Lake Victoria (cf. FA, Section 43(1)(a) which states that '[T]rawling is a prohibited fishing method within five nautical miles from any point on the entire shoreline of Kenya waters of Lake Victoria'), a senior official of the provincial administration once licensed trawlers to fish in Lake Victoria. It was only after the FiD and local communities complained that trawling stopped. Cf. Kamau, E.C. (2005). 'Environmental regimes and direct investment in third world countries'. In Winter, G. (Ed.). *Die Umweltschutzverantwortung multinationalen Unternehmen. Selbststeuerung und Recht bei Auslandsdirektinvestitionen*, pp.147-185. 1st Edition. Baden-Baden: Nomos.

178 CORDIO is supported by SIDA (Swedish International Development Cooperation Agency), the Government of Finland, the Dutch Trust Fund of the World Bank, WWF (World Wide Fund for Nature) and IUCN (International Union for Conservation of Nature): <http://www.cordio.org/default.asp>.

179 CORDIO, Coral bleaching and mortality: assessment of the extent of damage, socio-economic effects, mitigation and recovery, <http://www.cordio.org/default.asp>; Brief History of CORDIO, <http://www.cordio.org/background.asp>; Riyadh, 'Coral reef degradation in the Indian Ocean', a paper submitted to the proceedings of 'International Symposium on the Extent of Coral Reef Bleaching' 2000, http://www.icriforum.org/secretariat/word/CebuCPC_6.doc.

180 Brief History of CORDIO, *ibid.*; Riyadh, *ibid.*

181 CORDIO, *supra*, note 179; Brief History of CORDIO, *ibid.*; Riyadh, *ibid.*

182 Brief History of CORDIO, *ibid.*; Riyadh, *ibid.*

183 *Ibid.*

184 *Ibid.*

185 CORDIO, *supra*, note 179; Brief History of CORDIO, *ibid.*; Riyadh, *ibid.*

186 Brief History of CORDIO, *ibid.*; Riyadh, *ibid.*: Millions of people in the tropical development countries are dependent on coral reefs, as a protein source, or for income from the fisheries or tourism industries. Thus, the degradation of the coral reefs in the Indian Ocean is likely to have significant socio-economic as well as ecological effects.

187 The information about CRCP is an excerpt accessed online at <http://www.wcs.org/international/marine/marineafrica/kenyacoralreefconservation/crcpsummary> on 3 August, 2006.

by the KWS and, through long-term research clearance, is authorized by Kenya's Ministry of Science and Technology. The five major objectives of the Coral Reef Conservation Project are the following: 1) to determine the effects of marine parks, global climate change, fishing, and indigenous management on fishery catches, species diversity and reef ecology; 2) to develop methods to restore coral reefs that have been degraded by heavy fishing, pollution or coral bleaching; 3) to assist the organization of relevant government agencies and social organizations in developing sustainable resource use for coral reefs; 4) to foster the professional development and training of marine scientists in coral reef ecology and management practices; and 5) contribute to the coordination and general development of coral reef conservation and science in the tropics.

Project employees and associates receive support for data collection, analysis, research and academic training. The researchers and managers are Kenyans, working with regional governments as well as the Kenya Marine and Fisheries Research Institute, the FiD, and regional universities and societies. The project works closely with the Kenya Wildlife Service, particularly in the annual monitoring of the four marine protected areas; a programme that has been maintained since 1987. It also works closely with Kenya's Fisheries Department by monitoring fish catches and the ecology of fished reefs in southern Kenya since 1991.

The project maintains relationships with foreign and local universities and supports graduate work and an internship program for African nationals. Interns learn and participate in the coral reef and fisheries monitoring methods, the analysis of the data and the production of reports and publications.

Employees, interns and students assist in the overall project goals as well as undertaking research on related subjects of their choosing.¹⁸⁸

Traditional structures

Apart from government institutions, there are also traditional structures whose role and influence in the general management of coastal zone cannot be overlooked. In southern Kenya, for example, landing sites and settlements are associated with sacred coastal forests known as *Kaya*.¹⁸⁹ Each Kaya has two traditional elders who represent and uphold the traditions of these sacred forests (landing sites) and associated culture. As of late, there are also two elected leaders of the resource-using community.¹⁹⁰ (The traditional position of elder is passed down the family lineage by birth). These four leaders mediate decisions and represent the landing-site (Kaya) community independent of government-elected leaders such as chiefs and district officers.¹⁹¹ This arrangement gives the Kaya community certain rights and privileges, which might be limited to, and formalized within, family lineage, clan or chiefdom.¹⁹² Many Kayas in Kenya are gazetted and Kaya elders are (formally) recognized as having ceremonial rights and powers.¹⁹³

Integrated Coastal Management

With these multiple roles and responsibilities, issues of coastal resource use and management were hard to handle (e.g., disagreement between the FiD and the KWS increased with the introduction of MPAs due to conflicting mandates). Therefore, so-called Integrated Coastal Management (ICM) was introduced in the early 1990s¹⁹⁴ to, *inter alia*, address coastal resource management issues by promoting collaboration, participation and coordination (the FiD and the KMFRI) between the various stakeholders. With the

188 Examples of theses and dissertations include 1) a study of the growth of corals in reefs exposed to different fishing gear; 2) a study of the population dynamics and early life history (i.e., reproduction, settlement and recruitment) of the keystone sea urchin species, *echinometra mathaei*; 3) a comparative historical and present-day analysis of the economic and ecological impacts of tourism and fishing on Kenya's economy and coral reef ecology; 4) the influences of tourism and fishing on the population dynamics and community structure of coral reef species in the Mombasa Marine National Park; 5) the effects of warm water on coral death and recovery; and 6) an economic modelling study of the effect of the Mombasa MNP on fish catches and fishing income. Research gives an insight into the effects of fishing and biological factors affecting species diversity, population dynamics, extinction and fisheries productivity of coral reefs.

189 McClanahan et al., *supra*, note 58, p.904; Spear, T.T. (1978). *The Kaya Complex: A History of the Mijikenda Peoples of Kenya to 1900*. Nairobi: Kenya Literature Bureau.

190 McClanahan et al., *ibid.*, p.904.

191 *Ibid.*

192 *Ibid.*

193 N. Muthiga. Personal communication.

194 For the history of ICM see McClanahan et al., *supra*, note 58, pp.905-906.

aim of achieving this, the CDA formed an ICM Secretariat in Mombasa mainly to deal with conflict issues between the various sectors and coordinate institutions with traditional single-sector programmes.¹⁹⁵

This process was not without problems at the beginning. Being a government process, it was resisted by local communities especially because it followed a top-down approach thus marginalizing or completely leaving out the direct voice of local communities.¹⁹⁶ This resistance is subsiding as participation and involvement improves. This, in turn, is raising awareness and building trust.¹⁹⁷ It has also been noticed that fisher communities that interact more with the KWS have a higher compliance level.¹⁹⁸ Therefore, stakeholder involvement has proved to be a vital management tool in the Kenyan coast.

b) Instruments of fisheries management

Access and catch restrictions, technical measures

There are a number of instruments used in the management of fisheries in the coastal zone. Since most of them depend on an institution or organization, probably the most logical way of looking at them is by analyzing them under the respective institutions or organizations.

Fisheries Department

As mentioned earlier, the Fisheries Act Cap 378 is the primary legal instrument regulating access and catches in all Kenya's fishery waters, including the coastal zone. It establishes the FiD, which is responsible for the management of fisheries nationally. The FiD uses various measures in order to regulate access and catch including licensing, regulation of gear¹⁹⁹ and methods, allowable catch and species, fishing seasons, control of weight and quality of landed fish etc. In addition, it may be noted that no foreign vessel is authorized to fish in the territorial zone (FFFCR 18); foreign vessels are confined to the EEZ. As for fishing methods and

gear, the following are prohibited not only within Kenya's inland waters, but also the territorial waters (Reg. 43):

- 1) Seining for *Rastrineobola (Omena)* with any net with a mesh size of less than 10 mm when diagonally stretched;
- 2) Seining nets with a mesh size of less than 50 mm when diagonally stretched except when fishing for *Rastrineobola (Omena)*;
- 3) Trawling within five nautical miles off the coast of Kenya within the territorial waters of Kenya;
- 4) Using explosives, poisonous or noxious substances, or electric shock devices in order to render fish more easily caught.

The use of gear is not explicit in these laws and in many instances has been interpreted to allow traditional or non-destructive gear according to the discretion of individual wardens²⁰⁰ leading to resource overuse. They also do not provide for explicit allocation of quotas for local fishermen. According to Reg. 31 of the FGR, '(...) the Director may impose conditions as to the stock, size, sex, weight and quantities of fish to be harvested (...)'. An authorized officer may also require fish landed to be weighed (FGR, Reg. 42(2)(a)), but the law does not provide concrete means of allocating quotas. However, the FiD keeps a register of all licensed persons and vessels. Based on the fishers/vessels licensed for a particular fishery and knowledge of its resources, the Director may mitigate overexploitation of resources by using his mandate under Sections 6(1) and 10(2) to ensure proper management of fisheries by:

- a) Refusing to issue or renew licences;
- b) Imposing special licence and catch fees;
- c) Preferential licensing in other fisheries; or
- d) Revoking or suspending licences.

195 Ibid., p.906.

196 Ibid., p.907.

197 Interviewee, FiD, legal; Interviewee, KWS; cf. McClanahan et al., *ibid.*, pp.917, 921, 925, 928, 930.

198 McClanahan et al., *ibid.*, p.926.

199 *Ibid.*, p.911 (Table 3).

200 Malleret-King, *supra*, note 5; cf. *ibid.*, p.927.

Kenya Wildlife Service

Fishery waters, which have been gazetted as MPAs, are regulated by the WMCA and hence are under the direct mandate of the KWS. Nevertheless, the issue concerning who regulates access and catch in MPAs is determined by the nature of the PA: whether it is a park or a reserve. The FiD licenses fishing in marine reserves (MRs), a mandate which conflicts with that of KWS.

There are 52 protected areas in Kenya managed by the KWS.²⁰¹ Of these, six complexes comprise marine parks and reserves.²⁰² They are Kisite/Mpunguti Marine Park and Reserve, Mombasa Marine Park and Reserve, Watamu Marine Park and Reserve, Malindi Marine Park and Reserve, Kiunga Marine Reserve and Diani-Chale Marine Park and Reserve. Marine parks are usually smaller in size (up to ~ 28 km²) than marine reserves (~ 280 km²)²⁰³ and are at times encompassed within the larger marine reserves.²⁰⁴ Apart from marine parks and reserves, KWS manages coral gardens, which are fish breeding areas.²⁰⁵ Marine areas adjacent to these fall under the jurisdiction of the fisheries or the forestry department depending on the ecosystem and nature of extractive activities.²⁰⁶

Marine parks and reserves in Kenya form two distinct zones depending on the activities permitted. In marine reserves, controlled fishing, normally artisanal using traditional methods such as traps, hook-and-line and 63.5 mm mesh-sized nets, is allowed. The type of gear, size of nets, etc. are controlled. Poisoning, use of explosives and dish seining are forbidden. In marine parks, on the other hand, there is an absolute ban on fishing: no take of any resources is permitted. However, tourist and recreational activities such as

glass-bottomed boat tours, SCUBA diving, snorkelling, sailing, windsurfing, jet skiing²⁰⁷ and research are allowed.²⁰⁸ This applies likewise to coral gardens (fish breeding areas) where tourist activities are allowed but only to view the biodiversity.

The KWS, which manages these areas, does so in accordance with its prime objective as stated in the preamble and Section 3(3) of the WMCA. It is to ensure that wildlife is managed and conserved so as to yield to the Nation in general and to individual areas in particular, cultural, aesthetic and scientific gains, as well as economic gains as long as they are incidental and not prejudicial to proper management and conservation. This kind of management demands strict control and surveillance, which is often not understood and/or supported by local communities and even at times disputed and/or resisted by fellow government institutions e.g., the fisheries department.²⁰⁹ Therefore, one of the greatest tasks for the KWS has been not only engaging in extensive awareness programmes, but also searching for means to enhance participation in management by other institutions, stakeholders and local communities.²¹⁰ As a result, all MPAs in Kenya except the Diani marine reserve have management plans that were drafted with stakeholder involvement,²¹¹ albeit reflecting the primary objective of the KWS.²¹²

Wardens and park rangers with paramilitary training carry out the daily management of MPAs. The paramilitary training helps them to respond to control and security issues both on land and in the sea: their operations are financed by the KWS. However, due to constantly increasing costs as a result of its broadening mandate,²¹³ the KWS' ability to continue managing

201 Interviewee, KWS; cf. McClanahan et al., *ibid.*, p.908.

202 *Ibid.*

203 *Ibid.*

204 McClanahan et al., *supra*, note 58, p.911.

205 Interviewee, KWS.

206 McClanahan et al., *supra*, note 58, p.911.

207 MPA managers may restrict the area and time for this activity by legal notice.

208 McClanahan et al., *supra*, note 58, p.912 (Table 4).

209 Interviewee, KWS.

210 Muthiga, N. (1998). 'National perspectives of marine protected areas in Kenya'. In: Salm, R. and Tessema, Y. (Eds). *Partnership for Conservation: Report of the Regional Workshop on Marine Protected Areas, Tourism and Communities, Kenya*, pp.28-32. Nairobi: IUCN Eastern Africa Regional Office and Kenya Wildlife Service.

211 Weru, S. et al. (2001). 'Management plan for the Mombasa Marine Park and Reserve'. In: van't Hof, T. (Ed.). *Management plan: Mombasa Marine National Park and Reserve*. Mombasa: Kenya Wildlife Service.

212 McClanahan et al., *supra*, note 58, p.908.

213 Some of the MPAs do not generate any revenue but depend on visitor fees collected from other MPAs, the KWS' main source of operating funds.

all areas placed under its jurisdiction is a question of major concern. The financial burden has been eased to a certain extent by enhanced collaboration between MPA authorities, local stakeholders and donors.²¹⁴ Whereas the local stakeholders either take up or help to deflect some of the management costs,²¹⁵ donors help in monitoring, research and awareness (WCS, WWF), improvement of management through infrastructural support (ICRAN), management planning and training (KWS/Netherlands Wetlands Conservation and Training project), etc.²¹⁶

As previously mentioned, the KWS management efforts – in terms of stocks, species and relief to disturbed and overexploited areas – have shown tangible results in MPAs in spite of the numerous challenges. Therefore, MPAs are vital fisheries management tools in Kenya.

Besides these measures, there are additional measures which also serve as instruments of fisheries management that include traditional practices (management) and community-based management.

Traditional management

While the national government policy to increase fish catch and regulate fisheries is done through national laws and institutions, traditional fishing is regulated by customs concerning time, space and gear restrictions.²¹⁷ This has, on several occasions, led to conflict between traditional and national leaders leading to few enforced restrictions.²¹⁸

Traditional management practices may either show similarities to or differences with modern scientific fisheries management. Their explanations, however, always differ. Fishers in southern Kenya, for example, have time and space restrictions just like modern fisheries management does. The reasons for these

restrictions, however, relate to traditional and religious beliefs. Some areas are closed to fishing because they are believed to be sacred and haunted by spirits.²¹⁹ Thus, entry is only possible while in a 'pure and holy state' and to perform appropriate sacrifices.²²⁰

The difference in explanations makes it hard to amalgamate the two forms of management. Firstly, though certain sites have the potential to be gazetted as closed areas or MPAs, traditional fishers might construe this to mean absolute loss of access²²¹ on the one hand. On the other hand, they might see the potential visitation of tourists as a loss of tradition²²² and a violation of sacred practices resulting in a decrease in fish stocks. Secondly, traditional and modern explanations of a general decline in fish stocks might differ extremely. Whereas modern fishing management explains resource fluctuations in terms of ecosystem productivity, numbers of fishers and level of human (fishing) effort, traditional fishers associate poor catches with breaks from traditions such as sacrifices, prayers or the use of untraditional fishing gear.²²³

Some of these explanations, e.g., discouragement of use of untraditional gear, might be helpful in limiting the catch. However, they might also hinder the modernization of fishing gear. As long as chances for fishers to modernize their gear are slim, and support systems, e.g., subsidies, are non-existent, this presents no problem at present.

Beach Management Units

Another form of regulating access and catch is embraced in the draft policy 2006 – still awaiting Cabinet approval – which advocates the establishment of the so-called Beach Management Units (BMUs), or Community Management Units (CMUs). The draft policy 2006 is a subsidiary legislation on sustainable use and management of (coastal) resources.

214 Cf. Muthiga, *supra*, note 210.

215 E.g., for boats, vehicles, computers, SCUBA equipment etc.; provision of scientific expertise e.g., by the KMFRI and the CRCP; through the willingness of fishers, recreational users etc., to comply with regulations.

216 McClanahan et al., *supra*, note 58, p.915.

217 McClanahan et al., *supra*, note 50.

218 *Ibid.*

219 McClanahan et al., *supra*, note 58, p.904.

220 *Ibid.*

221 *Ibid.*

222 *Ibid.*

223 McClanahan et al., *supra*, note 50.

This policy seeks to create an enabling environment for a vibrant fishing industry by providing optimal and sustainable benefits, alleviating poverty, creating wealth and taking into consideration gender issues. The policy addresses most aspects of fisheries management and development including environmental conservation, regional cooperation, research, surveillance and monitoring, as well as social responsibility and governance issues.

As mentioned earlier, the Government initially used government commands (the top-down approach) to manage all natural resources, as it did not recognize the concept of co-ownership. This separation resulted in a mess since the local communities and other potential stakeholders outside government ranks lacked incentives for involvement in management. The essence of BMUs, therefore, is to create a partnership between officialdom and local communities (stakeholders) in the management of coastal resources.

The policy encourages community participation in resource management and aims to institutionalize co-management in the use and management of fisheries resources through establishing Beach Management Units (BMUs) that shall be given (in consultation with the Fisheries Department) exclusive rights to landing sites. The policy further promotes the use of indigenous knowledge alongside scientific information to improve management by involving the private sector, civil society, local authorities and NGOs in their individual capacity in the promotion of fisheries management.

The BMU structures are closely tied to previous traditional institutions that related to safety, social order, religion and fishing skills.²²⁴ Traditionally, an elder of a landing site would organize the local fishermen, advising on the effect of seasonality, on what to do in case of accidents associated with evil spirits, issuing permissions to fishermen from other areas, ensuring social cohesion, as well as the management of gear and the environment. The BMUs are therefore replacing the institution of elders of the landing site

through a system where the FiD wishes to devolve powers to the fishers to manage their resource at a local level.

The BMUs would be involved in the implementation of legislation with regard to destructive and banned gear, assist in data collection where there are not enough FiD staff, promote modern environmental management practices in consultation with the fisheries department and other relevant organizations, assist in marketing the fish caught and solve minor disputes. Hopefully they would act as a link between the FiD and artisanal fishermen and play a leading role in fisheries management. The FiD has recommended that the BMUs be formalized and gazetted in order to give them a legal mandate.

A more formal role for the BMUs is also foreseen: managing tenure, access rights, and the development and enforcement of local fishing rules. However, the socio-economic condition of fishers, their fear of losing landing sites, and the continued perception that a marine reserve is being imposed on them are barriers to any initiatives seeking to promote community-level management.

The question on how BMUs are to be implemented is still unresolved and is a complex issue also for authorities. Local communities certainly need an implementing body/arm but how is this to be formed?

One of the ways such a body could be formed is through the amalgamation of existing traditional leadership and government (official) positions, where they exist. As already seen, landing sites (*Kayas*, which are actually beaches) in southern Kenya, for example, possess both traditional and government structures. However, due to conflicting interests in the past,²²⁵ collaboration has always been difficult. With the new approach, friction should be drastically reduced, if not removed altogether.

224 Glaesel, *supra*, note 13.

225 McClanahan et al., *supra*, note 58, p.904.

Excluding traditional leaders from management would create similar problems to those experienced in the past. The local communities have a high level of respect for traditional leaders hence any decisions made with their involvement and contribution are more easily accepted by the local people especially when also delivered by these leaders.²²⁶ Future gazettement of beaches may follow a similar formula. To help with enforcing the decisions of these bodies, means of cooperating should be sought with those institutions

which have a functioning infrastructure and are actively collaborating with other institutions in the promotion and management of fisheries. This will enable BMUs to benefit from existing research findings and experience, as well as other forms of resources from existing institutions. Actually, the BMU authority should be more or less an executing body with the benefits of collaborative activities flowing to the community living within that particular area.

8. The national management system as applied in relation to the impact of the 'North'

a) *Fishing by EC/North American/Japanese fleets*

i) Bilateral access agreements

Fishing in the Indian Ocean region is dominated by Japanese, Korean and EU fleets. North American fleets may occur in the region but not in any significant numbers.

The Kenyan offshore fisheries zone, which is believed to contain vast and valuable stocks of fishery resources, is exploited by vessels from Distant Water Fishing Nations (DWFNs)²²⁷ – mostly European and East Asian²²⁸ – without the involvement of Kenyan nationals or any benefit for the country.²²⁹ To date, Kenya has not entered into any fishing access agreements with DWFNs.²³⁰ Some of these vessels operate under licence whereas others are illegal,

unregulated and unregistered (IUU).²³¹ Kenya hopes to enter into access agreements with DWFNs in line with UNCLOS once sufficient knowledge of her stocks has been acquired.²³² Since the EU uses specific forms of access agreements with African, Pacific and Caribbean (ACP) countries, it is possible that any future access agreements between the EU and Kenya could follow the format of existing EU-ACP access agreements. Hence, it will be interesting to see what future access agreements between the EU and Kenya look like.

The EU pursues bilateral fisheries access agreements with coastal and island countries in order to ensure the continuing presence of its fleets in traditional fishing regions where they existed before the coming into force of UNCLOS, and also to export overcapacity from EU waters to other regions with

226 This statement is not based on literature but on knowledge and experience of the hierarchical order and command in the Kenyan traditional setting, and conforms to statements of several Africans from eastern, western and southern Africa. However, President Mwai Kibaki's recent meeting with 160 Kaya elders from the nine Mijikenda (coastal) communities, as reported by *The Standard (Newspapers)* of 3 and 4 January 2007, clearly indicates this fact. The elders together with members of a newly formed 'Mijikenda Community Council of Elders Association' (MICOSEA) presented demands for projects they wanted accomplished before the presidential elections in December 2007 as a condition of their communities voting the President back in. Apart from demands concerning land, bankrupt factories and a public university for the region, the elders demanded a seafarers' training college and a fishermen's college 'to provide skills and expertise to the many seafarers on the coast'.

227 Okidi, *supra*, note 134; Gitonga and Achoki, *supra*, note 2.

228 Habib, G. (2003). *National report on fisheries potential in Kenya's EEZ*. London: Commonwealth Secretariat.

229 Gitonga and Achoki, *supra*, note 2.

230 *Ibid.*; cf. Okidi, *supra*, note 134.

231 That does not mean licensed vessels never violate their licence obligations. As long as adequate capacity to monitor and control is lacking, possible violations by any vessel cannot be ruled out.

232 Gitonga and Achoki, *supra*, note 2. The Government requested technical assistance from the Commonwealth Secretariat and was provided with a consultant to carry out a desk study on stocks and to come up with recommendations and costs for a stock assessment project, see Habib, G. (2003). *The Kenya marine fisheries. A final report of the Commonwealth Secretariat consultant on Stock Assessment*. Cf. Okidi, *supra*, note 134: suggests that access agreements should be made through a treaty framework with Tanzania, Mozambique, Somalia, Madagascar, Mauritius and South Africa, and should include conditions for licensing, enforcement procedures and conditions, surveillance and monitoring, and transfer of technology. This kind of procedure has the potential to produce synergy in the region because, as Professor Okidi rightly notes, 'cooperating countries could share surveillance and enforcement responsibilities, protect fishery resources, and strengthen the implementation of the 1985 Nairobi Convention on the Marine Environment'.

surplus stocks.²³³ These agreements are of three major types:²³⁴ Agreements with Financial Compensation (AFCOs), Reciprocal Agreements (RAs), and the so-called Second Generation Agreements (SGAs). The EU deals with the ACP countries mainly through AFCOs, described below. However, specific access agreements with Kenya could differ from these depending on the country's interests and based on particular peculiarities. Since the EU has initiated reforms to change access agreements into new types of agreements called Fisheries Partnership Agreements (FPAs),²³⁵ it is to be expected that sooner or later EU-ACP fisheries deals could change direction. Eventually, the FPAs will replace all previous fisheries access agreements.²³⁶ Hence, we shall briefly look at the essence of the FPAs.

Agreements with Financial Compensation ('cash for catch' or 'cash for access' agreements)²³⁷ allow access to fish stocks for financial compensation by EU or fees by private owners. They are based on the number and types of vessels, or a certain volume in terms of Gross Registered Tonnage (GRT) for a specified duration of time. For ACP countries in the Indian Ocean coast, these agreements mainly cover tuna.

Unfortunately, there are no clear policy guidelines in negotiating these agreements, thus disadvantaging ACP countries with a weak negotiating capacity in comparison to the EU's powerful negotiating machinery. The situation is escalated by these countries' (poor) economic status and thus desperate need for money.²³⁸ Hence, financial compensation, even for similar species, varies considerably in these countries depending on the negotiating power and the level of

economic need and is often unfair. IFREMER (1999)²³⁹ estimates the compensation at only 2-17% of the market value of the catch.

Fisheries Partnership Agreements aim to transform EU-ACP countries present 'cash-catch' relationship in fisheries into a partnership able to contribute to sustainable exploitation of natural resources.²⁴⁰ This will involve, for example, collaboration in stock assessments, monitoring, control and surveillance.²⁴¹ The FPAs, however, also intend to maintain a European presence in the distant fisheries and protect the European fisheries sector interests amidst increased competition between DWFN fleets from the Far East, the USA and the EU in most major fishing grounds.²⁴² It is also suspected that EU might use FPAs to force host countries to abstain from access agreements with EU competitors.²⁴³ In addition, from experiences gained from the Economic Partnership Agreements (EPA) discussions between the EU, and east and southern African countries in Nairobi in June 2005, it is feared that translating the EU's formal commitment to contribute to sustainable fisheries management into practice might not be so easy. In the meeting, the EU Fisheries Directorate General (DG) insisted on concluding bilateral tuna agreements with the South West Indian Ocean (SWIO) countries rather than multilateral agreements.²⁴⁴ This raised questions as to whether the EU was really committed to the sustainable management of fisheries bearing in mind the impossibility of conserving migratory stocks in a bilateral agreement – an issue which has slowed the FPAs process.²⁴⁵

233 Mbithi Mwikya, 2005, *supra*, note 133.

234 *Ibid.*

235 *Ibid.* The FPAs are to become part of a wider Economic Partnership Agreements (EPAs) process which was expected to be completed by December 2007: see Gorez, B. and O'Riordan, B. (2003). 'The future of EU-ACP countries fisheries relations'. In: Grynberg, R. (Ed.), *Fisheries issues in WTO and ACP-EU trade negotiations*. London: Commonwealth Secretariat. Also submitted to the joint COMSEC – CTA meeting on 'ACP-EU Fisheries Agreement: Towards a greater sustainability', 7-9 April 2003, ACP House, Brussels, available online at <http://www.cta.int/events2003/fisheries/Gorez-O'Riordan-EN.doc> (accessed on 30 October 2006).

236 Mbithi Mwikya, 2005, *supra*, note 133.

237 *Ibid.*

238 Cf. Gorez and O'Riordan, *supra*, note 235, fn 14.

239 IFREMER (French Institute for Research and Exploitation of Fisheries Resources). (1999). *Evaluation of fisheries agreements concluded by the European Community*. Final Report. Brussels.

240 Gorez and O'Riordan, *supra*, note 235, p.45.

241 Mbithi Mwikya, 2005, *supra*, note 133.

242 *Ibid.*

243 *Ibid.*

244 *Ibid.*

245 Cf. *Ibid.*

Reciprocal Agreements are a form of exchange or 'barter' trade and involve a reciprocal access agreement (between countries) into one another's EEZs. The EU has no such agreements with ACP countries since the latter lack the capacity/technology even to venture into their own EEZs.

Second Generation Partnership Agreements on the other hand are based on incentives for setting up joint ventures, which allow EU fleets quota access in the EEZ of another country. Such an agreement was only signed with Argentina, but it was discontinued as it almost caused the collapse of hake fisheries due to overexploitation.

The Indian Ocean is one of the traditional fishing grounds for Japanese fleets. In fact, according to an IOTC list of vessels authorized to operate in the IOTC area,²⁴⁶ the Japanese operate 573 vessels out of the total of 1,972, compared to 234 vessels from five EC Member States (Spain – 138, France – 75, Portugal – 16, UK – three and Italy – one).²⁴⁷ Most Japanese vessels are long-liners, with poles and lines, which target mostly Yellowfin tuna, Bigeye tuna, Bluefin tuna and swordfish. However, Japan also has a significant number of purse seiners for catching Skipjack tuna.

Japan does not pursue inter-governmental fisheries access agreements. Its fishing operations are carried either based on either agreements between the Japanese Tuna Association and coastal countries²⁴⁸ or licence fee arrangements between a specific Japanese company and the fisheries authorities of a coastal country.²⁴⁹ These agreements, unlike EU and USA agreements, are not published ('closed agreements') and the financial compensation agreed is considered a private issue.

Apart from Japanese fleets, there is a heavy presence of Indonesian, Korean and Chinese vessels (669, 202 and 67 vessels, respectively) in the Indian

Ocean area, with fisheries access agreements for tuna, most of which are based on payment of licence fees by individual vessels to the coastal countries.

As already mentioned, the financial compensation from these agreements to the EEZ State(s), in comparison to gains made by foreign fleets and damage on the ecosystem, is minimal.²⁵⁰ This is exacerbated by EEZ states' lack of capacity to control licensed and unlicensed activities. In addition, some of the licences granted to foreign vessels lack vital information for determining the duration of validity. For example, out of the 573 Japanese vessels licensed to operate in the IOTC area, only 18 licences indicate when the vessels were licensed and even these lack complete information on duration: they do not indicate up to when they are valid. This leaves a serious gap, which can be easily exploited by corrupt fishing firms and local fisheries licensing authorities.

ii) Illegal foreign fishing and related legal issues

The Kenyan EEZ is highly unregulated due to lack of monitoring, control and the east coast of Africa is known to be one of the world's most unregulated fisheries areas.²⁵¹ Although the region's EEZ States, i.e., Kenya, Tanzania, Mozambique, Comoros, Madagascar and South Africa (SA), have all declared 200 nm Exclusive Economic Zones, most of them, apart from SA, have no institutional and financial capacity to exercise their jurisdictions.²⁵² This makes it impossible to follow up licensed activities as well as to curtail unlicensed ones.

The majority of catches are landed and processed outside the region.²⁵³ DWFN vessels hardly ever report catches to national authorities which means there is little information on species composition, quantities of catches taken by commercial operators, sources and timing of those catches.²⁵⁴

246 See <http://www.iotc.org/English/record/search.php>.

247 Kenya, an IOTC member, has only one vessel operating in the area. See <http://www.iotc.org/English/record/search.php>: The 1,972 vessels operate under 25 different flags. Cf. http://www.iotc.org/files/proceedings/misc/ComReportsTexts/resolutions_E.pdf.

248 The Japanese Fisheries Commission is represented in negotiations for these agreements, but with observer status only.

249 Mbithi Mwikya, 2005, *supra*, note 133.

250 Interviewees, KWS and FiD.

251 Cf. Gitonga and Achoki, *supra*, note 2; Habib, *supra*, note 228.

252 Gitonga and Achoki, *ibid*.

253 *Ibid*.

254 Habib, *supra*, note 228.

According to existing information, approximately 40 vessels have been granted fishing licences to operate in the Kenyan EEZ.²⁵⁵ Of these, about 30 were engaged in illegal, unregulated and unregistered (IUU) activities²⁵⁶ until recently when the FiD joined efforts with the Kenya Navy in order to boost surveillance. It would be naive though to imagine that IUU activities have instantly ceased as a result of this. Much more needs to be done, and for that, immense help in the form of resources, capacity, voluntary cooperation and collaboration from DWFNs and their fleets is necessary.

As a result of the lack of MCS capacity, there are very few cases of near-to-judicial procedures. However, a recent case involving a Korean vessel shows that with more MCS and less corruption, much can be achieved.

According to the interviewee,²⁵⁷ the Korean vessel was licensed to carry out research activities in the Kenyan marine zone. After the licence expired, it neither departed nor applied for renewal of the licence, but stayed in Kenyan waters for some time. It is not known what activities the vessel carried out during its extended presence. When the FiD found out about this violation, the vessel was apprehended and held in the FiD's custody pending judicial hearing. Unfortunately, the vessel sought government intervention, which saw the judicial application by the FiD against the Korean vessel quashed.

b) Purchase of fish by EC/North American/ Japanese food companies

The Fisheries Act is the key legislation regulating all issues concerning fish and fish products, both for local and export market. It is supplemented by the Fisheries (Fish Quality) Assurance 2000 (subsidiary legislation), covering both the local and export market; the Food, Drugs and Chemical Substances Act; the Public Health Act; the Standards Act; the Safety of Foods (general legislation) and so forth. In addition, there are the standards issued by the Kenya Bureau of Standards (KEBS), a statutory government organization established in 1974 by the Act of Parliament Chapter

496, which are meant to ensure that foods both for local and export markets are of a good quality.

Kenya Bureau of Standards

The Kenya Bureau of Standards has developed 3,800 standards which include KS05-40 that sets out labelling requirements for pre-packaged foods, KS05-1516 code of hygienic practice for the handling, processing, storage and sale of fish and fish products.²⁵⁸ Furthermore, there is the KS1652:2000 code for hygiene practice on commercial fishing vessels. It also certifies firms according to ISO standards. The FA supplementing legislations and KEBS standards, however, do not deal with issues of quality and standards pertaining to sustainability of harvesting of (fish) stocks, but rather to health, safety and assurance concerns. Therefore, they are not considered of much value for our study.

Fisheries Act/Department

The Fisheries Act contains general provisions on fish and fish products' hygiene, and proper management of fisheries as listed above which, if enforced, should yield positive results as far as the standards of sustainable harvested stocks are concerned. Prescribed measures of proper management and harvesting as listed under part VI, VII and IX of the FA have already been discussed above in Section II.5(c).

Probably the most remarkable feature of the Act as far as this question is concerned is the mandate it grants to the Director (in accordance with the powers conferred by Sections 5 and 23) to regulate specific measures – of great importance to sustainable harvesting of stocks – through Gazette Notices. Legal Notice No. 214 (Kenya Subsidiary Legislation) of 2003 is a good example of such measures. Although it touches on various Kenyan fisheries, it clearly depicts how fish harvesting is controlled in Kenya.

Through the Fisheries (Prohibitions) Regulations (FPR) 2003, the Director prohibits the following activities:

255 Interviewee, FiD Mombasa (interview carried out on 29 March 2006 at the FiD Nairobi). Cf. Gitonga and Achoki, *supra*, note 2.

256 Interviewee, *ibid.*

257 FiD, Nairobi.

258 KS05-1516 sets out the general guidelines for the hygiene requirements in the fish industry and is aligned to EU Directive 91/493/EEC, thus enhancing fish exports to Europe and other countries that have stringent hygienic requirements.

- a) Fishing, landing, processing, moving and trading in Nile Perch fish (*Lates niloticus*) exceeding a specified size.
- b) Fishing, landing, processing, moving and trading in *Rastrineobola argentea* (*Omena*) in L. Victoria during the season 1 April- 31 July each year.
- c) The use of scuba diving gear or spearguns to fish for lobsters and *Bêche-de-mer* (sea cucumber) within territorial waters of Kenya as described under the MZA Cap 371 unless for experimental purposes.
- d) Fishing, landing, processing, moving and trading in fish of any species from Lake Naivasha during the closed season, 1 June-30 September, unless approved by Director.
- e) Fishing, landing, processing, moving and trading in lobsters weighing less than 250 g and crabs weighing less than 500 g.

As these measures clearly show, if violations occur during fishing, it should be possible to expose them on landing. If any irregularities are not picked up at the landing phase, it should be possible to catch them and take appropriate action at the processing phase. Since export fish and products pass through all three phases, there should be sufficient opportunities to ensure an end-product of high quality by all standards – as long as the prescribed measures are implemented and enforced.

The processing phase is an important stage that needs to be briefly discussed. In order to ensure that fishing-related industries observe the regulations and measures foreseen by Kenya laws during processing, and dispatch high-quality finished products to the consumer (whether local or foreign), they must have a

Fish Processing Licence (FPL).²⁵⁹ Such a licence is granted subject to certain conditions (FGR, Reg. 14). For export fish and fish products, the industry concerned must also have an Approved Number for Export (ANE).²⁶⁰ The FiD has inspectors permanently attached to the processing establishments: an inspector is the monitoring authority for the industry.²⁶¹ He certifies as well as keeping a record of every export batch.²⁶² Finally, he issues a certificate as proof that the batch has fulfilled the safety and quality requirements.²⁶³ A supplementary measure by the FiD involves issuing a list of all approved and licensed fish processing industries to importing countries.²⁶⁴ There are also national and regional initiatives to determine, among other things, which gear should be used in order to sustain stocks,²⁶⁵ for example, by the three East African countries, Tanzania, Uganda and Tanzania, within the Lake Victoria Fisheries Organization (LVFO),²⁶⁶ under the WIOMSA, the CRCP and CORDIO.

The above measures are not meant to respond to importing (developed) countries' demands for sustainable harvesting, but they produce that effect, albeit not necessarily to the equivalence of e.g., EU standards. Developed countries' requirements of developing countries' products have concentrated on SPS measures to date. There is a move, though, to introduce environmental, besides SPS, requirements of developing countries' products.²⁶⁷

An interesting and somewhat ironic feature with fish for the EU market is that the most significant regulations for the fisheries sector are the EU directives 91/493/EEC and 98/83/EEC. They are enforced by an authority approved by the EU, in this case the Fisheries Department, that is subject to periodic audits

259 Interviewee, FiD; FGR, Reg. 14 (a sample (DF/L4) is printed in the first schedule).

260 Interviewee, FiD.

261 Ibid.

262 Ibid.

263 Ibid.

264 Ibid.

265 *Ibid*; cf. Van der Knaap, M., Ntiba, M.J. and Cowx, I.G. (2002). 'Key elements of fisheries management on Lake Victoria'. *Aquatic Ecosystem Health & Management* 5(3): 245-254.

266 Ntiba, M.J., Kudoja, W.M. and Mukasa, C.T. (2001). 'Management issues in the Lake Victoria watershed: Lakes Reservoirs'. *Research & Management* 6(3): 211-216.

267 Doha WTO Ministerial 2001: Ministerial Declaration, WT / MIN (01) /DEC/1, adopted on 14 November 2001, paragraph 32 (iii): 'labelling requirements for environmental purposes', http://www.wto.org/English/thewto_e/minist_e/min01_e/mindecl_e.htm (accessed on 15 August 2006).

by the EU inspectors.²⁶⁸ These directives focus on the SPS requirements and hence do not contribute much to our study. The resulting scenario of laws being forced upon other countries, however, indicates that Kenya and other developing countries might never have a chance to develop their own standards of fish quality as long as they heavily depend on the EU market. An

impression is even created that the EU does so in order to hinder imports from these countries.²⁶⁹ There is a feeling that, once the EU ('North') has successfully enforced requirements of sustainable fishing on its own territory, the same will be pushed down the throat of the 'South' when the need arises.²⁷⁰

III. Examples of coastal fisheries management

1. Local management in the Diani-Chale area

a) Fisheries in the area

With an estimated area of 25 km², the economic activities within the Diani Chale area revolve around fishing, agriculture and tourism and are heavily influenced by the monsoon weather cycles. Apart from the Digo sub-tribe of the Mijikenda (who comprise the majority of fishermen in the area), a few migrant fishermen from Pemba and Tanzania have been reported.

Fishing mainly takes place inside the reef and has led to pressure on overexploited lagoon resources.²⁷¹ Fish caught include lethrinids, Rabbit fish and Parrot fish. Sea cucumbers, crabs, lobsters, squids and octopus are also caught.²⁷² Sport fishing is an increasingly popular activity in the area where tourists and residents are the main clients. The catch is sometimes difficult to quantify and evaluate as it is consumed locally or sold directly to hotels.

Two (Green and Hawksbill) of the five sea turtle species found in Kenya reside in the waters off the Diani-Chale area. Green turtles nest frequently but a few Hawksbill nests have also been recorded. Sea turtles

are still exploited for their eggs, oil and meat in the area and for the wider national trade in turtle products.²⁷³ Indirect harvesting is also a serious threat to the sea turtle populations. This is through accidental capture by set nets (of both artisanal and large-scale fishers), the loss of nesting beaches and the disturbance of the same due to tourism development.

Shells are collected by fishermen as a supplementary source of income and sold to dealers or directly to tourists or locals. Aquarium fish are also collected. There are potentially suitable areas for farming marine species such as crabs, lobsters, oysters, sea cucumbers and seaweed, but there is no commercial development as yet. Experimental trials have been undertaken with oysters and seaweeds with the support of KMFRI at Gazi although there is no definite market.

In 2002, there were a total of 1,385 artisanal fishers (see Table 5) in the whole of Kwale district. The Diani-Chale area and Kinondo had the highest number of fishermen according to a study undertaken by CORDIO in 2003.²⁷⁴

268 Abila, *supra*, note 27; cf. Noor, H. 'Sanitary and phytosanitary measures and their impact on Kenya'. Nairobi: *EcoNews Africa*. Available online at http://www.unctad.org/trade_env/test1/meetings/standards/kenya3.doc (accessed on 30 October 2006).

269 Interviewee, FiD.

270 *Ibid.*

271 McClanahan and Mangi, *supra*, note 10.

272 UNEP, *supra*, note 3.

273 Wamukoya et al., *supra*, note 43.

274 Malleret-King et al., *supra*, note 1.

Table 5. Number of fishers in Kwale District

Location	Sub-location	Number of fishers
Tiwi	Simkumbe	25
Waa	Kitivo	50
Diani	Ukunda	100 211 ²⁷⁵
Kinondo	Kinondo	150
	Gazi	60
Msambweni	Vingujini	300
Pongwe/Kidimu	Shimoni	400
Vanga	Vanga	300
Total		1,385

These fishers landed a total of 12,087.2 metric tonnes between 1991 and 2000, an average of 1,208.7 tonnes per year. The gear used included traps, gillnets, beach seines, ringnets, hand lines and spear guns (most common). In Diani, spear guns and beach seines were widely used (representing 39.3% and 25.9% respectively).²⁷⁶ Of the five types of gear used, spear gun and beach seines got 80% of the total catch. While the spear gun fishers' average catch per day was 3.67 kg, that of trap fishers, hand-line fishers and beach-seine fishers was 4.09 kg, 4.7 kg and 5.53 kg respectively. The study also found that 5.8% of fishers were using gillnets and catching an average of 6.47 kg of fish per day. At Shimoni, traps and hand lines were mostly used.²⁷⁷

While the benefit of banning spear guns is to relieve pressure on the fishery, the suggested transfer of these fishers to offshore fishing which requires boats may be unlikely due to a lack of appropriate subsidies.

Additionally, if spear gun fishers and beach seine fishers were to be reallocated to the traditional fishery, the reef fishery would incur a loss through a decrease in diversity as the fish species targeted by these fishers are not targeted by traditional gears. The ban of the gear would also likely affect a large number of fishers whose dependence on the fishery is as high as 80%²⁷⁸ and might be in a vulnerable position already.

Catch data collected for five years (1995-1999) at eight landing sites showed a decline in the catch despite constant effort at all the sites. The average daily catch per landing site showed an annual decline of 6 kg.²⁷⁹ According to fishermen, catch per unit effort had dropped significantly over the last 30 years in the area.

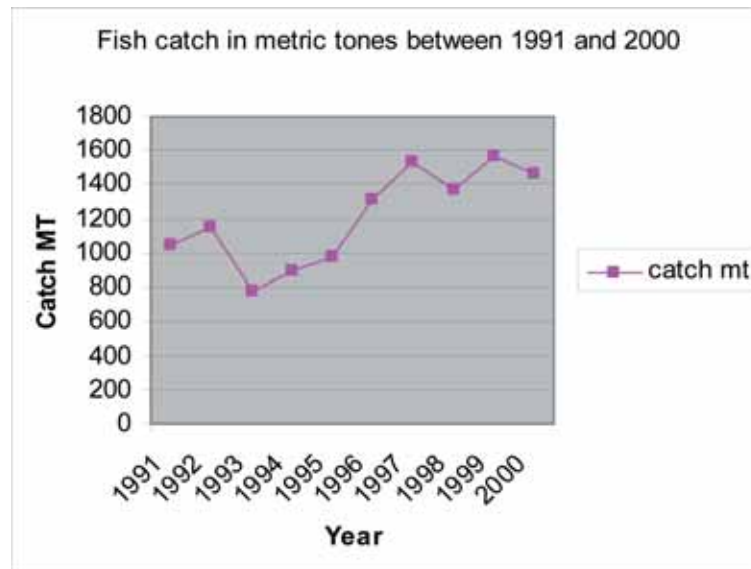
Data collected over a period of ten years by the Fisheries Department on the other hand indicate an overall increase in the catches between 1991-1999, but with occasional lapses.

275 According to Rubens, *supra*, note 5.

276 McClanahan and Kaunda-Arara, *supra*, note 14.

277 Malleret-King, *supra*, note 5.

278 *Ibid.*

Figure 3. Fish catch in tonnes, 1991-2000

The decline in catch (estimated at 4-6 kg at the most productive site and season) is attributed to the increased number of fishers and the introduction of destructive gear, particularly the small-meshed beach seines. The local fishermen estimate a 90% drop in catch since the introduction of beach seines.²⁸⁰ In areas where beach seines were excluded, higher fish catches were recorded.²⁸¹

Various levels of gear-use conflicts have been reported. These are mostly brought about by a lack of appropriate subsidy and no access to credit following the collapse of fisher cooperative societies soon after their creation in the 1970s due to mismanagement.

b) Management practices

Many traditions of coastal peoples are viewed as traditional forms of marine conservation because, like modern fisheries management, they restrict fishing gear, fishing times, and places.²⁸² Traditional conservation

often revolves around protecting religious sites and cultural symbols that are believed to protect food supplies.²⁸³ Many of these traditions have decayed in recent times with the Islamization of the culture, and authority has shifted towards national organizations, resulting in traditional leaders becoming less effective.

Generally, there are mixed perceptions with regard to marine fishery management in terms of closed area management,²⁸⁴ reducing the use of nets, supernatural factors (including giving sacrifices, repenting, and going back to traditional ways), and improved enforcement.²⁸⁵ However, the management and acceptance of these regulations varies for a variety of reasons including legal, government agency, economic, cultural and technical. They are further complicated by diversity in ethnic practices, multi-species fisheries, numerous gear types and different levels of governance²⁸⁶ leading to confusion, conflict, poor enforcement and unsustainable use unless efforts are

279 McClanahan and Mangi, supra, note 13.

280 McClanahan and Kaunda-Arara, supra, note 14.

281 McClanahan and Mangi, supra, note 13.

282 McClanahan et al., supra, note 50; McClanahan et al., supra, note 58.

283 Glaesel, supra, note 13.

284 McClanahan et al., supra, note 54.

285 Cinner, J., Marnane, M.J., McClanahan, T.R. and Almany, G.R. (2006). 'Periodic closures as adaptive coral reef management in the Indo-Pacific'. *Ecology & Society* 11(1), Article 31. Also available online at www.ecologyandsociety.org/vol11/iss1/art31 (accessed on 31 October 2006).

286 McClanahan et al., supra, note 54.

made to understand and rationalize the multiple types of possible management.²⁸⁷ Active participation in the enforcement of management has been proposed²⁸⁸ and suggestions to achieve this include the Beach

2. Sea turtle protection in Kenya

Kenya is home to five of the seven species of sea turtles, which exist globally in significant populations. These species include nester turtles such as the Green (*Chelonia mydas*), Hawksbill (*Eretmochelys imbricata*) and Olive ridley (*Lepidochelys olivacea*). Also included are forager turtles, which are the Loggerhead (*Caretta caretta*) and Leatherback (*Dermochelys coriacea*). All five species feature in the 1996 IUCN Red List of Threatened Animals. The Hawksbill and Leatherback were listed as 'critically endangered' and the Green, Loggerhead and Olive ridley as 'endangered'.

Interviews with fishermen have revealed that marine fisheries and poaching of marine turtle products are the two leading causes of marine turtle population decline in Kenya. It is estimated (gillnet estimates, Fisheries Department) that illegal off-takes and the marine fishery industry reduce the turtle population by 6,000 individuals annually. Critical nesting and foraging grounds have also been destroyed by the impacts of unplanned coastal development and poor waste disposal, erosion and destructive fishing practices (e.g., dynamite fishing), land-based run-off, water pollution and by the temperature rise associated with global warming. All the above have led to a dramatic decline in sea turtle populations.²⁸⁹ Recent research shows that sea turtle populations have declined by between 25-75% due to habitat degradation caused by destructive methods of fishing, demand for trade and consumption of marine turtle products, as well as growth of coastal populations and tourism.²⁹⁰

Management Unit (BMU) structure being developed by the Fisheries Department in consultation with fishermen and other stakeholders (see above).

The legislation which protects sea turtles in Kenya, such as the Wildlife Conservation and Management Act (Cap 376) and the Fisheries Act (Cap 378), does not provide for the protection of habitats within which sea turtles inhabit except for nesting and foraging areas falling within MPAs. Apart from the legislation being considered not coercive and prohibitive enough, insufficient financial and human resources also continue to hamper enforcement of the legislation.

The Kenya Sea Turtle Conservation Committee (KESCOM) was established in 1993 to address threats affecting sea turtles in Kenya against the backdrop of the aforementioned challenges by involving government institutions and the local community. Initial efforts to implement conservation and management objectives were limited to the Mombasa area (especially the area around the Mombasa Marine National Park and Reserve) and supported by the Kenya Wildlife Service.

Through increased support from the local community, government institutions (Fisheries Department, Kenya Marine and Fisheries Research Institute, National Museums of Kenya and Coast Development Authority), as well as private interests and volunteers, KESCOM has to date established 15 community-based Turtle Conservation Groups (TCGs) along the Kenyan Coast, covering 50% of the coastline.

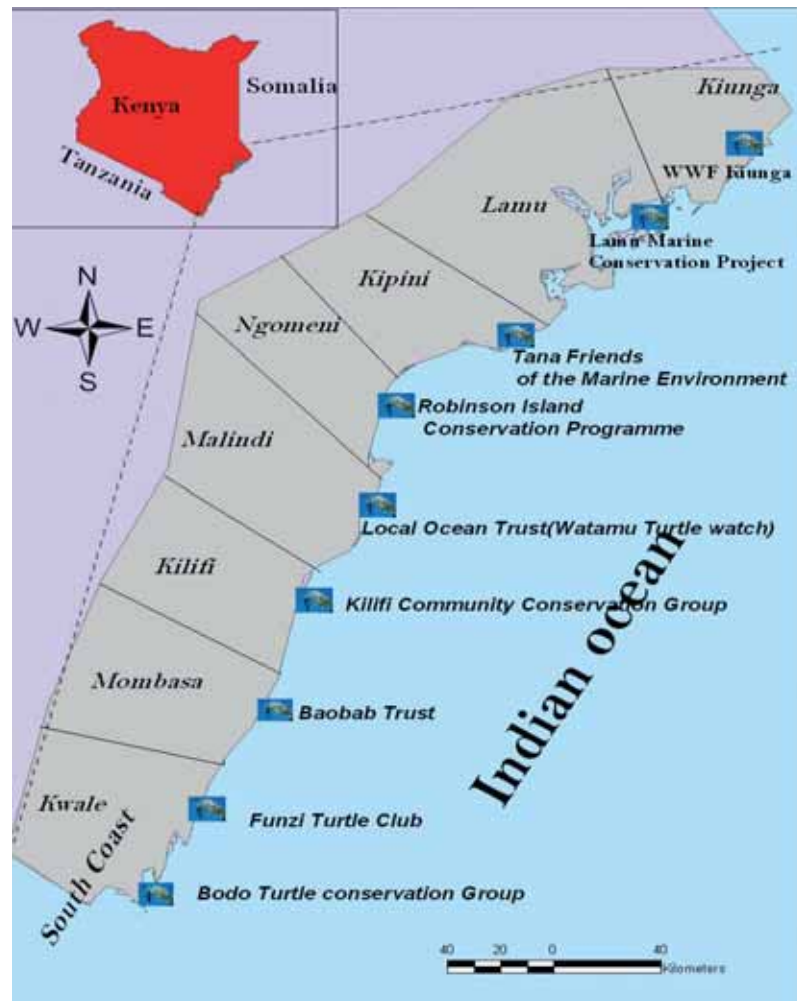
287 White, A.T., Hale, L.Z., Renard, Y. and Cortesi, L. (Eds). (1994). *Collaborative and Community-based Management of Coral Reefs: Lessons from Experience*. West Hartford: Kumarian Press; McClanahan et al., supra, note 50; Glaesel, supra, note 13.

288 McClanahan et al., supra, note 54.

289 Frazier, J. (1975). *The status of knowledge on marine turtles in the Western Indian Ocean*. Marine Turtle Survey. East African Wildlife Society.

290 Wamukota, A.W., Nzuki, S. and Muasa, J. Community participation in the conservation and management of sea turtle in Kenya. Available online at <http://www.seaturtle.org/symposium/export.html> (accessed on 5 July 2007).

Figure 4. The spatial extent of KESCOM TCG activities



Through a cash incentive or with voluntary action, the TCGs are involved in the collection of turtle data and information on the ground, and engaging local communities in the conservation process through education and awareness programmes, and beach patrols and surveillance. This is done to protect turtle nests and nesting females, help with the tagging of sea turtles, research, and fishermen-turtle-release programmes. They also participate in beach clean-up events and currently some of them are involved in habitat protection measures mainly focusing on mangrove replanting. The data and information collected by the TCGs is organised into a national database managed by the KESCOM.

The adoption of a voluntary and participatory approach has led to an increase in conservation action. For instance from 1991-2005, the TCGs in Kenya reported a total of 2,601 nests laid within their areas

of coverage. During the same period, 1,863 dead turtles were reported to the KESCOM with about 85% of mortality cases due to the poaching and slaughtering of turtles and fishing activities (mainly trawling and entrapment in set nets). About 1,000 turtles have been tagged and tag returns have been realized from Somalia and Tanzania.

In spite of the mixed success in some areas, the challenge of sea turtle conservation in Kenya still remains especially given that a large percentage of mortalities are caused by humans, and mitigation measures partly involve major socio-cultural as well as socio-economic shifts. The lack of adequate financial and human resources also continues to hamper conservation action. However, the proposed BMU framework will hopefully add synergies to sea turtle conservation work in Kenya especially in areas not yet covered.

IV. Proposed policy reforms

The Kenyan government's Economic Recovery Strategy Paper (2003-2007) is geared towards the realization of wealth and employment creation. In recognizing research as a fundamental prerequisite for fisheries development, the draft policy provides for better coordination between fisheries management and research. The policy requires the KMFRI, in liaison with the Department of Fisheries, to promote and coordinate multidisciplinary, participatory collaborative demand-driven research activities aimed at sustainable use of fisheries resources, and to establish the co-management of research as the guiding principle. An important departure is the proposal for the FiD to establish an armed unit to enhance the enforcement capacity of the Department and to eradicate poachers or illegal fishers. The Department hopes to collaborate with the Office of the President to provide modern patrol facilities including boats and vehicles to fishery field stations to facilitate fishery management and enforcement of the law.

In order to remove constraints and exploit the fishery resources, the following policy reform agenda has been proposed:

- Develop a facilitative infrastructure which includes landing beaches, cooling plants and access roads to reduce wastage and achieve the required sanitary and health standards.
- Promote aquaculture to improve food security, nutritional status and incomes.
- Enter into agreements which promote closer regional cooperation in the management and regulation of the transboundary fisheries resources including the control of water hyacinth.
- Encourage the growth of micro-finance institutions to provide credit to the sub-sector.
- Encourage sector incentives within the framework of fiscal reforms to deal with the costs of exploiting fisheries resources, processing, preservation and export of the products.
- Make jet fuel exempt from duties to reduce transportation costs, encourage more exports and increase market share and foreign exchange earnings.
- Increase funding to the sector to enhance research into the production and preservation of fisheries species that are marketable both locally and overseas.
- Increase funding for equipment and surveillance of the country's Exclusive Economic Zone to stop encroachment by foreign fishing vessels and thus contribute to wealth and employment creation.
- Integrate the fishery sector into the country's agricultural commodities export strategy to reduce marketing costs to the sector.
- Develop strong regional integration networks to benefit from economies of scale and infrastructure development to facilitate the export of fishery resources on a sustainable basis.
- Promote local and foreign investments in the establishment of a fishing processing plant and fishing fleets to tap the EEZ resource, especially the tuna fishery.
- Develop a comprehensive fisheries policy, to include a fisheries master plan in order to expedite growth of the sector through focused strategies.
- Carry out stock assessment and based on information gathered, negotiate fishing access agreements that would benefit Kenyans and ensure sustainable exploitation of fisheries resources.
- Build institutional capacity through training and the involvement of community participation in fisheries management.
- Promote effective use of natural resources through appropriate extraction methods.

The need to realize these reforms still persists, as their implementation requires huge financial investments.

V. Conclusions

The decline in the marine fishery is generally attributed to overfishing brought about by an increasing human population. The increased fisher population has seen traditionally non-fisher tribes joining the fish trade in addition to migrant fishers and has witnessed an upsurge of destructive fishing practices. The overuse of the reef area is particularly evident through the falling numbers of finfish and the increased numbers of sea urchins. Fish habitats have also been negatively affected by the activities of the salt recovery industries, tourism and prawn trawling.

Domestic legal instruments are thorough enough and are theoretically adequate to deal with the problems of unsustainable use of marine resources. The Fisheries Act of 1989, for instance, empowers the Director of Fisheries, with the approval of the Minister, to issue regulations to promote the development of fisheries and aquaculture and to ensure the proper management of specific fisheries. This includes the possibility of declaring closed seasons and/or areas, access limitations, and restrictions on fishing methods, gear, and specifying the characteristics of the fish that may be caught. The Act further establishes a basis for the registration and licensing of local and foreign fishermen and fishing vessels, enforcement in terms of prohibited methods of fishing, including the use of chemicals and trade in fish illegally caught, as well as prohibition on fishing for marine mammals in Kenya waters. The Wildlife (Conservation and Management) Act, on the other hand, enforces regulation although only within marine protected areas. However, effective implementation of these and other laws is hampered by a number of factors, *inter alia*:

- 1) Lack of enforcement capacity/personnel especially in the EEZ;

- 2) Overlapping mandates;
- 3) Conflicting and/or contradicting mandates;
- 4) Economic status of enforcement personnel which at times forces them to ignore or overlook violations in return for bribes;
- 5) Low levels of fines which stop them from being effective deterrents against violations;
- 6) Collapsed promotion and management structures;
- 7) Unimplemented provisions which remain on the statute books but are not in use;
- 8) Unclear and at times incoherent interpretation of provisions: the use of fishing gear within national parks, for example, is not explicit and has in many instances been interpreted to allow traditional or non-destructive gear according to the discretion of individual wardens; and
- 9) Conflict between traditional and national leaders resulting in few enforced restrictions.²⁹¹

The promotion and management of fisheries in Kenya also suffers due to its high dependence on the EU market. The EU demands stringent SPS requirements, which are often imposed impromptu, though developing countries are never involved in the legislative process.²⁹² As a result, new requirements often come as a surprise causing panic due to fear of losing the market.²⁹³ This has caused excessive, and at times unnecessary, resources to be channelled into the implementation of SPS measures, thus depriving management efforts of needed resources.²⁹⁴ It also affects the FiD's ability to develop a systematic and progressive way of improving the fishery industry.

291 The management and acceptance of fisheries regulations has seen conflicts arising due to socio-economic, cultural, legal, economic and technical reasons. It has also been complicated by the multi-species nature of fisheries, different types of gear and levels of governance.

292 Interviewee, FiD.

293 The safety and quality conditions imposed by various countries in 1997 and 1999 following reports of the presence of salmonella, a cholera outbreak and the use of pesticides saw a decline in fish exports from Kenya by 68%. As a condition for exporting fish to the EU, all Kenya's fish factories instituted stringent quality control procedures like the Hazard Analysis Critical Control Point (HACCP). The fish industry is now governed directly by at least six sets of standards operated through the Fisheries Department and the Kenya Bureau of Standards. They include requirements for handling and marketing fishery products based on HACCP principles and the practices governing fish production such as the handling, processing, packaging, and transporting of fishery products destined for the EU. Additionally, they include the standards regarding the construction of buildings, equipment, purification tanks, and storage tanks intended for holding fish prior to shipping, as well as on-premise laboratories, strict record keeping, and accurate labelling.

294 The impact of safety measures has been felt in terms of restructuring fish-processing factories and production lines; investment in newer, cleaner boats and preservation facilities; and retraining fishermen and other workers on hygienic fish-handling practices. These measures have pushed up the price of fish on the domestic market and also raised fish export costs.

Developed countries (the EU) need to be transparent about decisions (developments) they desire to undertake by involving developing countries in talks. They also need to give more time for implementation/compliance. Perhaps the FAO could act as a link between developed and developing countries by tracking developments in industrialized countries and supporting training in developing countries. The FAO could also set aside a fund to sponsor developing countries' representatives to take part in EU meetings. This way, developing countries would be aware of what was happening in the EU and have the opportunity of informing EU legislators and policy makers of the prevailing conditions in their respective countries before decisions were made. They would also be able to communicate decisions to their countries early to allow adequate time for implementation.

A unique feature of the EEZ, as far as enforcement is concerned, is the possibility of building synergy through collaboration with regional states in order to curb violations. This has led to the formation of regional bodies such as the SWIOFC and the SIOFA. Unfortunately, some of these bodies only exist on paper because vital structures have neither been laid down, nor competences defined. Others lack strong backing due to non-participation of pertinent regional states. Worse still is the shortage of finances.

Management initiatives suggested include the encouragement of responsible fishing practices and co-management structures, curtailment of destructive fishing methods, further development of Marine Protected Areas and the resolution of conflicts arising from the migration of foreign nationals from Pemba Island and the northern Tanzanian coast into south coast fishing areas. In essence, the amalgamation of traditional fisheries management with the formal regime through the Beach Management Unit (BMU) is seen as a lasting solution.

In recognition of the fundamental prerequisite for fishery development, the Draft Fisheries Policy provides for better coordination between fishery management and research. An important departure is the

establishment of an armed unit by the FiD to enhance enforcement capabilities in eradicating illegal fishermen. Providing fishery field stations with modern patrol facilities (boats and vehicles) will further assist in the management and enforcement of the law.

The policy reform agenda (in particular to develop facilitative infrastructure facilities), promotion of regional cooperation in the management and regulation of the transboundary fishery resources, encouraging the growth of micro-finance institutions to provide credit to the sub-sector, and subsidizing the cost of exploiting fishery resources, processing, preservation and export of the products, are important reforms for the sector.

Other important reforms including increased funding to the sector to enhance research in production and preservation of fisheries, to improve equipment and build institutional capacity through training, and involvement of community participation in fishery management, go well with the safety and quality standards imposed by the EU, although the cost of implementing the reform agenda is very high.

Generally, future prospects are bright. There is much willingness to update the existing structures and to install more effective modern equipment as well as to increase and employ knowledgeable capacity in order to ensure proper management and hence sustainable fisheries. Better collaboration between the FiD and the KWS through the Memorandum of Understanding, closer interaction between the FiD, the KWS, the KMFRI and other professional groups is expected to increase synergy. Involvement of all stakeholders in management efforts is expected to ease efforts and make implementation more effective. Also, installation of VMS in vessels will definitely make a big difference in the management of the EEZ. However, there is a deficit in the resources needed for the implementation process. Such a burden should be taken up not only by one or a handful of states, but by a wider group of the international community, especially the countries that benefit from the resources of those fisheries.

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3 Promotion and Management of Marine Fisheries in Namibia

Raywood Mavetja Rukoro¹

Summary

Namibia inherited a severely depleted fishery. The previous regime left the fishing industry uncontrolled, with excessive exploitation practices and no sustainable fishing practices in place. This opened the waters to long-distance fleets which openly exploited the fish stock found outside the territorial waters and put severe pressure on the resource.

The former administration had jurisdiction over 12 nautical miles out from the shore, while the remainder was managed by the International Commission for South East Atlantic Fisheries. This organization which was established mainly as a tool to ensure sustainable fishing in the South East Atlantic was abused by member states whose main aim was to harvest to the maximum the rich resources found in the said waters.

With the attainment of independence and the change in the governing regime, a new fisheries management regime started with the enactment by parliament of the Territorial Sea and Exclusive Economic Zone Act (Act 3 of 1990). It stipulates that the 'sea outside the territorial sea of Namibia, but within a distance of 200 nautical miles from the low water line or any other base line from which the territorial sea was measured, shall constitute the exclusive economic zone (EEZ) of Namibia'.

This proved to be a mammoth task at first as Namibia had no adequate means to enforce the fisheries laws within the EEZ. For the first year illegal fishing by uncontrolled foreign vessels continued. This prompted the government to implement a fisheries management system and parliament enacted the Sea Fisheries Act (Act 29 of 1992) to ensure that Namibia's

living marine resources were utilized on a sustainable basis, as required by Article 95(l) of the Constitution of Namibia.

Namibia has one of the most productive fishing grounds in the world and its marine ecosystem is dominated by the Benguela current. The fishery supports vast populations of commercially exploitable fish species, some of which are shared with Angola and South Africa. The inshore marine environment provides valuable migration and nursery habitats for many marine organisms. These organisms, in turn, support rich populations of fish, which constitutes the very foundation of marine fisheries in Namibia. As is the case in other upwelling systems, relatively few species dominate and their abundance is very much dependent on changing environmental and climatic conditions.

The fisheries sector is one of the main foreign currency earners and contributes significantly to the Namibian economy. In 2000, the sector contributed US\$ 221.1 million to the GDP in comparison with US\$ 97.8 million in 1996.

As a measure to regulate the industry, the government of Namibia opted for a rights-based approach to its management of the fishery. The prerequisites to the commercial harvesting of marine resources generally states that no person shall in Namibia, or in Namibian waters, harvest any marine resource for commercial purposes, except under a right, an exploratory right or a fisheries agreement.

The Namibian fisheries management system is proving to be somewhat successful in that it has been

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able to eradicate illegal fishing in Namibian waters. Few cases, if any, of illegal fishing have been reported recently. However, fish stocks are still declining and,

at least in part, this trend is not a result of a lax management regime, but rather of adverse environmental conditions.

I. Environmental and socio-economic background

1. Environmental conditions

Upon gaining independence on 21 March 1990, Namibia inherited a fisheries industry whose resources were severely depleted.² This was because the pre-independence regime had left the fishing industry largely uncontrolled.³ Before Namibia's 200-nautical mile Exclusive Economic Zone was declared in 1990, the former administration had jurisdiction only over 12 nautical miles of territorial waters⁴ while the remainder was managed by the International Commission for South East Atlantic Fisheries.⁵ Long distance fleets openly exploited the fish stock found outside the territorial waters and the fishing pressure was high.⁶

Namibia's fisheries management regime started with section 4(1) of the Territorial Sea and Exclusive Economic Zone Act⁷ which stipulates that:

[t]he sea outside the territorial sea of Namibia but within a distance of two hundred nautical miles from the low water line or any other base line from which the territorial sea was measured shall constitute the exclusive economic zone of Namibia.

Namibia had no adequate means to enforce the fisheries laws within the EEZ and for the first year illegal fishing by uncontrolled foreign vessels continued.⁸ In early

1991, the Government of the Republic of Namibia (hereinafter referred to as 'Government') set out its fisheries policies in a White Paper towards Responsible Fisheries.⁹ Following the guidelines in the White Paper, the Sea Fisheries Act¹⁰ came into force in October 1992 to ensure that Namibia's living marine resources were utilized on a sustainable basis as required by Article 95(l) of the Constitution of Namibia,¹¹ and to ensure an optimal level of compliance with fisheries laws and regulations.¹² Through the establishment of the Monitoring, Control and Surveillance System (MCS) project, the hope was to find practical options that would help realize the government's fisheries management goals.

Namibia has one of the most productive fishing grounds and systems in the world.¹³ Namibia's marine ecosystem is dominated by the Benguela current, and supports vast populations of commercially exploitable fish species, some of which are shared with Angola and South Africa.¹⁴

The Benguela current is a broad northward flow off southwestern Africa and is part of the South Atlantic subtropical gyre. It is driven by large-scale wind patterns and thermohaline forcing.¹⁵ The currents close to the coast are known as the Benguela upwelling system,

2 Namibia, Ministry of Fisheries and Marine Resources. (2000). *Presentation on the Namibian fisheries compliance on monitoring, control and surveillance*, p.2. Windhoek: Ministry of Fisheries and Marine Resources.

3 Ibid.

4 Section 2(1) of the Territorial Sea and Exclusive Economic Zone Act, Act 3 of 1990, also lays down that '[t]he sea within a distance of 12 nautical miles measured from the low water line shall be the territorial sea of Namibia'.

5 Namibia, Ministry of Fisheries and Marine Resources, supra, note 2.

6 Ibid.

7 Act 3 of 1990.

8 Namibia, Ministry of Fisheries and Marine Resources, supra, note 2.

9 Ibid.

10 Act 29 of 1992.

11 Act 1 of 1990.

12 Namibia, Ministry of Fisheries and Marine Resources, supra, note 2.

13 See also Shannon, V.L. and O'Toole, M.J. (2003). 'Sustainability of the Benguela: *ex Africa semper aliquid novi*'. In: Hempel, G. and Sherman, K. (Eds). *Large marine ecosystems of the world: Trends in exploitation and research*, 227-253, at p.228. Amsterdam: Elsevier Science.

14 Government of the Republic of Namibia. (2004). *Namibia Vision 2030*, p.157. Windhoek: Office of the President.

15 Fennel, W. (1999). 'Theory of the Benguela Upwelling System' in: Vol. 29, Issue 2 *Journal of Physical Oceanography*, pp. 177-190.

which is forced locally by the wind stress field off Southwest Africa.¹⁶ The Benguela upwelling system stretches from the southern tip of Africa to about 15°-16°S where it is bounded by the Angola front, which separates the warm water of the Angola Current from the cold Benguela water.¹⁷ In the northern part of the Benguela upwelling system, a poleward surface flow is found that extends as far south as 17°-18°S. The upwelling varies alongshore.

The area of the Benguela is exposed to a persistent alongshore wind associated with the St. Helena high pressure system. The upwelling favorable alongshore wind has a maximum at about 25°S and decreases toward the northern and southern boundaries of the Benguela system at the Angola front and the southern tip of Africa, respectively.¹⁸ In the south, the winds are highly seasonal and reach a maximum during spring and summer.

North of 31°S, the seasonal variation is weaker with permanent alongshore winds with a spring-summer maximum and autumn minimum as far north as 25°S. North of that latitude, the maximum occurs in late winter to spring. The wind increases somewhat away from the coast.¹⁹

The driving physical process in the Benguela system is coastal, wind-induced upwelling. Prevailing southwesterly winds, which occur all year round off Namibia, tend to move nearshore surface water northwards and offshore, while cool, central water from a depth of about 300 m wells up to take its place.²⁰ The deeper water is rich in dissolved nutrients which, when present in the photic zone, facilitate rapid growth of phytoplankton, the basic food of fish. The high productivity of these microscopic plants supports abundant marine life.²¹ The most intense upwelling regions off Namibia are found where the continental shelf is narrowest and the wind strongest, e.g., off Cape Rio, Palgrave Point and Lüderitz. The strongest most extensive and intense centre of the upwelling in the entire Benguela system is off Lüderitz, Namibia.²²

The inshore marine environment provides valuable migration and nursery habitats for many marine organisms.²³ These organisms in turn support rich populations of fish, which constitute the very foundation of marine fisheries in Namibia.²⁴ As is the case in other upwelling systems, relatively few species dominate and their abundance is very much dependent on changing environmental and climatic conditions.

16 Ibid.

17 Ibid.

18 Ibid.

19 Ibid.

20 Van Zyl, B.J. (2002). *A decade of Namibian fisheries and biodiversity management*, p.5. Available from <http://www.wordfish.org/BlueMillenniumPDFs/Chapter 2-VanZylCaseStudy.pdf>.

21 Ibid.

22 Ibid.

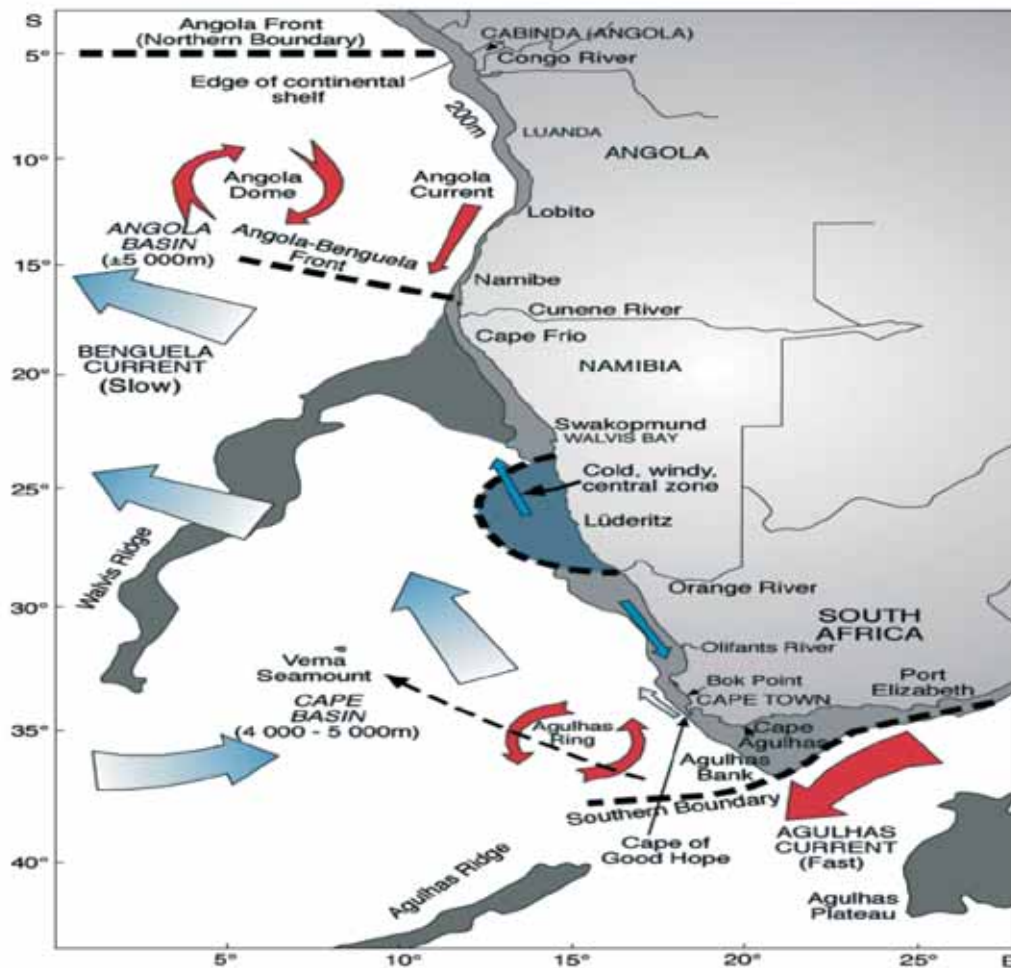
23 Government of the Republic of Namibia, supra, note 14.

24 Sumaila, U.R., Boyer, D., Skogen, M.D. and Steinshamn, S.I. (Eds). (2004). *Namibia's fisheries: Ecological, economic and social aspects*, p.2. Delft: Eburon Academic Publishers.

25 Namibia. National Planning Commission. (2006). *2001 Census*. Also available from <http://www.npc.gov.na/census/index.htm>.

Figure 1 depicts the external and internal boundaries of the Benguela current, its large marine ecosystem, bathymetric features and surface (upper layer) currents.

Figure 1: Integrated Management of the Benguela Current Region



Source: Shannon and O'Toole, supra, note 13.

2. Overview of multiple demands on the coastal and exclusive economic zone

a) *Urbanization*

Namibia has three major coastal towns: Swakopmund, Walvis Bay and Lüderitz. However, in Namibia's 2001 Housing and Population Census, Swakopmund and Lüderitz are not considered large urban areas compared to Walvis Bay. Even though the populations are currently not large in these two coastal towns, it is expected that more people will be moving to these towns as the fishing industry and marine exploration continue to grow. Walvis Bay, which is Namibia's second largest town, is considered to be a large urban

area in the census, with a population of about 42,415 people.²⁵ A rise in the need for housing means a high level of urbanization in these towns, where housing developments tend to be moving more towards the sea and away from the forbidding Namib Desert.

b) *Modern ports*

Namibia has two major ports – Walvis Bay and Lüderitz. Walvis Bay is Namibia's largest commercial port, visited by approximately 1,000 vessels each year and handling about 2.5 million tonnes of cargo. It is a

26 Namibia. Namibian Port Authority. (2006). *The port of Walvis Bay*. Available from: <http://www.namport.com/content/show.php?m=4>.

sheltered deepwater harbour benefiting from a temperate climate.²⁶

Namport is Namibia's Ports Authority Company and it has a container terminal at Walvis Bay that can accommodate 380 containers, with space for 210 reefer container plug points. The container terminal can host about 150,000 containers per annum.²⁷ The Walvis Bay syncrolift, a modern drydocking facility, which is also owned and operated by Namport, is located between the commercial and fishing harbours, and it caters mainly for fishing vessels, offshore supply boats and offshore mining industry vessels of up to 2,000 tonnes. While many of the smaller fishing boats berth at the jetties of the various factories, larger white fish trawlers use the commercial port.

Since 1995, investment in the port of Lüderitz has significantly improved harbour facilities so it can now handle modern coastal traffic, as well as the needs of the offshore sector, including the diamond mining and fishing industries.²⁸ This included dredging the approach channel to the harbour, as well as the 198 m-wide turning basin. Cargo handled at the port has increased dramatically since 1994, when the average number of ships calling was 826 and cargo reached 51,513 tonnes. By 1997, the number of ships had gone up to 1,253 and tonnage peaked at 102,614 t. The cargo landed consisted mainly of fuel and fish products. Exports were predominantly fish products. However, mineral and offshore activities in southern Namibia have brought a new lease of life to the port which until recently depended mainly on the fishing industry.²⁹

c) Fishing industry estates

Fishing continues to be a major line of business for Walvis Bay. About two-thirds of the waterfront area of the port is taken up by the fishing harbour, where the many landing quays are backed by more than 2 km of warehouses, processing facilities and canning factories.

In recent years, the industry has shown great flexibility in managing to adapt to changing tastes and markets. A large modern cold store allows high-value fish to be stored for export to niche markets around the world.

d) Tourist attractions

Old-world charm, adventure sports and spotless beaches are some of the many qualities one associates with Swakopmund, one of the fastest growing cities in the country.

One of the biggest building initiatives on the coast is the Swakopmund Waterfront development project that is already underway. Not only will this development project add shops, housing, restaurants and a marina to what Swakopmund already has to offer, it will actually extend Namibia's territory, as it will change the high-water mark, thus adding land.³⁰ Phase 1A of the development is almost complete, with 72 townhouses and eight houses built thus far. Ultimately there will be up to 240 residential units, in addition to shops, restaurants, and activities based around the marina.³¹ The idea is to create as many activities as possible. The beach will grow north of the development as sand is pushed around the marina.

Demand and growth are going hand in hand at the coastal towns and mainly at Swakopmund, for the benefit of residents and tourists alike. Upon completion of the marina, business opportunities will be available, e.g., creating a demand for activities such as sundowner cruises and fishing excursions.³² These activities are aimed at attracting tourists to Namibia's coastal zone.

e) Marine exploration and mining

Namibia has a wealth of marine mineral resources, such as glauconite, phosphorite, industrial minerals and diamonds. The exploration and development of oil and gas marine resources are fully captured in the *White Paper on Energy Policy*.³³ The current Kudu Gas Project

27 Ibid.

28 Information available from <http://www.ports.co.za/luderitz.php>.

29 Namibia, Namibian Port Authority, *supra*, note 26.

30 Information available from <http://www.travelnews.com.na/index.php?fAfricaId=881>.

31 Ibid.

32 Ibid.

33 Namibia. Ministry of Mines and Energy. (1998). *White paper on energy policy*. Windhoek: Ministry of Mines and Energy.

34 Namibia. Ministry of Mines and Energy. Minerals policy of Namibia – draft, p.17. Windhoek: Ministry of Mines and Energy.

– the development of a power-generating and gas-fired station 170 km off the coast near Oranjemund – is an example of the government’s increasing marine exploration.

Marine diamonds accounted for 60% of Namibia’s total diamond production in 2001.³⁴ The increase in marine diamond production was a response to the dwindling on-shore diamond reserves, as well as to the development of new exploration technologies.³⁵ With

on-going research and further improvements in technology, marine diamond production is likely to increase.³⁶

Since offshore development in exploration and mining is a relatively new activity, the associated impact on the environment is not yet fully understood.³⁷ Therefore, there is a need for continued on-going research into the probable environmental impacts.³⁸

3. Fisheries

a) Indigenous and artisanal fisheries

There are no indigenous coastal fisheries communities, nor is there substantial artisanal fishing.³⁹ There are remnants of traditional fisher communities found in Namibia. The Topnaars communities were able to endure the harsh environmental conditions prevalent in the Namib desert which is part of the Namibian coastline.⁴⁰ However these communities are no longer actively involved in fishing. They have been absorbed into the main industrial fisheries industry where they have been allocated quotas and have entered into joint ventures with companies involved in fisheries which possess the technical know-how and the capital required to successfully harvest the sea resources.⁴¹ Nonetheless, there exist initiatives within the industry that specially focus on the needs of the Topnaars communities and many fishing companies contribute financially towards improving their livelihoods.⁴² While in precolonial times the Topnaar communities had their own indigenous law regulating fisheries, nowadays this law is obsolete.⁴³ Artisanal fisheries are virtually non-existent. Most of the small-scale fishing is recreational or linked to recreational activities (see below).

b) Recreational fishing

The only coastal fishing is recreational fishing.⁴⁴ Local inhabitants of the coastal towns and cities mostly use this form of fishing to catch fish for their own consumption and sometimes to supply small markets. It must be noted however that there are limits on daily catches to discourage people from using this type of fishing to engage in larger business initiatives. Whilst out with the Patrol officials in Swakopmund, fishermen assured the author that their take for the day was either for their own consumption or simply for sport and that the fish caught were either distributed amongst the local poor or amongst the people on the boat. However, this was difficult to believe as clearly some of them were well-known to the Patrol officials since they go out fishing every day. While this cannot be seen as a form of recreational fishing it probably borders on subsistence fishing. It is difficult for the author to be certain of their status as he was only there for a short while.

Recreational fishing targets species such as Blacktail, also known as *Dassie* (*Diplodus sargus*),

35 Ibid.

36 Ibid.

37 Ibid.

38 Ibid.

39 Nichols, P. (2004). ‘Marine fisheries management in Namibia: Has it worked’. In: Sumaila et al., supra, note 24, 319-332 at p.326.

40 Fieldnote 9.

41 Fieldnote 10.

42 Fieldnote 8; see also fieldnote 2.

43 See, on the history of the Topnaar and their fisheries practices and rules, Mapaura, C. (2007). ‘A failed success: natural acumen and sustainable traditional fishing among the Topnaar community’. Dissertation submitted in partial fulfilment of the requirements of the award of the Specialised Certificate in Customary Law at the Faculty of Law, University of Namibia.

44 Government of the Republic of Namibia, supra, note 14.

Dichistius capensis, Kob which is also known as Kabeljou (*Argyrosomus* spp.), Snoek, etc. Additionally, there are Coast steenbras, also known as White fish (*Lithognathus aureti*), Barbell, sharks (principally Cow

shark) (*Notorynchus cepedianus*), Bronze whaler (*Carcharhinus brachyurus*), Spotted gullyshark (*Triakis megalopterus*) and Smooth hound (*Mustelus mustelus*).⁴⁵

Table 1. Total number of recreational fishing permits issued and revenue generated during 2004

Months	Permits issued	Revenue collected (N\$)*
January	4,572	89,264
February	4,807	83,146
March	5,331	87,416
April	4,631	73,150
May	3,060	54,544
June	1,763	30,072
July	2,622	44,114
August	2,191	40,992
September	2,297	41,650
October	2,829	52,388
November	4,764	98,574
December	14,284	228,774
Total	51,772	924,084

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*.

Windhoek: Ministry of Fisheries and Marine Resources, p.23.

* N\$ 1 is approximately € 7,5.

Table 2. Types of permit issued in 2004

Period	Total number of permits	Amount received (N\$)
Monthly permits issued	50,478	706,692
Annual permits issued	1,294	217,392
Total	51,772	924,084

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*.

Windhoek: Ministry of Fisheries and Marine Resources, p.23.

Harvesting for recreational purposes is regulated by Regulation No. 5,46 which requires that persons who want to harvest fish in the Namibian waters for

recreational purposes must be in possession of a fishing permit and carry out such harvesting in accordance with the conditions prescribed in the regulations.

45 Food and Agriculture Organization of the United Nations (FAO). (2002). 'Fishery country profile: Namibia'. Available from <http://www.fao.org/fi/fcp/en/NAM/profile.htm>.

c) *Industrial fisheries*

The bulk of Namibian fisheries is industrial. It can be divided into nine main fisheries:⁴⁷

1. Demersal fisheries: Around 111⁴⁸ demersal trawlers (19-77m length) are currently licensed. Their principal target species is Hake (*Merluccius capensis* and *M. paradoxus*), caught in deeper water (trawlers are not permitted in less than 200 m depth). The spawning biomass of hake was estimated at 1.3 million tonnes and the allocated TAC for the 2004/5 fishing season was 195,000 tonnes.⁴⁹ Smaller trawlers fish closer to shore for Monkfish, sole and Kingklip. Twenty-four⁵⁰ demersal long-liners (19-55 m in length) also target smaller quantities of highly valuable Kingklip and Snoek. Catches in 2000 were Hake; Monkfish – 14,358 tonnes; and Kingklip – 3,922 tonnes.⁵¹ The stock assessment model estimate for the fishable biomass in 2004 was around 35,000 tonnes.⁵² However, there is a downward trend in the biomass of Monkfish. Thus, catches have to be slightly reduced to compensate for this.⁵³

2. Mid-water fishery: Twenty-six⁵⁴ mid-water trawlers, 62-120 m in length, are licensed to catch Horse mackerel (*Trachurus capensis*). This sub-sector has the largest number of foreign vessels, with 12-15 operating at any one time.⁵⁵ However, at least eight are wholly owned by Namibian nationals, but retain foreign flags

in order to facilitate work permits for the largely expatriate crews.⁵⁶ Horse mackerel stocks are growing steadily. This resource is estimated at 1.4 million tonnes, comprising 47% juvenile and 53% adult fish.⁵⁷ The total Horse mackerel catch 2002-2004 was 350,000 tonnes.⁵⁸

3. Purse-seine fishery: A fleet of 30⁵⁹ purse-seiners (21-47 m in length) target Pilchards (*Sardinops sagax*) for canning.⁶⁰ Juvenile Horse mackerel and Anchovy (*Engraulis capensis*) are sporadically found in Namibian waters and are also used for fish meal. Namibia's Pilchard stocks have not responded as well as others to measures designed to rebuild stocks, and there is concern for recruitment levels which appear to be largely influenced by environmental factors. Catches have declined rapidly in recent years from 68,600 tonnes in 1998 to 25,400 tonnes in 2000.⁶¹ During October 2004, Pilchard were found in patchy aggregations in central Namibia and extending into southern Angola, with the proportion of the stock found in southern Angola increasing to 35% of the total biomass.⁶² The Pilchard stock was estimated at approximately 327,000 tonnes.⁶³ The adult stock decreased from 320,000 estimated in October 2003 to 147,000 tonnes in a period of one year.⁶⁴ Despite this decrease, recruitment from the 2003/2004 spawning season was very good and the juveniles (with a modal length of 17 cm) accounted for about 60% of

46 Regulations made in section 61 (1) of the Marine Resources Act 27 of 2000.

47 The division of the industry as outlined below is adopted from the FAO report found on http://www.fao.org/fishery/countrysector/FI-CP_NA. The figures used above differ from the ones contained in the FAO report. The figures have been updated to reflect those in the report published by the Ministry of Fisheries and Marine Resources and contained in the Annual Report for 2004 and published in 2005.

48 The FAO report indicates that 121 licences were issued to demersal trawlers, differing from the Ministry's figures as shown above. The discrepancy may be due to the fact that the report was published earlier and we thought it prudent to use the latest figures published as contained in the government report.

49 Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*, p.11. Windhoek: Ministry of Fisheries and Marine Resources.

50 The FAO figure is 28 demersal long-liners.

51 FAO, supra, note 45.

52 Namibia, Ministry of Fisheries and Marine Resources, supra, note 49.

53 Ibid.

54 The FAO figure is 15 mid-water trawlers

55 FAO, supra, note 45.

56 Ibid.

57 Namibia, Ministry of Fisheries and Marine Resources. supra, note 49.

58 The figure represents an average of the years 2002-2004 as is reflected in Namibia, Ministry of Fisheries and Marine Resources, supra, note 49. p.21.

59 The FAO figures showed a fleet of 36 purse-seiners licensed

60 FAO, supra, note 45.

61 Ibid.

62 Namibia, Ministry of Fisheries and Marine Resources, supra, note 49.

63 Ibid.

64 Ibid.

the total biomass estimated in October 2004.⁶⁵ A TAC of 25,000 tonnes was granted for 2004.⁶⁶

4. Deep-water fishery: Five deep-water trawlers are currently licensed to target Orange roughy (*Hoplostethus atlanticus*) and Alfonsino (*Beryx splendens*). The fishery began in 1994 but low catch levels have since reduced the value and importance of the fishery.⁶⁷

5. Tuna fishery: A fleet of 73 tuna vessels in the 6-79 m length range using long-line and line gear are licensed to catch Albacore (*Thunnus alalunga*), Bigeye (*Thunnus obesus*), *Xyphias gladius* and Skipjack (*Katsuwonus pelamis*).⁶⁸ Pelagic sharks are also taken. Some 2,000 tonnes of tuna species and 290 tonnes of swordfish were landed in 2000.⁶⁹

6. Rock lobster fishery: The fishery for rock lobster (*Jasus lalandii*) is based in southern Lüderitz. Twenty-nine craft, 7-21 m in length, are currently licensed and use lobster traps. The rock lobster stock, which is shared with South Africa, is showing signs of continued growth.⁷⁰ During the 2003/2004 commercial season, the lobster fishing fleet again did not succeed in fulfilling the lobster total allowable catch (TAC), just as in the previous three seasons.⁷¹ This was mainly due to high swell conditions (and possibly also due to the high levels of bottom-dissolved oxygen, resulting in adult lobsters migrating to deeper waters and thus out of reach of the fleet).⁷² Catch per unit effort was lower than that of the previous season, and about one half of the TAC remained uncaught.⁷³

7. Deep-sea red crab fishery: Deep-water traps are used to target red crab (*Chaceon maritae*). Several vessels are licensed for this small, but valuable, fishery. Research on deep-sea red crab indicates that stock size continues to grow slowly.⁷⁴ Being a shared stock, Namibia has initiated research activities with neighbouring Angola. The estimated total biomass of Deep-sea red crab during 2004 was between 10,000 and 13,000 tonnes.⁷⁵ The biomass of this species has remained relatively stable since 1993. The allocated TAC for the 2004 season has increased from 2,000 tonnes in 2003 to 2,200 tonnes in 2004.⁷⁶

8. Line-fish vessels: A fleet of 26 industrial line-fish vessels operates offshore and target Kob, steenbras, etc. This fishery landed 1,600 tonnes in 2000.⁷⁷

9. Cape fur seals: Cape fur seals (*Arctocephalus pusillus*) are also harvested around Cape Cross, Wolfs Bay and Walvis Bay. Harvests have risen from 29,500 seals in 1998 to nearly 42,000 in 2000.⁷⁸ Seals, including predominantly Kelp, are harvested at a number of locations. Production in 2000 was 825 tonnes.⁷⁹ In the 2004 season, the catch comprised 28,496 pups and 3,415 bulls.⁸⁰ During 2004, a rolling TAC was set for the period 2004-2006. The TAC was set at 60,000 pups and 5,000 bulls.⁸¹

d) Landed fish

The total volume of marine resource production for 2005 is not available yet. However, the total volume of marine resource production for 2004 declined by 10%, compared with the total volume of the previous

65 Ibid.
 66 Ibid.
 67 FAO, supra, note 45.
 68 Ibid.
 69 Ibid.
 70 Namibia, Ministry of Fisheries and Marine Resources, supra, note 49.
 71 Ibid.
 72 Ibid.
 73 Ibid.
 74 FAO, supra, note 45.
 75 Namibia, Ministry of Fisheries and Marine Resources, supra, note 49, p.12.
 76 Ibid.
 77 FAO, supra, note 45.
 78 Ibid.
 79 Ibid.
 80 Namibia, Ministry of Fisheries and Marine Resources, supra, note 49, p.12.
 81 Ibid.

year.⁸² Overall, the exchange rate volatility and the cost of fishing were not the most favourable to the fisheries and resources sector during 2004.⁸³ These factors

affected the operation of major fisheries such as those for Horse mackerel, Hake and tuna.⁸⁴

Table 3. Total volume of marine resources production 2000–2004 (in tonnes)

Species	2000	2001	2002	2003	2004
Pilchard	25,388	10,763	4,160	22,255	28,605
Hake	171,397	173,277	154,588	189,305	173,902
Horse mackerel	344,314	315,245	359,183	360,447	310,405
Monkfish	14,358	12,390	15,174	13,135	8,961
Kingklip	3,922	6,607	7,210	6,603	7,067
Tuna	2,401	3,198	2,837	3,371	3,581
Crab	2,700	2,343	2,471	2,092	2,400
Rock lobster	365	365	361	269	214
Other fish species	22,987	30,810	77,407	33,644	31,997
Total fish harvest	588,404	554,998	623,391	631,121	567,133
Seals (numbers)*	41,753	44,223	40,000	34,000	31,971
Seaweed	829	800	500	288	n/a

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*.

Windhoek: Ministry of Fisheries and Marine Resources, p.23.

Note: Other fish species are Orange roughy, Alfonsino, Anchovy, sharks, sole, line-fish species, amongst others.

* Seals are in numbers, not tonnes. n/a = not available.

4. Economic importance of the fisheries sector

Since Namibia's independence in 1990, the country's prosperous economy, which has a real Gross Domestic Product (GDP) growth rate of 3.5%,⁸⁵ has been driven by mining (diamond and uranium), fishing, agriculture (cattle herding and subsistence agriculture) and tourism. Namibia's GDP is approximately twice the average for African countries. Fishing is the third-largest sector of the Namibian economy, after agriculture and mining, and the second-largest growth industry in the

Namibian economy (after tourism), a growth achieved mainly through product value enhancement.⁸⁶ Namibia's small population gives it one of the world's lowest population densities. Approximately 60% of the population resides in inland rural areas – predominantly inland – and the remaining 40% resides in urban areas.⁸⁷ There is practically no marine subsistence fishing sub-sector.

82 Namibia, Ministry of Fisheries and Marine Resources, supra, note 49, p.21.

83 Ibid.

84 Ibid.

85 CIA World Factbook. 'Namibia'. July 2006. Available from <https://www.cia.gov/library/publications/the-world-factbook/geos/wa.html>.

86 Boyer, D and Oelofsen, B. (2004). 'Co-management: Namibia's experience with two large-scale industrial fisheries – sardine and orange roughy'. In: Sumaila et al., supra, note 24, 333-356, p.336.

87 See also Winterfeldt, V., Fox, T. and Mufune, P. (2002). *Namibia. Society. Sociology*, [preliminary pages]. Windhoek: University of Namibia Press.

The socio-economic relevance of the fisheries in Namibia may be evaluated in terms of:

- (a) their contribution to the national economy;
- (b) their exports and foreign exchange earnings;
- (c) employment for Namibians;
- (d) corporate social responsibility;
- (e) the growth of landed vessels and catch year on year; and
- (f) the number of species landed.

However, this list is by no means exhaustive nor is it the only way of evaluating the socio-economic relevance of the fisheries.

a) Contribution to the national economy

Firstly, the fisheries sector is a major contributor to the national economy. Some non-official estimates are optimistic and indicate that the sector generates more than 10% of the GDP.⁸⁸ However, the official data indicate rather conservatively that the fisheries sector contribution was 6.7%, 7.1%, 7.3%, and 7.8% of the GDP in 2000, 2001, 2002 and 2003, respectively.⁸⁹ In 2000, the sector contributed US\$ 221.1 million to the GDP, compared with US\$ 97.8 million in 1996.

Table 4. Fisheries contribution to GDP, 2000-2004

GDP contribution	2000	2001	2002	2003	2004*
Fishing	1,044	1,445	1,608	1,627	1,293
Processing	548	494	703	899	920
Total	1,592	1,939	2,311	2,526	2,213
% of GDP	6,7%	7,1%	7,3%	7,8%	6%

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*. Windhoek: Ministry of Fisheries and Marine Resources, p.20.

* Provisional figures

Direct government revenues generated from the fisheries sector include quota fees; the Marine Resources Fund levy (a levy on all landed species, used to fund research and training); a bycatch levy (bycatch must be landed – discarding is prohibited) with charge rates per tonne set on a species basis; and licence fees for vessels. Although the contribution of income from

marine resources to GDP has fluctuated over the years, mainly due to the unpredictable nature of the resource, it has shown an overall increase from N\$ 288 million (4% of GDP) in 1991 to N\$ 2,016 million (6.6% of GDP) in 2002.⁹⁰ However, as Namibianization of the industry progresses, a reduction in the revenue due to tax incentives is expected.

88 Boyer and Oelofsen, supra, note 86, p.332; Richard Sherman estimates that fisheries contributes 35% of the GDP: Sherman, R. (2003). 'Briefing on national, regional and international fisheries and marine-related agreements'. Global Legislators Organisation for a Balanced Environment (GLOBE) Southern Africa. Available from <http://www.emg.org.za/Documents/FisheriesBriefing.doc>.

89 Namibia, Ministry of Fisheries and Marine Resources, supra, note 49, p.24.

90 Nichols, supra, note 39, p.327.

Table 5. State revenue from the marine fishing industry, 2000-2004 (N\$ thousands, current value)

Fee	2000	2001	2002	2003	2004
Quota fees	76,125	69,900	100,011	74,437	84,629
Marine Resources Fund levy	11,027	9,211	15,794	12,042	17,663
Bycatch fees	10,300	12,800	15,788	13,561	16,294
Licence fees	185	172	286	187	110
Total revenue	97,637	82,083	131,879	100,227	120,292

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*. Windhoek: Ministry of Fisheries and Marine Resources, p.23.

However, two fisheries experts state that the calculations of revenue from the harvesting of marine resources are ‘very unreliable’.⁹¹ They have identified a number of weaknesses in the calculation including the manual calculation of revenue at the factories by fisheries inspectors before it is entered in the database, cumbersome work routines when data is collected and registered, an inaccurate reconciliation process leading to an almost 100% reliance on industry figures, large backlogs in data entry, and software problems and inadequate training in the use of the database.⁹²

That said, the government realized at an early stage the actual and potential benefits that could be derived from the utilization, conservation, protection and promotion of marine resources. Hence, the tight control of the industry as part of its management regime. This is illustrated in the mission statement of the ministry responsible.

b) Exports and foreign exchange earnings

The marine fisheries sector is an important foreign exchange earner and has continuously been the second largest sector in the Namibian economy behind mining in terms of export earnings. A major export market for Namibia’s fisheries and marine resource production is the European Union (EU). According to the EU Market Survey (2002) for Fisheries Products, the EU

imported 99,410 tonnes of fish and fish products worth an estimated € 180 million.⁹³

c) Employment for Namibians

The fisheries sector is one of the major contributors in terms of employment and job creation. The Ministry of Fisheries and Marine Resources (MFMR) estimated total employment in the fishing sector to be around 15,000 persons in 2000.⁹⁴ Of this total, some 7,500 are employed on-board vessels, 65% of which are Namibians. Shore workers are nearly all Namibians.

d) Corporate social responsibility

One accomplishment worthy of commendation – and which most often goes unnoticed – is the regular voluntary contributions made by companies in the marine fisheries sector to several social development schemes throughout the country. The companies in the fishing industry have lent a helping hand and provided money and other forms of assistance to schools, clinics and other much-needed civic facilities. The contribution of the fishing industry to these noble causes has been, over the past 11 years, in excess of N\$ 33 million (approximately € 4.4 million). The newcomer companies also deserve special mention. Despite being new to fishing, altogether they have managed to contribute more than N\$ 11 million (approximately € 1.4 million).⁹⁵

91 Bergh, E. and Davies, S. ‘Against all odds: Taking control of the Namibian fisheries’. In: Sumaila et al., supra, note 24, 289-318, p.306.

92 Ibid.

93 FAO, supra, note 45.

94 Boyer and Oelofsen, supra, note 86, p.336; see also Namibia. Ministry of Finance. (2006). *Namibia Budget 2004/05-2006/07*. Windhoek: Ministry of Finance. Available from <http://www.mof.gov.na>.

95 FAO, supra, note 45.

e) Growth of landed vessels and catch year on year

The healthy state of the Namibian fisheries sector is further evidenced by the growth of landed vessels and the annual catch. The value of all landings has risen from US\$ 156.25 million in 1996 to US\$ 286 million in 2001.⁹⁶ The value of exports has risen from US\$ 181.4 million in 1996 to US\$ 354 million in 2001. There are estimates that the revenue generated by recreational fishing is in excess of US\$ 3.75 million per year.

f) Number of species landed

More than 20 commercially important species are landed. During 2000, a total of 309 vessels were licensed to fish in Namibian waters, 80% of which were Namibian flagship vessels with multiple licences allowing them to target more than one species.⁹⁷ Foreign flag vessels can only operate with a local right holder and all fish caught by such vessels must be landed in Namibia, at either Walvis Bay or Lüderitz, and counted against the local right-holder's quota species.

Table 6. Main commercial species harvested, 2000–2004 (in tonnes)

Species	2000	2001	2002	2003	2004
Pilchard	25,388	10,763	4,160	22,255	28,605
Hake	171,397	173,277	154,588	189,305	173,902
Horse mackerel	344,314	315,245	359,183	360,447	310,405
Monkfish	14,358	12,390	15,174	13,135	8,961
Kingklip	3,922	6,607	7,210	6,603	7,067
Tuna	2,401	3,198	2,837	3,371	3,581
Crab	2,700	2,343	2,471	2,092	2,400
Rock lobster	365	365	361	269	214
Other fish species	22,987	30,810	77,407	33,644	31,997
Total fish harvest	588,404	554,998	623,391	631,121	567,133
Seals (numbers)*	41,753	44,223	34,000	34,000	31,971
Seaweed	829	800	288	288	n/a

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*.

Windhoek: Ministry of Fisheries and Marine Resources, p.22.

Note: Other fish species are Orange roughly, Alfonsino, Anchovy, sharks, sole, line-fish species, amongst others.

* Seals are in numbers, not tonnes.

5. Public perception of basic fisheries issues

a) Structure of the political debate

In a nutshell, fisheries issues may be classified into those concerning (a) the sustainability of fisheries, (b) fisheries economics and (c) fisheries management.

Different stakeholders take different positions on different fisheries issues. However, debates on basic fisheries issues tend to be argued out from three perspectives:

- (1) The government, as represented by the Ministry of Fisheries and Marine Resources and the Marine Resources Advisory Council (MRAC);
- (2) The economic players in the fishing industry; and
- (3) The general public whose views are generally reported in the media.

96 Ibid.

97 Ibid.

Issues are perceived differently depending on the perspective assumed, but, generally speaking, the general public does not have a great awareness of most of the issues identified below. As can be gathered from the media, issues perceived by the public include the allocation and use of fish quotas, and job losses and the closing down of some businesses in the fishing sector mainly due to adverse exchange rates and a low TAC. Whereas the TAC issue has also affected and elicited some reaction from the business community, most fisheries issues are technical and usually face only specialists in both the government and the business community, leaving most of the general public unaware of the developments in those areas.

b) The issues

Human resources

There are questions as to whether the training that Ministry officials get equips them sufficiently to perform their duties satisfactorily. Other concerns raised relate to the growing number of unemployed trainees of the Namibia Maritime and Fisheries Institute (NAMFI). There is also concern about the impact of the high prevalence of HIV/AIDS on the fisheries sector.⁹⁸ There are occasionally public debates over whether the government does (or does not) do enough to address these problems.

Fisheries management

As far as fisheries management is concerned, one basic issue has been whether the effectiveness of fisheries management is or should be measured in terms of biological sustainability (i.e., ensuring that fish stocks are not depleted) or in terms of economic and industrial growth (i.e., ensuring that contributions to GDP and businesses expand). In other words, how the government balances its interest in developing the fishing industry and the economy, with its interest in ensuring the recovery of fish stocks. Flowing from that basic issue are the need for the MFMR to consult with businesses in the fishing industry on a regular basis

and the influence these businesses have on the Ministry's policy-making functions.⁹⁹

The Minister of Fisheries and Marine Resources once said that a particular feature of Namibia's fisheries management is that it is based on rights and not on licences. This management system is not without its disadvantages¹⁰⁰ and has been the subject of criticism from fisheries experts.

Marine Resources Act

To date, only one major structural weakness has been identified in the practical working of the Marine Resources Act, 27 of 2000.¹⁰¹ It has been argued that the complexity of the Act has confounded compliance with its provisions,¹⁰² because some of them are not sufficiently clear either to MFMR officials or to the fishing companies.¹⁰³

Fish stocks

Namibia's fisheries management, despite being extremely conservative, has been deficient in areas where fish stocks are depleted or overfished. For instance, the sardine stocks are depleted as ever, while the recently developed Orange roughy fishery boomed and collapsed in a matter of four short years.¹⁰⁴ Moreover, some fisheries experts have called into question the accuracy and reliability of estimations of stocks and the resulting establishments of appropriate TACs.

Economy

Economic issues include the redistribution or reinvestment of revenues generated by fisheries, the strength of the Rand/Namibian dollar, fishing industry subsidies and the impact of the low TAC quota.

Firstly, Lange, a fisheries expert, claims that Namibia does not reinvest systematically the revenues (or resource rent) from fisheries in other forms of productive capital, thus missing an opportunity to build national wealth.

98 Nichols, *supra*, note 39, p.330.

99 Boyer and Oelofsen, *supra*, note 86, p.336. See chapter on institutional structures below.

100 Iyambo, A. (2000). *Managing fisheries with rights in Namibia: A Minister's perspective, use of property rights in fisheries management*. Fremantle, West Australia: Proceedings of the Fish Rights 99 Conference.

101 Bergh and Davies, *supra*, note 91, p.295.

102 *Ibid.*

103 Bergh claims that the complexity of the Act and the regulations made under it have confounded officials in the Ministry and the people who are supposed to comply with the law.

104 Sumaila et al., *supra*, note 24, pp.4 and 5.

Secondly, both the government and economic analysts say that the big export earners like mining and fishing have been the hardest hit by the continuing relative strength of the Rand/Namibian dollar against other major currencies used by Namibia's trading partners. The Namibian Ministry of Finance stated in its budget that Namibia's trade deficit worsened, largely due to the uncompetitive exchange rate.¹⁰⁵ In 2003 and 2004, the overall fiscal position deteriorated due to lower tax receipts from export-orientated industries, including the fishing industry, caused by the continuing strength of the domestic currency. Namibia's marine fisheries sector was badly affected by the strength of the Namibian dollar, resulting in reduced profitability and a number of companies closing down.

A further question relates to the manner in which the MFMR intends to protect the fishing companies trading in the local market against international competition, given that the government does not subsidize the fishing industry.

Finally, the low TAC quota has raised much heated debate. The fishing industry complains that it was not consulted when the Ministry set the TAC and also claims that Namibia is losing markets because fish exporters in Namibia cannot deliver due to the 'devastating' fish quotas.

Product quality and standards in trade

Quality control in food industries is a critical fisheries issue. As consumer awareness regarding fish quality increases, it becomes essential that Namibian fish products meet the highest standards. Plentiful harvests of fish are worthless if consumers are not willing to buy. The MFMR is currently working toward maintaining the clean waters of Namibia, and ensuring that fish processing methods match the best possible.¹⁰⁶ This will make sure that the demand for fisheries products from Namibian waters remains competitive even amongst the fussiest consumers in the developed world. Currently, most of the big markets are setting standards for goods imported from other parts to ensure

the quality of the product received by its consumers. Otherwise, it is of no use to them.

Questions as to the existence or absence of relevant structures are being asked among trade experts, especially structures relating to standardization, accreditation, certification, testing, inspections and metrology, to ensure that the quality of Namibian fish products meet the technical regulations of importing countries.

Environment

There is a general perception, especially from the scientific community, that climatic fluctuations may adversely affect the biological functioning of the Benguela marine ecosystem. The major implication of this is that efficient and effective fisheries management is the function of an extensive understanding of the dynamics of the Benguela ecosystem. The climatic conditions that determine prevailing winds, ocean currents, water temperature and fish stock distribution vary with temporary changes in the earth's atmosphere. As a result, the maximum sustainable yields of fish stocks fluctuate from one season to the other. Various environmental conditions, which are difficult to predict could increase response to atmospheric changes linked to global warming. There is great concern over the state of Namibia's environment. Many experts predict significant long-term environmental changes due to phenomena such as global warming and acid rain.¹⁰⁷

Empowerment

One of the strategies to develop the fishing industry in a sustainable manner consists in 'empowering', or benefiting the historically disadvantaged Namibians. However, the implementation of empowerment in practice leaves much to be desired. The general public perception is that fisheries benefits mostly benefit the economically well-off businesses in the fishing industry and much less the previously disadvantaged Namibians.¹⁰⁸ The public and the government have both realized that the distribution of fisheries benefits is still problematic, even though the Namibianization

105 Namibia, Ministry of Finance, *supra*, note 94.

106 Namibia. Ministry of Fisheries and Marine Resources. (2006). Windhoek: Ministry of Fisheries and Marine Resources. March 2006. Available from <http://www.mfmr.gov.na>.

107 Sumaila et al., *supra*, note 24, pp.4 and 5.

108 See Kaure, A.T. (2006). 'Living in a parasites' paradise'. *The Namibian* 7 July. Also available from: <http://www.namibian.com.na/>.

programme of the government is helping to deal with the problem.¹⁰⁹

The problem is that whilst it is true that a great number of Namibians have received fisheries benefits through amongst others the Namibianization policy, there is a suggestion and some evidence that the major beneficiaries are the already well off economic players in the fishing industry and not so much the neediest or previously disadvantaged Namibians. For instance, in 1998 one Namibian labour expert stated that fishing quotas tend to benefit a few individuals and not the disadvantaged communities as a whole.¹¹⁰ He claimed that the criteria for obtaining quotas have effectively favoured business people, while community-based organizations have been unable to benefit.¹¹¹

Monitoring, Control and Surveillance (MCS)

The present Monitoring, Control and Surveillance (MCS) system has generally been very successful and is performing well. However, some experts have suggested that there are certain areas where improvements on the MCS system are much needed. Some fisheries expert have suggested a three-pronged solution,¹¹² namely:

- (i) setting realistic compliance levels to guide MCS development and operational planning;
- (ii) improving the efficiency and effectiveness of MCS operational platforms; and

(iii) facing up to future financial implications.

Point (iii) alludes to the financial implications of changes in the fiscal framework of the MFMR and the organization of MCS. These are usually the result of fluctuations in fish stocks, capital repayment and running costs, changes in market demands, global political or social events or changes in the priorities of the Namibian government, to name just a few.¹¹³ Whatever is the driving force, the result may bring higher landings and a greater demand on the present resources, or lower landings and a reduction in revenue and consequently in the funds available for MCS operations.¹¹⁴ Optimal management of these new resources is vital if they are going to be cost-effective investments.

Compliance

In matters of compliance, one important concern relates to the presence of foreign vessels entering illegally into Namibian waters and the reasons therefore this. Another concern relates to the speed of the decision-making process in response to serious violations of fisheries law and regulations. Reduced catches in many other important fisheries of the world, combined with growing demand for high-quality fish products, is expected to increase the risk of illegal, unreported and unregulated (IUU) fishing. Consequently, the effectiveness of the MFMR's MCS system will become ever more important.

II. The legal regimes governing fisheries

1. Global and regional international legal instruments affecting Namibia

Article 144 of the Namibia's Constitution¹¹⁵ stipulates that the general rules of public international law and international agreements binding upon Namibia form part of the law of Namibia. More particularly, the Minister of the MFMR is empowered by the Marine

Resources Act to make regulations necessary or expedient for the carrying out and giving effect to the provisions of international fisheries agreements or any amendment thereof.¹¹⁶ The Minister must publish in the national *Gazette* the texts of all conservation and

109 Sumaila et al., supra, note 24, p.4.

110 Jauch, H.M. (1998). *Affirmative action in Namibia: Redressing the imbalances of the past?*, p.147. Windhoek: New Namibia Books (Pty) Ltd.

111 Ibid.

112 See Bergh and Davies, supra, note 91, p.312ff.

113 Ibid.

114 Ibid.

115 Act 1 of 1990.

116 Section 37(1).

management measures adopted under any international fisheries agreement to which Namibia is a party, and any measure published must be deemed to be regulation by the Minister in terms of the Marine Resources Act.¹¹⁷

By virtue of Article 144 of the Namibian Constitution, all principles of customary international law, including international environmental law, are applicable to Namibia. These principles of customary international law include the sovereignty over natural resources, the responsibility for environmental damage, the principle of preventive action, good neighbourliness and international co-operation, sustainable development, the precautionary principle,¹¹⁸ the polluter-pays principle, and the principle of common, but differentiated responsibility.¹¹⁹

Namibia is party to a number of treaties and conventions related to marine fisheries. These are as follows:

a) *United Nations Convention on the Law of the Sea (UNCLOS), 1982*

Namibia signed this convention on 10 December 1982 and ratified it in 1983. The convention came into effect in 1994. As Namibia was not yet independent when it signed and ratified the convention, it was represented by the United Nations Council for Namibia as stipulated in Article 305, Paragraph 1 (b) of the Convention.

b) *Agreement relating to the Implementation of Part XI of the United Nations Convention on the Law of the Sea of 10 December 1982, 1994*

Namibia signed this agreement on 29 July 1994 and it acceded to it by means of the simplified procedure set out in Articles 4 (3) (c) and 5 on 16 November 1994. The agreement became effective on 28 July 1996.¹²⁰

c) *UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks (UNFSA), 1995*¹²¹

Namibia signed this agreement on 19 April 1996 and it was ratified on 8 April 1998 under Proclamation 10 of 1998, Government Gazette No. 1862. The agreement came into force on 11 December 2003.

d) *Convention on the Conservation and Management of Fishery Resources in the South East Atlantic Ocean, 2001*¹²²

The South East Atlantic Fisheries Organization (SEAFO) was established to protect valuable fish stocks which are straddling member States' EEZs and the high seas, and is based on the Convention **on the Conservation and Management of Fisheries Resources in the South East Atlantic Ocean** (SEAFO Convention). The Convention Area includes the EEZs of all the coastal states in the region. Economically important SEAFO fish species in the Convention Area include sedentary, discrete and straddling species such as Alfonsino, Orange roughy, Oreo dories, armourheads, sharks, Deepwater hake and Red crab. The inclusion of discrete high-seas stocks takes the SEAFO Convention beyond the scope of the UNFSA. The SEAFO Convention is the first to create a regional management organization after the adoption of UNFSA. The **Convention** was signed in April 2001 in Windhoek by Angola, the European Community, Iceland, Namibia, Norway, Republic of Korea, South Africa, United Kingdom on behalf of St Helena and its dependencies of Tristan da Cunha and Ascension Islands, and the United States of America. It entered into force in April 2003 after the deposit of instruments of ratification by Namibia and Norway, and approval by the European Community as required under Article 27 of the **Convention**. States that have participated in the negotiations but have not signed the Convention are Japan, the Russian Federation and Ukraine.

117 Section 37(2).

118 Although the binding nature of the principle of sustainable development and the precautionary principle is still uncertain, the principle of sustainable development is binding in Namibia to the extent that it is provided for in Article 95(l) of the Namibian Constitution, in Namibia's Marine Resource Policy (2004), and in the provisions of the Marine Resources Act.

119 Sands, P. (1995). *Principles of international environmental law. Volume I: Frameworks, standards and implementation*, p.181ff. Manchester: Manchester University Press.

120 Available from <http://www.lac.org.com.na>.

121 Summary available from <http://www.oceanlaw.net/texts/summaries/seafo.htm>.

122 Summary available from <http://www.oceanlaw.net/texts/summaries/seafo.htm>. See also <http://www.seafo.org/welcome.htm>.

After signing in 2001, the MFMR in Namibia acted as an interim Secretariat. In March 2005, the permanent Secretariat was opened in Walvis Bay, Namibia.

SEAFO comprises the Commission, the Scientific Committee and the Compliance Committee as subsidiary bodies and the Secretariat. The Compliance Committee has yet to be formalized. The Commission has the power to take measures such as determining the quantity of any species which may be caught, the areas and periods in which fishing may occur, the size and sex of any species which may be taken, the fishing gear and technology which may be used, the level of fishing effort, including vessel numbers, types and sizes, which may be used, and the designation of regions and sub-regions. The Scientific Committee provides scientific advice on the status of resources and on harvesting levels, taking into consideration, among others, the ecosystem approach¹²³ and the precautionary principle.¹²⁴ The Commission decides by consensus. Decisions become binding on those parties which do not opt out within a specified term.¹²⁵

e) SADC Protocol on Fisheries, 2001

The Southern African Development Community (SADC) has been in existence since 1980. It was formed as a loose alliance of nine States in southern Africa known as the Southern African Development Coordination Conference (SADCC) and was in 1992 transformed into a Development Community.¹²⁶ The Member States today are Angola, Botswana, the Democratic Republic of Congo, Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe.¹²⁷

In its framework the SADC Fisheries Protocol was ratified by Namibia on 21 June 2002. Its scope straddles three great oceans: the Atlantic, the Indian and the Southern Ocean.¹²⁸ The Protocol entered into force on 8 August 2003.¹²⁹ The coastline extends from Angola on the west (Atlantic) coast to Tanzania on the east (Indian Ocean) coast.¹³⁰ The coast is rich in fish, seafood, mangroves and coral reefs, as well as oil, diamonds and other mineral deposits.¹³¹ The region has a total of eight coastal States: Angola, Democratic Republic of Congo, Mauritius, Mozambique, Namibia, Seychelles, South Africa and Tanzania.¹³² The EEZ of these countries is approximately five million km², and in most instances the living marine resources of the SADC waters are shared between two or more countries.¹³³

Application of the Protocol

The Protocol – which generally applies to fishing by nationals of State parties and related activities – also applies to living aquatic resources and aquatic ecosystems within the jurisdiction of a State Party, and outside the areas under their jurisdiction, or high-seas resources.¹³⁴

Aims and objectives of the Protocol

The aims and objectives of the Protocol are to promote responsible and sustainable use of the living aquatic resources and aquatic ecosystems of interest to State Parties in order to promote and enhance food security and human health, safeguard the livelihood of fishing communities, generate economic opportunities for nationals in the region, ensure that future generations benefit from these renewable resources, and alleviate poverty with the ultimate objective of its eradication.¹³⁵

123 Article 3, Convention on the Conservation and Management of Fisheries Resources in the South East Atlantic Ocean.

124 Article 7.

125 Articles 17 and 23.

126 Southern Africa Development Community (SADC). 'SADC profile'. July 2006. Available from: <http://www.sadc.int/>

127 Ibid.

128 Sherman, *supra*, note 88.

129 Information about signing, ratification and date of coming into force was obtained from <http://www.lac.org.com.na>.

130 Ibid.

131 Ibid.

132 Ibid.

133 Ibid.

134 Article 2, SADC Fisheries Protocol.

135 Article 3.

The guiding principles of the Protocol are set out in Article 4 as follows: to endeavour and to ensure the participation of all stakeholders in the promotion of the objective of this Protocol; to take appropriate measures to regulate the use of living aquatic resources and protect the resources against overexploitation, whilst creating an enabling environment and building capacity for the sustainable use of the resources; and to promote gender equality and address any potential inequalities.

Substantive provisions of the Protocol

State parties have five responsibilities,¹³⁶ starting with the responsibility for taking measures, at national and international levels, suitable for the harmonization of laws, policies, plans and programmes on fisheries aimed at promoting the objective of the Protocol. Secondly, it also calls on them to adopt measures to ensure that their nationals and juridical persons act in a responsible manner in the use of living aquatic resources in areas within and beyond the limits of national jurisdiction. Thirdly, with regard to authorizing the use of vessels flying under their flags for fishing in the region's waters, the Protocol states that this should only be granted where a Party is able to exercise effectively its responsibilities under the Protocol. Fourthly, it requests Parties to ensure that vessels or nationals fishing in waters covered by the Protocol take appropriate steps to ensure that they comply with measures adopted under the Protocol, and that they do not engage in any activity that undermines the effectiveness of such measures. Finally, it requests Parties to ensure that aquatic living resources in the areas under their national jurisdiction are not endangered by overexploitation.

In relation to the management of high-seas fishing resources, the Protocol urges Parties to recognize that all States have the right for their nationals to engage in fishing on the high seas, to work towards effective management of high-seas living aquatic resources,¹³⁷ to protect the aquatic environment,¹³⁸ to collaborate

in the establishment of common positions and policies with regards to the effective management of high-seas living aquatic resources, and to support the activities of international organizations which conserve and manage living aquatic resources on the high seas.¹³⁹

Under trade and investment, the Protocol calls on Parties to promote sustainable trade and investment in fisheries and related goods and services by reducing barriers to trade and investment; facilitating business contacts and exchange of information; and establishing basic infrastructure for the fisheries sector.¹⁴⁰ The Protocol further calls on parties to create favourable economic conditions to support sustainable fishing and processing activities in order to promote regional food security and fisheries development. With regard to the establishment of joint ventures, the Protocol urges Parties to give special consideration to ensuring sustainability of living aquatic resources and preventing overfishing and excess fishing capacity; promoting regional food security; promoting trade in fish products in the region; promoting value-added processing; establishing a favourable cross-border investment regime; and ensuring that nationals and their vessels comply with applicable domestic and international laws.¹⁴¹

As far as institutional arrangements are concerned, parties are urged to establish a national committee to oversee the implementation of the Protocol.¹⁴² Other articles in the Protocol address international relations, management of shared resources, law enforcement, access agreements, aquaculture, human resources development, science and technology, information exchange, and financial provisions.¹⁴³

f) International Commission for the Conservation of Atlantic Tunas (ICCAT)

The International Commission for the Conservation of Atlantic Tunas is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and

136 Article 5 read with Article 8, which deals specifically with the harmonization of legislation.

137 Article 11.

138 Article 14.

139 Article 11.

140 Article 16.

141 Article 16.

142 Article 19.

143 For more information on the SADC Protocol and its Sector Coordinating Unit. see: <http://www.schoemans.com.na/sadc/>.

adjacent seas.¹⁴⁴ The organization was established in 1969 at a Conference of Plenipotentiaries, which prepared and adopted the International Convention for the Conservation of Atlantic Tunas. It was signed in Rio de Janeiro, Brazil, in 1966.¹⁴⁵

About 30 species are of direct concern to ICCAT, including Atlantic bluefin, Skipjack, Yellowfin, Albacore and Bigeye tuna; swordfish; billfish; Blue marlin; and sailfish.¹⁴⁶

Through the Convention, it is established that ICCAT is the only fisheries organization that can undertake the range of work required for the study and management of tunas and tuna-like fishes in the Atlantic.¹⁴⁷ Such studies include research on biometry, ecology, and oceanography, with a principal focus on the effects of fishing on stock abundance.¹⁴⁸ The Commission's work requires the collection and analysis of statistical information relative to current conditions and trends of the fishery resources in the Convention area. The Commission also undertakes work in the compilation of data for other fish species that are caught during tuna fishing (bycatch, principally sharks) in the Convention area which are not investigated by another international fisheries organization.¹⁴⁹

g) *Convention on the Conservation of Antarctic Marine Living Resources, 1980*

Namibia acceded to this convention on 29 January 2000. It entered into force on 7 April 1982. The main objective of this convention is to ensure the conservation, including rational use of, Antarctic marine living resources. It is based on certain principles of conservation, including: a) prevention of decrease in the size of any harvested population to levels below those which ensure its stable recruitment. For this purpose, its size should not be allowed to fall below a level close to that which ensures the greatest net annual increment; b) maintenance of the ecological

relationships between harvested, dependent and related populations of Antarctic marine living resources and the restoration of depleted populations to the levels defined in a) above. The convention covers all Antarctic marine living resources in the Antarctic area, namely the populations of fin fish, molluscs, crustaceans and all other species of all living organisms, including birds, south of the Antarctic convergence.

The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR), established under Articles VII-IX of the Convention, gives effect to the Convention's objectives and principles set out in Article II.¹⁵⁰ In balancing the conservation of Antarctic marine living resources and their rational use, the Commission has led other organizations in the development of an ecosystem approach to managing such resources.¹⁵¹ Based mainly on the advice from its Scientific Committee, the Commission is empowered to take measures such as the designation of the quantity of any species which may be harvested in the area to which the Convention applies, the designation of regions and sub-regions based on the distribution of populations of Antarctic marine living resources, the designation of the quantity which may be harvested from the populations of regions and sub-regions, the designation of protected species, the designation of the size, age and, as appropriate, sex of species which may be harvested, the designation of open and closed seasons for harvesting, the designation of the opening and closing of areas, regions or sub-regions for purposes of scientific study or conservation, including special areas for protection and scientific study, regulation of the effort employed and methods of harvesting, including fishing gear, with a view, *inter alia*, to avoiding undue concentration of harvesting in any region or sub-region, the taking of such other conservation measures as the Commission considers necessary for the fulfilment of the objective of the Convention, including measures

144 International Commission for the Conservation of Atlantic Tunas (ICCAT). 'About ICCAT'. July 2006. Available from: <http://www.iccat.es/>.

145 Ibid.

146 Ibid.

147 Ibid.

148 Ibid.

149 Ibid.

150 International Convention Commission established by the Convention on Conservation of Antarctic Marine Living Resources (CCAMLR). 'Commission introduction'. July 2006. Available from: <http://www.ccamlr.org/>.

151 Ibid.

concerning the effects of harvesting and associated activities on components of the marine ecosystem other than the harvested populations.¹⁵² The Commission

decides on substantive matters by consensus. Its decisions become binding on those parties which do not opt out within a specified term.

2. Overview of domestic legislation

The Constitution of Namibia, the first constitution in the world to provide for the protection of the environment,¹⁵³ stipulates in Article 95(l):

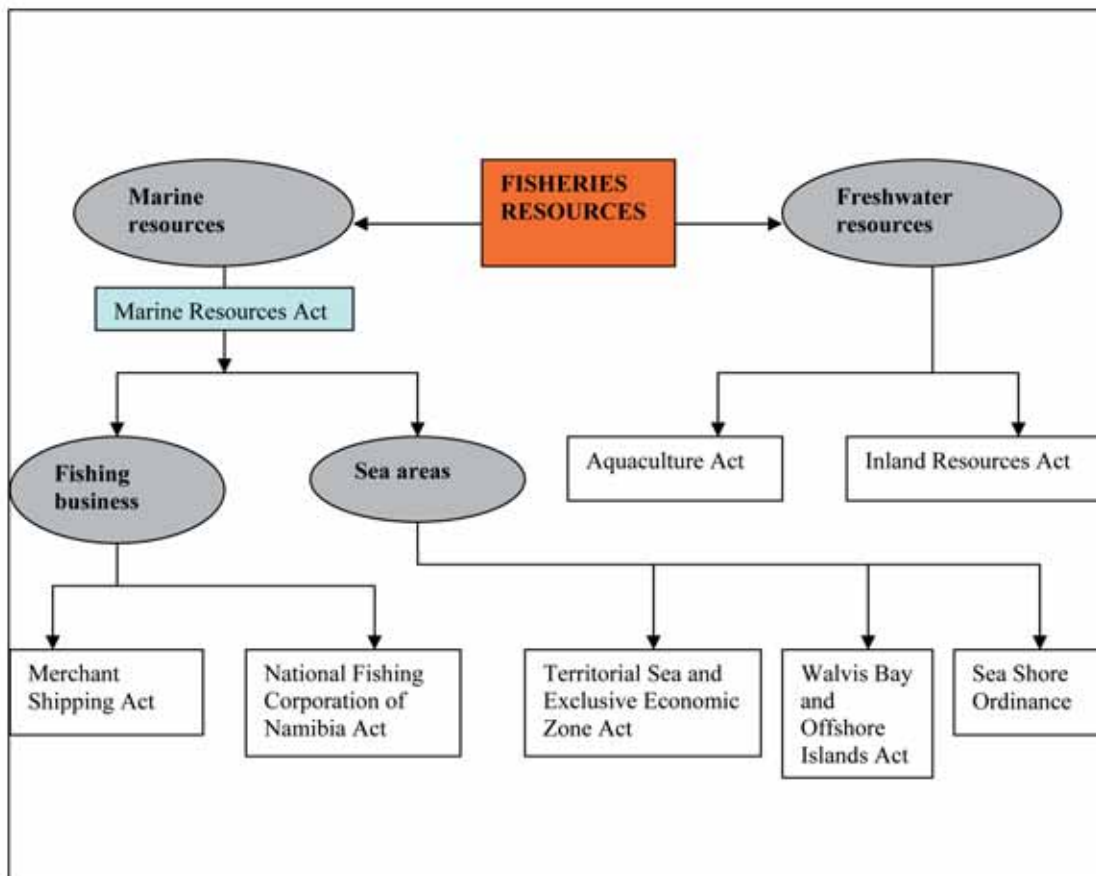
*The State shall actively promote and maintain the welfare of the people by adopting, inter alia, policies aimed at the maintenance of ecosystems, essential ecological processes and biological diversity of Namibia and utilization of living natural resources on a sustainable basis for the benefit of all Namibians, both present and future; in particular, the Government shall provide measures against the dumping or recycling of foreign nuclear and toxic waste on Namibian territory.*¹⁵⁴

However, in terms of Article 101, Article 95(l) is not by itself legally enforceable by any Court, but nevertheless guides the Government in making and applying laws to give effect to Article 95(l). The courts are entitled to have regard to the Article 95(l) in interpreting any laws based on it, such the Marine Resources Act (MRA).

The major legal acts relevant for fisheries are presented in the attached diagram.

The diagram demonstrates the pivotal role that the Marine Resources Act plays in the legislative framework for fisheries management in Namibia. The

Figure 2. Overview of fisheries domestic legislation



152 Article IX.

153 CIA World Factbook, supra, note 85.

154 Emphasis added.

entire realm of marine resources is regulated by the MRA.

Fisheries resources may conveniently be grouped in two broad categories, namely inland, or freshwater, fisheries resources and offshore, or marine, fisheries resources. The principal pieces of legislation for freshwater fisheries resources are the Aquaculture Act 18 of 2002, and the Inland Fisheries Resources Act 1 of 2003. On the other hand, the principal piece of legislation for marine fisheries resources is the MRA 27 of 2000.

For the purposes of this report, we will confine further overview of fisheries domestic legislation to marine fisheries resources.

a) *Territorial Sea and Exclusive Economic Zone of Namibia Act 3 of 1990*

On becoming independent, Namibia demarcated distinct sea areas as required by international law. Act 3 of 1990 determines and defines the territorial sea, internal waters, exclusive economic zone and continental shelf of Namibia. Whilst the Sea Shore Ordinance 37 of 1998 determines the position of the high-water mark, the Walvis Bay and Offshore Islands Act squarely places the town and port of Walvis Bay and specified offshore islands under the jurisdictional reach of Namibia. Section 3(1) of the Marine Resources Act states that the southern and northern limits of the territorial sea and exclusive economic zone shall be as determined by the President by proclamation in the *Gazette*, which boundaries may be described in such proclamation with reference to a map compiled for that purpose.

Secondly, the Namibian parliament has also legislated on fisheries resources as a business activity. The Merchant Shipping Act 57 of 1951, as amended, provides for the licensing and registration of fishing vessels, except for foreign flag vessels. In addition, the National Fishing Corporation of Namibia Act 28 of 1991 has established the National Fishing Corporation of Namibia Ltd, which is a company formed with the object of exploiting marine resources, and promoting the establishment, development and efficiency of other businesses engaged in the fishing industry.

As it is central to the management of marine fisheries resources, the provisions of the MRA are now examined in greater detail.

b) *Marine Resources Act of 2000*

The Marine Resources Act, which entered into force on 1 August 2001, is the entry point to the vast complex of principles and rules that regulate, restrict and enable the exploitation of marine resources in Namibia. One drawback of such a relatively complex piece of legislation is that at times it is not fully understood by MFMR staff or fishers.¹⁵⁵ The Marine Resources Act repealed the Sea Fisheries Act¹⁵⁶ and the Sea Birds and Seals Protection Act,¹⁵⁷ and significantly improved on the previous legislation.¹⁵⁸ The Sea Fisheries Act was repealed as a result of some gaps observed and experienced, as the fishing industry matured and its dynamics altered over time.¹⁵⁹ The Marine Resources Act retained all the essential elements of the previous legislation including the conservation of marine resources on a sustainable basis.¹⁶⁰ The scope of the Marine Resources Act has been broadened and covers all marine biological resources, incorporates the

155 Bergh and Davies, *supra*, note 91, p.295. These authors also point out on the same page that, for instance, a lack of understanding by legal personnel of the potential gains made by illegal fishing resulted in very low fines for serious violations of the MRA, resulting in turn in high gains for the companies concerned.

156 Act 29 of 1992. Section 64(4) of the Marine Resources Act stipulates that any person, who at the commencement of the Marine Resources Act, is or was deemed to be the holder of a right of exploitation under the Sea Fisheries Act shall be deemed to have been granted a right under the Marine Resources Act valid until such date as is indicated in the right of exploitation.

157 Act 46 of 1973. Section 64(5) of the Marine Resources Act stipulates that any person, who at the commencement of the Marine Resources Act, is the holder of a permit under the Sea Birds and Seals Protection Act must be deemed to have been granted a right under the Marine Resources Act valid until such date as the Minister may determine.

158 Act 29 of 1992. See also Food and Agriculture Organization of the United Nations (FAO). (2001). *Fisheries enforcement: Related legal and institutional issues: National, sub-regional or regional perspectives*, p.17. Rome: Food and Agriculture Organization of the United Nations.

159 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.15.

160 *Ibid.*

161 Act 47 of 1973.

Seabirds and Seals Protection Act,¹⁶¹ and includes Namibia's involvement and participation in international and regional fisheries activities in order to ensure compatibility and consistency with international obligations, while ensuring that Namibia's interest in relevant areas is adequately represented and protected.¹⁶²

In enacting the MRA 27 of 2000, the intention of the Namibian parliament was to 'provide for the conservation of the marine ecosystem and the responsible utilization, conservation, protection and promotion of marine resources on a sustainable basis' and 'to provide for the exercise of control over marine resources'.¹⁶³ Section 1 of the Act defines the key terms, concepts and premises. 'Marine resources' means all marine organisms, including, but not limited to, plants, vertebrate and invertebrate animals, monerans, protists (including seaweeds), fungi and viruses, and also includes guano and anything naturally derived from or produced by such organisms.

Geographically, the Act applies to the management, protection and utilization of marine resources in Namibia and Namibian waters, that is, inland waters, the internal waters, the territorial sea, the exclusive economic zone, the seabed up to the high water mark, and private waters.

The Minister of Fisheries and Marine Resources is the main administrator of the Act and wields considerable powers in its administration.¹⁶⁴ Thus far, no structural weakness in the Act has been found by observers,¹⁶⁵ although the complexity of its provisions has adversely affected its implementation.¹⁶⁶ The most

important provision of the Act from a political, administrative and legal point of view is section 2 of the Act, which empowers the Minister to determine from time to time the general policy with regards to the conservation and utilization of marine resources in order to realize the greatest benefit for all Namibians both present and future. Sections 32-42 provide the Minister with extensive powers of rule making and adjudication in order to implement such policies.

Section 45(1) establishes the Marine Resources Fund and states that the previous Sea Fisheries Fund established under the repealed Sea Fisheries Act¹⁶⁷ shall continue to exist under the name Marine Resources Fund, into which shall be paid moneys collected from levies, moneys appropriated by the Namibian parliament, interest on investments, moneys which may accrue from any other source, and interest on late payments. The fund is administered by the Permanent Secretary,¹⁶⁸ but the Minister is obliged to use the moneys available in the fund to defray the expenses of research, development, training and education relating to marine resources.¹⁶⁹ The Minister, on the other hand, may, from moneys available in the fund, arrange for the undertaking of research, development, training and education relating to marine resources by any competent institution of the State or any person.¹⁷⁰

Section 46(1) establishes the Fisheries Observer Fund which is nourished from the same resources as the Marine Resources Fund. and also administered by the Permanent Secretary.¹⁷¹ The Minister is obliged to use the moneys available in the fund to finance the activities of the Fisheries Observer Agency.¹⁷²

162 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.15.

163 Long title of the Marine Resources Act.

164 The Minister is however entitled to delegate some of his powers, except his power to make regulations and subject to conditions as the Minister may determine, to any staff member of the MFMR or to any person employed by a local authority: Section 63.

165 FAO, *supra*, note 158, p.20.

166 Bergh and Davies, *supra*, note 91, p.295.

167 Section 23, Sea Fisheries Act, 29 of 1992.

168 Section 45(4) and section 45(5).

169 Section 45(5).

170 Section 45(3).

171 Section 46(3) and section 46(4).

172 Section 46(2).

3. Institutional and organizational structures

The MFMR consists at present of four directorates and one subdivision. It is responsible for two parastatals. The four directorates are:

- a) the Directorate of Resource Management (responsible for research activities);
- b) the Directorate of Operations (in charge of operations and administration);
- c) the Directorate of Policy, Planning and Economics (responsible for the development of the fisheries sector);¹⁷³ and
- d) the Directorate of Aquaculture (responsible for the development of aquaculture).¹⁷⁴

The MFMR subdivision is the SADC Sector Coordinating Unit, which is responsible for the development of the fisheries sector in the SADC region.

The two parastatals are:

- The National Fishing Corporation of Namibia Ltd (Fishcor), the government's fishing and fish-processing, and product value-adding group; and
- The Namibia Maritime and Fisheries Institute (NAMFI), the government's fisheries institution of learning and training.

Also of importance is the Marine Resources Advisory Council (MRAC).

The functions of the different parts of the Ministry are as follows:

a) Directorate of Resource Management

This directorate exists to provide the information and advice needed to manage the sustainable use and conservation of living aquatic resources. The main objectives of the directorate are to:

1. provide advice on the status of commercially important marine fish stocks and recommendation on their appropriate yield to enable total allowable catches (TAC) to be determined;
2. provide advice so that policy on harvesting activity and techniques can be formulated. The formulation of the policy is achieved by providing appropriate management measures in relation to species and fish size limitations, closed seasons, closed areas, and limitations on the types and effectiveness of fishing gear; and
3. provide advice on the inter-relationship of the environment and the impact this has on fish stocks.

Research development in the fisheries sector has involved, amongst others, using the services of expert consultants to assist government fisheries scientists.¹⁷⁵

In organizational structural terms, most of the primary research on fisheries resources is conducted by state-run research institutes, primarily the National Marine Information and Research Centre (NatMIRC) within the Directorate of Resource Management of the MFMR.¹⁷⁶ This research is largely funded by levies on commercial catches which are paid into the Marine Resources Fund.¹⁷⁷ In recent times research has also been supported by the use of commercial vessels to assist with resource surveys.¹⁷⁸

173 Added to the MFMR's structure in 1998.

174 Added to the MFMR's structure after 1998.

175 Government of the Republic of Namibia, *supra*, note 14, p. 161.

176 Boyer and Oelofsen, *supra*, note 86, p.337.

177 Read with section 44(3) of the Act, which empowers the Minister of Fisheries and Marine Resources to power to impose levies to be paid into the Marine Resources Fund.

178 Boyer and Oelofsen, *supra*, note 86, p.337. 'A Marine Resources Fund levy is imposed per tonne of landed catch to finance fisheries research and training initiatives': Nichols, *supra*, note 39, p.324.

The Marine Resources Act further establishes the Fisheries Observer Agency¹⁷⁹ whose functions¹⁸⁰ are (a) to enable fisheries observers to perform their tasks; (b) to provide appropriate expertise and facilities for training fisheries observers; and (c) to make fisheries observers available on a commercial basis to organizations outside Namibian waters pursuant to an agreement to which Namibia is party.

b) Directorate of Operations

This directorate is responsible for monitoring, control and surveillance (MCS). The MCS system is the regulatory component of fisheries management within the 200 nautical mile EEZ. The main objectives are to:

- Restrict fishing activity to those that are entitled;
- Ensure that fishing activity is conducted within legal and administrative guidelines with the assistance of the MCS system; and
- Ensure that revenue from landings is correctly calculated.

c) Directorate of Policy, Planning and Economics

The purpose of this directorate is to manage the development of the fisheries sector both nationally and internationally. The main objectives are to:

- Ensure that fisheries activity contributes to Namibia's socio-economic development goals;
- Create a conducive environment in which the fisheries sector can grow to its full potential; and
- Ensure that Namibia is properly represented internationally and that national fisheries interests are protected; administer fisheries legislation and regulations; manage the collection of fees generated by fishing activities; manage the collection and preparation of information and fisheries statistics.

d) Directorate of Aquaculture

This directorate's main responsibilities are to:¹⁸¹

- Ensure the responsible and sustainable development of aquaculture to achieve socio-economic benefits and environmental sustainability;
- Facilitate an efficient, coordinated administrative and institutional framework for aquaculture;
- Ensure that the genetic diversity and integrity of the aquatic ecosystem is maintained; and
- Promote responsible aquaculture production practices.

e) SADC Sector Coordinating Unit

The coordination of the SADC sector for marine fisheries and resources lies in the hands of Namibia, under the auspices of the MFMR. The MFMR established the unit to provide the region with leadership and guidance in the formulation, evaluation, management and implementation of specific policies, programmes and projects for the development of the sector.

f) Namibia Maritime and Fisheries Institute (NAMFI)

The NAMFI is a rapidly developing maritime training institution aiming to be the leading fisheries training institute in the SADC region. It provides quality training in the maritime and fisheries field regionally.

g) Marine Resources Advisory Council (MRAC)

Part V of the Marine Resources Act provides for the establishment, constitution and operation of the MRAC.¹⁸² The MRAC is appointed by the Minister in consultation with the fishing industry and comprises¹⁸³ five experts in matters relating to marine resources, one member of the MFMR, and five representatives of the fishing industry.¹⁸⁴ It is worth noting that these representatives are appointed for their expertise and experience in the industry (and not to

179 Section 8.

180 Section 9.

181 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.3.

182 Section 24, Marine Resources Act.

183 Section 25(2).

184 Section 25(1).

represent their own interests). The institutions represented therein are trade unions, the state conservation Ministry, financial institutions and the University of Namibia.¹⁸⁵ Environmental organizations are not represented in the Council.

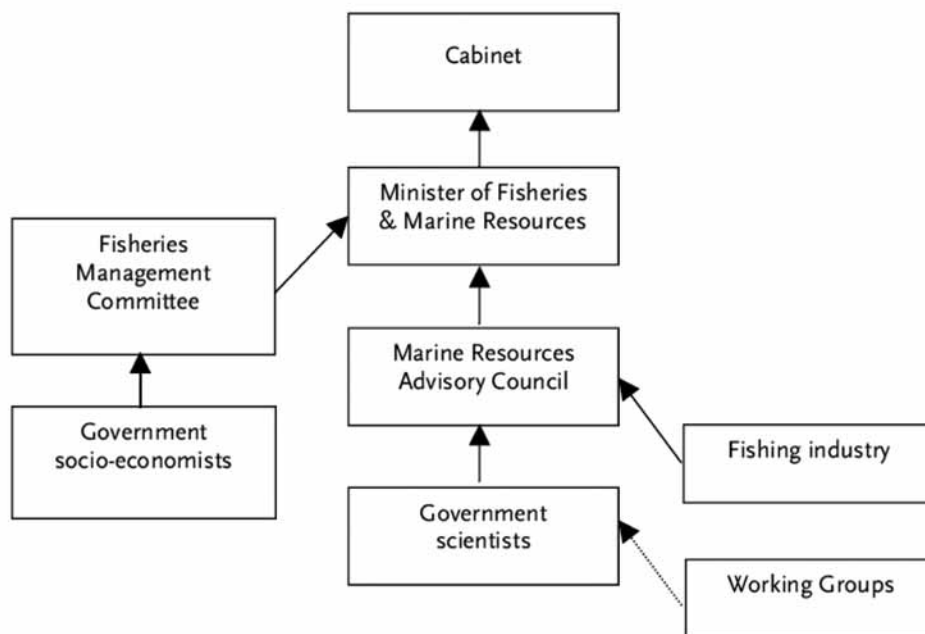
The function of the MRAC is to advise the Minister of Fisheries and Marine Resources on: (1) any matter on which the Minister is required to consult the MRAC under the MRA; and (2) any matter which the Minister refers to the MRAC for investigation and advice.¹⁸⁶ Scientific recommendations for harvesting of all major resources are presented to the MRAC, which in turn makes recommendations to the MFMR after considering socio-economic factors and the

industry's perception of the status of the resource.¹⁸⁷ The Minister, after consultation with the Ministerial Fisheries Management Committee and other senior managers within the MFMR (and often the scientists responsible for making recommendations), submits management recommendations to Cabinet for final endorsement.¹⁸⁸

The Act also contains provisions on MRAC committees,¹⁸⁹ and on the disqualification,¹⁹⁰ terms of office,¹⁹¹ vacation of office,¹⁹² meetings¹⁹³ and remuneration of MRAC members.¹⁹⁴

The creation of the MRAC symbolizes the government's firm commitment to work together with

Figure 3. The structural relationship of the MRAC with other state institutions or organs



Source: Boyer and Oelofsen, supra, note 86, p.337.

185 Boyer and Oelofsen, supra, note 86, p.337.
 186 Section 24.
 187 Boyer and Oelofsen, supra, note 86, p.337.
 188 Ibid.
 189 Section 30.
 190 Section 26.
 191 Section 27.
 192 Section 28.
 193 Section 29.
 194 Section 31.
 195 Boyer and Oelofsen, supra, note 86, p.338.

the fishing industry. This practice has been referred to as ‘co-management’, ‘cooperation’, or more frequently ‘consultation’. This is in stark contrast to the mid-1990s, when state and scientists were at loggerheads, with the former accused of being unduly confident and the latter of being overly cynical.¹⁹⁵ To date,

4. Instruments promoting fisheries

a) Structural policies

The Namibian fishing industry is in general not subsidized.¹⁹⁷ Government policy is to avoid creating tax breaks and market interventions that could encourage unsustainable fishing practices.¹⁹⁸ The government believes that subsidy policies pursued by other nations have caused over-capitalization, which has distorted trade unfairly and eventually led to illegal fishing and overfishing.¹⁹⁹ Namibia instead prefers a system of taxation, applied specifically through the quota fees. This was one of the main attractions of implementing a rights-based system.²⁰⁰ On the one hand, the application of a rights-based system has led to healthier stocks, improved compliance and an efficient industry that supports proper fisheries management and earns healthy profits.²⁰¹ On the other hand, limiting access to the resource and fishing mortality for each participant has provided a basis for extracting some of the profits.²⁰²

b) Market organization

Market organization of the kind found in the EU does not exist in Namibia. The reason is that, on the one hand, there is sufficient supply of fish for the Namibian market, and, on the other, the situation is not one of overproduction, but rather the problem of developing fishing capacity and effort.

Namibian fisheries are mostly exploited for export, targeting the major world markets. Fish consumption

working groups have been established for the Orange roughly, Hake, Monkfish, Horse mackerel and Rock lobster fisheries, while the other major fisheries (sardine, tuna, crab, recreational and subsistence fisheries) are involved in the management process in less formal ways.¹⁹⁶

in Namibia is minimal, making the Namibian market completely insignificant.²⁰³

The process of marketing fish involves three main actors: (i) the government, (ii) the Confederation of Fishing Associations and (iii) companies.

(i) Government

The Namibian government plays an active role in the setting of standards and mechanisms for fisheries in the fish market. The Ministry of Trade and Industry is responsible for establishing the necessary business environment for marketing Namibian products on the international market and therefore plays a key role in adapting Namibia to the new international trade regime. The Directorate of International Trade in the Ministry of Trade and Industry is the national focal point for Namibia’s trade and external trade relations. Its main activities are geared towards the formulation and management of Namibia’s foreign trade policy, and towards increasing the country’s exports through trade promotion.

The Directorate oversees Namibia’s membership of regional and international trade bodies; assists and facilitates the participation of Namibian companies in trade fairs, exhibitions and trade missions; coordinates import and export procedures; and provides information on trade-related issues.

196 Ibid.

197 Ibid.

198 Government of the Republic of Namibia, *supra*, note 14, p.159.

199 Nichols, *supra*, note 39, pp.324 and 325.

200 Nichols, *supra*, note 39, p.325.

201 Ibid.

202 Ibid.

203 See fieldnote 2.

204 See fieldnote 2.

The ministry therefore emphasizes the importance of continuing the work of developing the Namibian Quality Infrastructure. Namibia benefits from bilateral and multilateral market access agreements entered into between Namibia and its counterparts in Africa, the Americas and the European Union. Namibia is considered the child of the international trade world and its products are generally well received on most major markets.²⁰⁴ Namibian Hake is sold in Europe, Orange roughy in the USA, tuna and Rock lobster in Japan, Horse mackerel in West Africa etc.

In an attempt to boost domestic consumption of Namibian fish and fish products, the government initiated the Namibia Fish Consumption Promotion Trust with technical assistance from the Government of Japan. The main objective was to try and improve the consumption of fish throughout the country.

(ii) Confederation of Fishing Associations

In Namibia the fishing industry is divided into several sectors. Each sector targets different species. These species are, of course, harvested, processed and marketed in different ways. For this reason each sector

5. Instruments of fisheries management

Namibia has a fisheries management system that incorporates many of the accepted best practices as outlined in the major international fisheries conventions.²⁰⁷ Its legal basis initially was the Sea Fisheries Act of 1992 and is now the Marine Resources Act of 2000. The government has powers to direct fisheries and trigger income from fisheries for its expenditures. These management tools are largely in line with the relevant international agreements.

a) Powers and practices to direct fisheries

The management tools used apply to all fisheries. There are no small vessels apart from those used for catching fish for private consumption, recreational purposes and the daily supply of local restaurants. Most of these

has an association, which is a voluntary association of members who have concessions in the given sector. These associations are not legal entities and do not have any powers of enforcement.²⁰⁵ These associations are facilitating bodies aimed at presenting a coordinated single voice.

The sectoral associations come together as the Confederation of Fishing Associations. This association is the main representative of the entire industry. The confederation is tasked with the protection of the interests of the fishing industry.

(iii) Companies

Apart from the governmental efforts mentioned above, the primary task of ensuring markets for fish produce lies with the fish companies.²⁰⁶ Companies have on numerous occasions exhibited their produce on foreign trade fairs, exhibitions and trade missions. They have taken the government's initiative seriously and, in an effort to support local fish consumption, have sponsored the drive to make fish available in rural areas by reducing the price to local consumers.

vessels are mid-water trawlers²⁰⁸ which are a sub-industry within the fisheries industry.

(i) Management measures

The Act outlines the procedures for applying for fishing rights and allocating fishing quotas. It sets out the procedures and criteria for licensing fishing vessels and controlling fishing efforts. The Act empowers the Minister to take the necessary management measures, including setting TACs, limiting fishing effort, fishing-gear specifications, protection of juvenile fish through management measures such as a minimum allowable mesh size, grid selectivity device, minimum fish sizes to be landed, restrictions on bycatch, closure of areas and fishing seasons and transboundary activities.

205 See fieldnote 1.

206 See fieldnote 5.

207 Sumaila et al., *supra*, note 24. Examples of these practices are given in our discussion of the Marine Resources Act in II. 2 above.

208 This conclusion is based on the findings from interviews carried out amongst the stakeholders.

The management measures which may be imposed by the Minister according to Section 47 – apart from prohibiting the use of explosives, poisons or noxious substance to kill or disable any marine animal, and the ban on using driftnets²⁰⁹ – include specifying: (a) the place and time of harvesting operations; (b) the characteristics and quantity of harvestable marine resources; (c) the methods and gear that may be used; and measures to limit the amount of the harvesting capacity.²¹⁰ The measures or regulations adopted or made pursuant to Section 47 are protected by Section 52(4)(b), which imposes a fine not exceeding N\$ 500,000 on any person who contravenes Section 47.

Thirdly, the Act states that all fishing gear on board a vessel shall be dismantled or stowed when in Namibian waters,²¹¹ if the vessel does not have a licence to harvest marine resources or if the vessel has a licence but is in an unauthorized area.²¹² The Act punishes any departure from this provision with a fine not exceeding N\$ 500,000.²¹³

Fourthly, the Act prohibits transshipment and landing unless they are authorized by licence or ministerial authorization and are executed in accordance with the conditions of that licence or authorization,²¹⁴ or unless marine resources are transhipped between and landed in the territorial sea or internal waters of Namibia by vessels that are not fishing vessels.²¹⁵ Contravention of the prohibition on transshipment and landing constitutes a criminal offence, which is punishable on conviction with a fine not exceeding N\$ 1,000,000.²¹⁶

Finally, the Act confers upon the Minister – by notice in the *Gazette* describing the boundaries of any area of Namibian waters, state land and land subject to the jurisdiction of a traditional authority – the discretion to declare (or indeed to ‘undeclare’)²¹⁷ that area a marine reserve for the protection or regeneration of marine resources.²¹⁸ Prior to the declaration of a marine reserve, the Minister is obliged to consult with the interested persons, to establish management objectives and to specify the activities to be conducted within the reserve and such other requirements as may be appropriate for achieving such objectives.²¹⁹ These requirements may include specifying which marine resources may be harvested and which not, harvesting conditions, and conditions of access to the marine reserve.²²⁰ Any person who, without permission, dredges or extracts sand or gravel, pollutes, or constructs any structure, or in any way disturbs, alters or destroys the natural environment in a marine reserve is liable to a fine not exceeding N\$ 500,000.

In addition, the Minister may require a person harvesting marine resources from the fisheries to have observers aboard any fishing vessel²²¹ whilst the fisheries inspectors control the harvesting of marine resources, especially when the harvest is landed.²²² The inspectors are also tasked with the duty of patrolling the coastal zone and sea with patrol vessels. Regular surface aerial surveillance patrols are conducted.²²³ Allowable landed size and daily bag limits apply to recreational fishery and routine inspections are conducted to ensure compliance by recreational anglers.²²⁴ The different management measures are discussed below.

209 Section 47(1) and 47(2).

210 Section 47(3) read section 47(4).

211 Section 49(1).

212 Section 49(2). Section 52(4)(c) punishes with a fine not exceeding N\$ 500,000 any person who allows his or her vessel to be in any area which he or she is not authorized to harvest.

213 Section 52(3)(l).

214 Section 50(1)(a)-(c).

215 Section 50(2).

216 Section 52(3)(e).

217 Section 51(4).

218 Section 51(1).

219 Section 51(2).

220 Section 51(2)(a)-(c).

221 Section 7(2)(a), Marine Resources Act.

222 Section 5.

223 FAO, *supra*, note 45.

224 *Ibid*.

The prerequisites for the commercial harvesting of marine resources are provided for in Section 32, which generally states that no person shall, in Namibia or in Namibian waters, harvest any marine resource for commercial purposes, except under a right, an exploratory right or a fisheries agreement. Failure to comply with this general provision is an offence which is liable on conviction to a fine not exceeding N\$ 1,000,000.²²⁵

In the case of a marine resource which has been made subject to a quota, no person shall harvest such a resource for commercial purposes, except within the quota or permitted bycatch under a right, an exploratory right or a fisheries agreement.²²⁶

The Minister is empowered to suspend, cancel or reduce rights, quotas and licences.²²⁷ The conditions precedent to the suspension, cancellation or reduction of rights, quotas and licences, are that the holder of a right be it an exploratory right, a quota or a licence, must have furnished information which is untrue or incomplete in connection with his or her application; must have contravened or failed to comply with a provision of, or a condition imposed under, the Act; or must have been convicted of an offence under the Act.²²⁸

(ii) *Fishing rights*

It is a prerequisite under Namibian law that in order to harvest marine resources for commercial purposes, a person must hold a right.²²⁹ This right is allocated to a person according to the species they intend to harvest for commercial purposes. The Minister may by notice in the *Gazette* announce a period during which

applications may be made for rights to harvest fishing resources and the conditions on which such resources may be harvested.²³⁰ Fishing without the necessary right is an offence punishable by a fine of up to N\$ 1,000,000.²³¹

If the Minister has fixed a TAC quota for a fishery, the fishing right must be supplemented by an individual quota.²³² According to section 39 (2) the Minister “may, by written notice to the holders of a right for which quotas are allocated, determine the date by which applications for the allocations of such quotas may be received”. This seems to mean that right holders who were entitled to unlimited fishing lose this right and must apply for a quota.

Section 33(4) bears out the essentially political nature of the processing of applications for fishing rights by the Minister. In terms of that provision, when considering an application, the Minister may have regard to the following factors: (a) whether the applicant (or the company applying) is a Namibian citizen (or owned by Namibians);²³³ (b) the advancement of persons previously disadvantaged by discriminatory laws or practices before Namibian independence;²³⁴ (c) the ability of the applicant to exercise the right in a satisfactory manner;²³⁵ (d) regional development within Namibia;²³⁶ cooperation with other countries, especially those of the SADC;²³⁷ (e) whether the applicant has successfully performed under an exploratory right in respect of the resource applied for;²³⁸ (f) contribution of marine resources to food security;²³⁹ and (g) socio-economic concerns.²⁴⁰ In addition thereto, Section 33(6) stipulates that if at any time before the expiry of a right, the holder of that

225 Section 52(3)(a). In addition thereto, the Act punishes any violation of the conditions of a right, exploratory right, fisheries agreement, quota or licence: Section 52(4)(a).

226 Section 32(2) and Section 35(5). Contravention of section 32(2) is also a criminal offence, punishable with a fine not exceeding N\$ 1,000,000: Section 52(3)(b).

227 Section 41.

228 Section 41(1)(a)-(d).

229 Sections 32 and 33.

230 Sections 33(2) and 33(3).

231 Section 52 (3) (a).

232 Section 39 (1).

233 Section 33(4)(a)-(c).

234 Section 33(4)(e).

235 Section 33(4)(d).

236 Section 33(4)(f).

237 Section 33(4)(g).

238 Section 33(4)(i).

239 Section 33(4)(k).

240 Section 33(4)(j).

right has met the prescribed criteria that would have permitted a longer term at the time of granting the right, or no longer fulfils the prescribed criteria for the term that was granted, the Minister may vary the period of validity of the right to the period for which the holder qualifies, and when so varying the period, may also vary any condition attaching to the right or impose any additional condition.

Fishing rights, or rights of exploitation, are the central element of the fisheries management regime.²⁴¹ The main purpose of fishing rights is to limit entry to

the fisheries sector in order to protect the fisheries resources and to ensure the 'responsible utilization, conservation, protection and promotion of marine resources on a sustainable basis'.²⁴²

The duration of these rights, which can range from 7-20 years, depends on a number of criteria.²⁴³ The longer rights are issued to companies who, *inter alia*, are Namibian or majority-owned by Namibian citizens,²⁴⁴ employ Namibians, have a proven track record in the industry and have demonstrated a long-term commitment by investing in the fishing sector.²⁴⁵

Table 7. Number and duration of existing harvesting rights as of December 2004

Fishery	Duration of right					Total
	Four years	Seven years	Ten years	15 years	20 years	
Hake	0	10	6	22	0	38
Monkfish	0	2	2	5	0	9
Horse mackerel	0	0	11	1	0	12
Large pelagic	0	1	6	12	0	19
Red crab	0	1	2	0	0	3
Rock lobster	0	0	1	20	0	21
Line fish	1	1	2	8	0	12
Orange roughy	0	0	5	0	0	5
Pilchard	0	7	5	10	0	22
Mulletts	0	0	0	13	0	13
Seals	0	2	1	1	0	4
Guano	0	1	0	0	0	1
Total	1	25	41	92	0	159

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*. Windhoek: Ministry of Fisheries and Marine Resources, p.20.

(iii) Exploratory rights

An application is also necessary for exploratory rights,²⁴⁶ which the Minister may grant to no more than one person to harvest a marine resource in respect of which no right has been granted to another person so as to allow that person to explore the commercial viability and biological sustainability of that resource.²⁴⁷ The

central concepts here are the commercial viability and biological sustainability of the marine resource to be explored and in respect of which an exploratory right is granted. Exploratory rights can also be granted to harvest a resource for which a person has not been granted a right so as to allow that person to research the commercial viability of a harvesting method not

241 Nichols, *supra*, note 39, p.321.

242 Long title, Marine Resources Act. See also Paul Nichols. *op.cit.* (2004), p.321.

243 Nichols, *supra*, note 39, p.321.

244 Section 33(4)(a)-(c), Marine Resources Act.

245 Boyer and Oelofsen, *supra*, note 86, p.336.

246 Section 34(2).

247 Section 34(1)(a).

ordinarily used for the harvesting of that particular resource in Namibian waters.²⁴⁸ The Minister may approve the application, subject to such period and conditions as he or she may determine,²⁴⁹ and require any applicant to carry out an environmental impact assessment.²⁵⁰ Upon the expiry of an exploratory right, the Minister shall determine whether the resource or harvesting method is commercially viable and biologically sustainable, and if he or she determines that it is, no further exploratory right may be granted in respect of that resource or harvesting method.²⁵¹ If such viability or sustainability is unclear, the Minister may extend the exploratory right once only for a year; and if the lack of clarity is due to poor execution of the exploratory right, a further exploratory right may be granted to another applicant.²⁵² However, if before the expiry of the exploratory right it becomes clear that the resource or harvesting method is commercially viable and biologically sustainable, the Minister may terminate the exploratory right and announce a period during which applications for rights may be filed under Section 33(1) of the Marine Resources Act.²⁵³

(iv) Fishing agreements

The MRA confers on the President the power to enter into, and publish, a fisheries agreement with a member country of the SADC, providing for such country to harvest marine resources in Namibian waters²⁵⁴ and in respect of which the Minister may make such regulations as he or she may consider necessary or expedient for the carrying out and for giving effect to the provisions of any such agreement or any amendment of such agreement.²⁵⁵ Although the text of the law is not absolutely clear in this respect it can be interpreted to mean that only persons authorized by the contracting foreign state are entitled to fish in

Namibian waters, and that they have to apply for an individual quota which is based on the TAC determined by the agreement.²⁵⁶

(v) Vessel licences

In addition to the right to harvest marine resources the fisherman must obtain a licence for the vessel. The MRA provides that a holder of a right or a person who wishes to use a fishing vessel for commercial purposes within Namibia's EEZ or a person who wishes to use a Namibian flag vessel for harvesting any marine resource outside Namibian waters, shall apply for a licence to the Permanent Secretary of the MFMR.²⁵⁷ Thus, any vessel used in Namibian waters must be licensed no matter what flag they fly, while for vessels used outside Namibian waters a licence is only required for vessels flying the Namibian flag.

The Act creates an offence where any person who, being the owner, the lessee, the charterer or the master of a vessel uses the vessel without the required licence.²⁵⁸

The Minister may issue a licence in respect to that fishing vessel, subject to such conditions and valid for such period as the Minister may determine.²⁵⁹

However, the Minister may reject an application for a fishing vessel licence if he or she is convinced that: (a) the information furnished in the application is incorrect and incomplete;²⁶⁰ (b) the vessel in question is not intended for use as a fishing vessel; (c) the approval of the application will not be in the interest of that sector of the fishing industry; (d) the issue of the licence would be inconsistent with an international agreement to which Namibia is a party; or (e) the approval might threaten the biological sustainability

248 Section 34(1)(b).

249 Section 34(4).

250 Section 34(3).

251 Section 34(5).

252 Section 34(6).

253 Section 34(7).

254 Section 35 and 36.

255 Section 37.

256 Section 35 (2), read with section 39 (3).

257 Section 40(1).

258 Section 52(1) and section 52(2), read with section 32 and 40(1)-(2). On conviction such person is liable to a fine not exceeding N\$ 2,000,000.

259 Section 40(3).

260 If any change has occurred in the information submitted by a licensee or if the vessel for which a licence has been issued ceases to be used, the licensee shall within 21 days inform the MFMR Permanent Secretary of that fact: Section 40(5).

of a particular marine resource.²⁶¹ By implication²⁶² a licence will also be refused if the licensee does not hold a right, an exploratory right or an agreement to fish. Failure to possess a right and a quota for fishing a resource (provided a quota is required) even renders

the licence to use the vessel invalid.²⁶³

Licensing of vessels is a tool used to regulate the industry. A total of 334 vessels were licensed for commercial fishing in 2004.²⁶⁴

Table 8. Number of licensed vessels by fishery, 2000-2004

Fishery	2000	2001	2002	2003	2004
Small pelagic	30	26	25	20	16
Demersal trawlers	111	128	114	100	125
Long-liners	24	38	10	8	17
Mid-water	26	24	20	26	24
Deep-water	5	3	6	5	5
Large pelagic	56	68	71	49	73
Line-fish	26	22	26	19	16
Crab	2	2	2	3	2
Rock lobster	29	29	38	42	34
Monkfish			23	21	22
Total	309	340	335	279	334

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*. Windhoek: Ministry of Fisheries and Marine Resources, p.21.

(vi) Total allowable catches (TAC)

The setting of TACs is one of the main management measures by which to prevent overexploitation of Namibian fish stocks.²⁶⁵ TACs may be set for any marine resource in Namibia.²⁶⁶ They are presently set for seven species, namely Sardine, Hake, Horse mackerel, Red crab and Rock lobster, Orange roughy and Monkfish.²⁶⁷ When determining a TAC, the Minister must base his decision on the best scientific evidence available of the size and structure of stocks and invite the advice of the MRAC.²⁶⁸

Once a TAC has been set for a fishing season, it is distributed among the right-holders in each fishery in the form of individual quotas. The Minister may determine the date by which applications for quotas must be received and the conditions to which such quotas shall be subject.²⁶⁹ He may allocate quotas to individual holders of a right to harvest marine resources,²⁷⁰ and finally notify in writing the applicants of his or her decision on their respective applications.²⁷¹ The aggregate of quotas allocated in respect of any marine resource may not exceed the TAC set for that resource.²⁷²

261 Section 40(4).

262 Cf. section 40(1).

263 Section 40(2). This legal effect however appears to be too strict and impracticable.

264 Namibia, Ministry of Fisheries and Marine Resources, *supra*, note 49, p.21.

265 Nichols, *supra*, note 39, p.322.

266 Section 38(1).

267 Nichols. *supra*, note 39, p.322.

268 Section 38(2)

269 Section 39(3) and section 39(4).

270 Section 39(4).

271 Section 39(5).

272 Section 39(6).

Table 9. Total allowable catches set by fishery, 2000–2004

	Pilchard	Hake	Horse mackerel:		Red crab	Rock lobster	Orange roughy	Monk
			Mid water	Pelagic				
2000	25,000	194,000	410,000	50,000	2,000	350	2,400	n/a
2001	10,000	200,000	410,000	50,000	2,100	400	1,875	13, 000
2002	0	195,000	350,000	40,000	2,200	400	2,400	12, 000
2003	20,000	180,000	350,000	40,000	2,000	400	2,650	12,500
2004	25,000	195,000	350,000	40,000	2,200	420	2,600	12,000

Source: Namibia. Ministry of Fisheries and Marine Resources. (2005). *Annual report 2004*. Windhoek: Ministry of Fisheries and Marine Resources, p.21.

The setting of TACs has caused a lot of problems within the industry as the Minister slashed the TAC of certain fish species as a measure aimed at protecting fish stocks. The following case may highlight the practical problems arising in this regard. In 2006, tough new restrictions were announced.

The TAC for Hake was set below 130,000 tonnes for the 2006-2007 season and it was not to be revised unless the average size of the Hake improved. This meant a reduction of the TAC by 50,000 tonnes from the original 180,000 tonnes for the previous season. This was necessitated by the fact that too many juveniles were being caught and scientists reported no well defined Hake nurseries. Further, the Minister announced that a trawling ban from the previous season was to remain and also introduced a two-month closed season in September and October every year. In addition, a new regulation was implemented that required fishers who caught Hake that were smaller than 36 cm in length to stop fishing and move at least 10 nautical miles away from the area they were fishing in. Finally, other species' TACs, such as the Orange roughy, were also reduced to almost half of the 2005 season's level.

These management measures aimed at resource preservation was not received well by all in the industry. Some felt that such measures were catastrophic for the

industry.²⁷³ Others felt that the government was caught between a rock and a hard place and the measures were necessary for long-term sustainability.²⁷⁴ The majority in the industry felt that it was hard to find a balance between saving the industry and protecting the resource. Some felt that government scientists were inconsistent in their predictions of the availability of the resource. If they previously predicted a healthy state of affairs for the year 2015, now they had a turn-around prediction which culminated in reduced TAC being allocated.²⁷⁵ This was seen as amounting to economic sabotage and totally unnecessary, and leading to the industry losing some of its important markets because it could not deliver sustainably as a result of catastrophic quotas.²⁷⁶

(vii) Transferability and register of quotas

In order to protect the fisheries resources and maintain sustainable operations,²⁷⁷ section 42 MRA forbids the transfer of rights, exploratory rights, quotas, and licences, to another person except with the approval of, and subject to the conditions determined by, the Minister, but such approval may only be granted if the quota, if any, or a portion thereof, connected with the right or exploratory right is also transferred to the same person.

Section 43 complements section 42 by requiring the Permanent Secretary of the MFMR to keep a register showing the prescribed particulars of every

273 See fieldnote 6.

274 See fieldnote 1.

275 See fieldnote 6.

276 Ibid.

277 Nichols, *supra*, note 39, p.321.

right, exploratory right, quota and licence. Similarly, section 48 obliges every person holding a right, an exploratory right, a quota, a licence or other authorization to keep records, and furnish the Permanent Secretary with information as required.

(viii) Monitoring, control and surveillance

Namibia's MCS system has evolved over the years into what is today widely regarded by the international community as a very effective system. A crucial element has been the financial, human and material support from the Namibian Government. The costs to government and industry of MCS and other management activities have been kept commensurate with the value of the sector.

The major features of Namibia's MCS programme are described below.

On-board observer programme – Fisheries observers have the power to collect and record biological and other scientific information related to the harvesting of marine resources,²⁷⁸ and the Minister may require a person harvesting under a right or a fisheries agreement to carry a fisheries observer aboard any fishing vessel, to admit or allow him or her to any land and any premises used for harvesting marine resources, as well as records, documents and marine resources found there.²⁷⁹ Coverage rates range from 70% to 100%, depending on the fishery in question.²⁸⁰ The establishment of the Fisheries Observer Agency by the MRA²⁸¹ should improve current capacities in this regard.²⁸²

Sea, air and shore patrols – Systematic sea patrols aim to ensure compliance with fishing conditions by licensed vessels through regular at-sea inspections.²⁸³

Air patrols detect and deter unlicensed fishing vessels and monitor the movement and operations of the licensed fleet.²⁸⁴ Shore patrols ensure compliance by both recreational and commercial fishers with conservation measures for inshore resources.²⁸⁵ In legal terms, fisheries inspectors are empowered by the MRA, at any time and without a warrant and in respect to Namibian flag and foreign flag vessels, to *inter alia*:²⁸⁶

- (a) board, inspect and stop any vessel, its fishing gear, cargo and stores, any marine resources aboard and any document or other item required to be kept under the Marine Resources Act;²⁸⁷
- (b) enter and stop for a routine check any premises, or any vehicle, in which marine resources or any fishing gear are kept or are being transported;²⁸⁸ or
- (c) if they have reasonable grounds to suspect that an offence has been committed under the Act, to stop and inspect any vehicle which is reasonably suspected of carrying marine resources which have been harvested or fishing gear which has been used.²⁸⁹

Monitoring of landings – Complete monitoring of all landings at the two commercial fishing ports, Walvis Bay and Lüderitz, by onshore inspectors ensures compliance with quota limits and fee payments. The MRA prohibits transshipment and landing unless they are authorized by a licence or ministerial authorization and are executed in accordance with any conditions in the licence or authorization,²⁹⁰ or unless marine resources are transhipped between and landed in the territorial sea or internal waters of Namibia by vessels that are not fishing vessels.²⁹¹ All marine resources must

278 Section 7(1)(b), Marine Resources Act.

279 Section 7(2).

280 Nichols, *supra*, note 39, p.326.

281 Section 8, Marine Resources Act.

282 Nichols, *supra*, note 39, p.326.

283 *Ibid.*

284 *Ibid.*

285 *Ibid.*

286 Sections 5(1) and (3), Marine Resources Act.

287 Section 5(1)(a).

288 Section 5(1)(b)-(c).

289 Section 5(2).

290 Section 50(1)(a)-(c).

291 Section 50(2).

be landed at a Namibian port. This, together with the absence of an artisanal fisheries sector, helps to ensure comprehensive monitoring of catches.²⁹²

Vessel reporting – All vessels are required to supply EEZ exit and entry reports, as well as daily catch and effort reports via radio and in the form of vessel log-sheets.²⁹³ Namibia is well advanced in implementing a national satellite-based vessel monitoring system (VMS).²⁹⁴ Once fully operational, the system will benefit fisheries management in real-time monitoring of vessel movement and activities.²⁹⁵ The system that has been chosen is already in use in South Africa and Mozambique.²⁹⁶ The government has shown support for the idea of collaboration in the development of a cost-effective, regional VMS.²⁹⁷

(ix) Flag ship control in the high seas

The 1993 FAO Compliance Agreement to which Namibia acceded in August 1998 obliges contracting parties to ensure high-seas fisheries control on vessels flying their flag. Indeed, as was noted above, a person who wishes to use a Namibian flag vessel for harvesting any marine resource outside Namibian waters, shall apply for a licence to the Permanent Secretary of the MFMR.²⁹⁸ The Minister may refuse an application for a fishing licence if he or she is satisfied that the issue of the licence would be inconsistent with an international agreement to which Namibia is a party,²⁹⁹ or the approval might threaten the biological sustainability of a particular marine resource.³⁰⁰

However, Namibian fisheries legislation does not contain specific legal requirements as set forth in the

1993 FAO Compliance Agreement such as those dealing with high-seas permit registers, high-seas conservation and management measures or port-state control in case of a suspected high-seas foreign fishing vessel of a flag-state party to the 1993 FAO Compliance Agreement entering voluntarily its ports.³⁰¹

b) Fees and levies

Fees are instrumental in fisheries management and the Minister is given the power, after consultation with the MRAC and the approval of the finance minister, to determine fees which shall be payable.³⁰² The role of fees is twofold: firstly, to earn revenue for the government, and secondly to create incentives that work towards the goals of the management system, both conservation and Namibianization.³⁰³

The Minister may, after consultation with the MRAC and with the approval of the Minister of Finance, by notice in the *Gazette*,³⁰⁴ determine fees which shall be payable in respect of the harvesting of marine resources. A fee may be based upon quotas allocated; the level of effort for harvesting a particular marine resource or the amount or value of the resources harvested; and may vary according to species, area or disposition of harvesting, and the Namibian beneficial control of the fishing company or vessel.³⁰⁵ The most important are quota fees, which are payable on allocated quota.³⁰⁶ Bycatch fees – a feature of the Namibian management system not found in many other countries – are applied in order to deter rights holders from targeting species other than those for which they have been issued a quota.³⁰⁷ Such fees provide an incentive to avoid catching non-target

292 Nichols, *supra*, note 39, p.326.

293 *Ibid.*

294 *Ibid.*

295 *Ibid.*

296 *Ibid.*

297 *Ibid.*

298 Section 40(1), Marine Resources Act.

299 Section 40(4)(d).

300 Section 40(4)(e).

301 FAO, *supra*, note 158, p.21.

302 Section 44(1), Marine Resources Act.

303 Nichols, *supra*, note 39, p.324.

304 Which may prescribe penalties (Section 44(7)) and shall state the time and manner of payment of the fee or levy and may provide for the payment of interest, at a rate specified, on late payments (Section 44(6)).

305 Section 44(2), Marine Resources Act.

306 Nichols, *supra*, note 39, p.324.

307 *Ibid.*

species, but not so punitive as to encourage dumping.³⁰⁸ Finally, licence fees are charged for all fishing vessel licences issued to vessels that fish within Namibia's waters.³⁰⁹

The Minister may also, after consultation with the MRAC and with the approval of the Minister of

Finance, by notice in the *Gazette*, impose levies for the harvesting of any marine resource, to be paid into the Marine Resources Fund.³¹⁰ A levy may be based upon and vary according to the factors used for the determination of the fee, as well as the potential benefit from the activities to be funded by the levy and the contribution made to such activities.³¹¹

III. The national management system as applied in relation to the impact of the 'North'

1. Fishing by EC/North American/Japanese fleets

a) *Bilateral access agreements*

The EU, Namibia's main export market, is highly interested in improving its access to Namibian fishing grounds. Since the EU is negotiating an 'Economic Partnership Agreement' (EPA) with Namibia, including a Free Trade Agreement (FTA), there are European ambitions to include fisheries in free trade.³¹² It is argued that an FTA with the EU could help Namibia to improve its access to modern technology and to integrate the fishing industry better into the global value chain. Namibia is reluctant to include fisheries in free trade since it fears that its national empowerment, monitoring and sustainability policies will be undermined.³¹³

Namibia and Morocco are considered very good examples of how the development of a domestic fishing industry is entirely possible without the EU. Indeed, it may even be highly advantageous for a country in both economic and financial terms. In 1990, after independence, Namibia expanded its domestic fishing industry and refused to conclude an access agreement

with the EU.³¹⁴ Around five years ago, Morocco opted not to renew its agreement with the EU – a decision which has greatly benefited domestic production.³¹⁵

Therefore, Namibia has not concluded any bilateral access agreements with the EU, the USA or Japan for their vessels to have access to Namibian waters because it is trying very hard to protect its fisheries resources after they were heavily plundered in the years before independence by Distant Water Fishing Nations.³¹⁶ After five years of negotiations (1995-2000) between the EC and Namibia, and extensive consultations with its fishing industry, the Namibian government decided not to pursue further discussions on the EC proposals for an EC/Namibia fisheries agreement.³¹⁷ Foreign interests are entitled to apply for fishing rights under the Marine Resources Act in the normal way. They are treated in the same way as Namibian interests except that a preference is shown to Namibian-controlled ventures regarding rights, quotas and quota fees, and joint ventures between Namibian and foreign interests are welcomed.³¹⁸

308 Ibid.

309 Ibid.

310 Section 44(3).

311 Section 44(5).

312 Meyn, M. (2005). 'Namibianisation', *Exports and Domestic Value Addition in the Namibian Fishing Industry. Chances and Risks of Including Fisheries into a Free Trade Agreement with the EU*. NEPRU Research Report No.33. Windhoek: NEPRU. Also available from <http://www.nepru.org.na/>.

313 Ibid.

314 Available from http://www.rural-development.de/fileadmin/rural-development/volltexte/2005/02/en/ELR_engl_38-40.pdf.

315 Ibid.

316 This inference is drawn from information obtained from <http://www.intfish.net/treaties/bilaterals/c-index.htm#European%20Union>, with regard to fisheries agreements signed by different countries of the world. The only agreement mentioned on this site relating to Namibia is the agreement between Namibia and South Africa on the prevention of illegal fishing.

317 Available from <http://www.delnam.cec.eu.int/Reports/Reports/country%20strategy%20report%202002.htm>.

318 Ibid.

However, Namibia as a coastal state that exports fish to other markets especially the EU is party to some partnership agreements. One example of such an agreement is the Cotonou Agreement. The agreement is aimed at the reduction and eventual eradication of poverty, while contributing to sustainable development and to the gradual integration of the African, Caribbean and Pacific Group of States (ACP countries) into the world economy.³¹⁹

The provisions of the Cotonou Partnership Agreement (CPA) define the terms and conditions for the export of ACP fish and fishery products to the EU. This includes specifying the rules of origin that must be met in order to benefit from these special arrangements. The current market-access provisions of the CPA are based on the non-reciprocal trade preferences extended to ACP countries under the earlier Lomé Conventions.³²⁰ These allow ACP countries to export their fish products to the EU without having to pay the import taxes applied to fisheries exports from other countries. These ACP tariff preferences apply until the end of 2007.³²¹ Namibia has been a particular beneficiary of the tariff preferences extended under the

2. Trade in Namibian fish with the North

a) Namibian laws regulating sales of fish to other countries

Namibia has no laws that regulate sales of fish to other countries, but it has a Standards Act 33 of 1962 which sets out compulsory standards specifications on different food products that are exported to other countries. The export of fish is based on the principle of equivalence. This means that the standards specifications have to be equivalent to the laws of the importing state.

b) Legal requirements of fish importing states related to quality control

The EU has a number of laws that govern the quality of food products that they import from other countries. In particular, there is a quality management system

Cotonou Agreement, expanding considerably its exports in those areas where tariff preferences are enjoyed. The following Namibian fish products enjoy duty-free access to EU markets: fresh or chilled fish; frozen Albacore tuna; frozen Hake; and frozen fish; fresh or chilled fish fillets; frozen fish fillets; frozen fish meat and prepared sardines.³²² The EU is seeking to replace the current unilateral preferences with new reciprocal arrangements that would begin in January 2008.³²³

b) Illegal foreign fishing and related legal issues with reference to judicial decisions

After Namibia attained its independence it adopted a fisheries management regime which was aimed at rebuilding stocks which had been plundered by illegal foreign fishing in previous years. The management regime included an MCS system. Under this system, as observed earlier, systematic sea, air and shore patrols are conducted in an effort to detect illegal fishing. From independence to the present date, Namibian courts have built up a substantial number of precedents on illegal foreign fishing. This can be seen from the number of case studies below.

that the EU requires every fish processing company to implement, called the Hazard Analysis Critical Control Point (HACCP).

c) Voluntary quality and sustainability control schemes in fish-importing countries

Due to restrictions of jurisdiction, ensuring sustainable fisheries is not a matter of law in states importing Namibian fish. However, civil society groups have played a significant role in promoting sustainable seafood products, primarily by raising public awareness of the issue and continually placing it on the agenda of governments and regional fisheries management organizations. The NGOs involved in this area are typically international ones such as WWF or Greenpeace. However, some of the NGOs most active

319 Available from http://en.wikipedia.org/wiki/Cotonou_Agreement#Aims.

320 Ibid.

321 Ibid.

322 Available from http://www.epawatch.net/documents/doc126_1.doc.

323 Ibid.

in fisheries issues are found in the USA and Europe. US foundations such as the Pew Charitable Trusts and the Packard Foundation are driving forces in providing funding for sustainable-fisheries-related causes. Which fisheries are defined as sustainable is determined in general by those same NGOs, with the assistance of respected marine biologists and ecologists.

NGOs in the USA, Europe and Oceania are aiming directly at the consumer in their efforts to promote sustainable seafood products by encouraging the consumer to buy fish only from sustainable fisheries or sustainable aquaculture. A small but growing amount of this type of activity also appears to be occurring in Asia, most notably in Japan and Hong

Kong. The main market-based activities of NGOs have been (i) organized boycotts of specific species; (ii) consumer guides with recommendations on which species to purchase; (iii) ecolabelling programmes; and most recently (iv) pressuring retailers not to carry particular species that NGOs have deemed 'unsustainable.' Running through all these activities is consumer education regarding, for example, the relative environmental impacts of various types of fishing practice, the status of various stocks, and bycatch/habitat impacts. Notwithstanding the importance that consumer education (whether with information or misinformation) plays in markets for sustainable fish, this discussion will focus on targeted market measures, namely boycotts, seafood guides and ecolabelling.

IV. Case studies on fisheries management: focus on enforcement

While the legal infrastructure in Namibia is quite well developed, the question is whether Namibian authorities have been able to ensure the enforcement

of their laws and measures. The following case studies throw light on this issue.

1. Preventing foreign vessels from illegal fishing in the Namibian EEZ

During 1990 and 1991, 11 Spanish trawlers and one Congolese trawler were arrested for illegal fishing and successfully prosecuted; most of the vessels were confiscated by the Namibian courts. These actions sent a clear message to the international fishing community that Namibia was serious about establishing sovereignty over its new EEZ. Three of the cases will be reported in greater detail. There were a few more incidents of poaching noted after the efforts in the early 1990s, and it cannot be denied that a significant amount of poaching still goes on, but it appears that, in general, improved monitoring, control, surveillance and enforcement has deterred poachers and improved compliance.³²⁴

a) Case study 1: S v Curras 1991 NR 208 (HC)

This case study is an example of a judicial decision of the Namibian High Court on illegal foreign fishing in which the court imposed a fine of N\$ 400,000 or imprisonment for six years for failure to pay the fine, and also ordered the seizure of the vessel and all its contents.

In this case the accused was a 39-year-old male of Spanish nationality. He was charged with contravening s 22A (4) (b) read with ss 1, 6, 16, 17, 18, 22A and 24(1) of the Sea Fisheries Act 58 of 1973 (RSA), as amended, and further read with ss 1, 4, 5, 7 and 8 of the Territorial Sea and Exclusive Economic Zone Act 3 of 1990 (Nm) and ss 90 and 250 of the Criminal Procedure Act 51 of 1977 (RSA), being the master or captain of the fishing vessel, *Friopesca Uno*, a vessel of Spanish registration.

During and about the period 22 September 1990–November 1990, the accused wrongfully and unlawfully used the said vessel as a fishing boat and/or factory as envisaged by s 1 of Act 58 of 1973 within the exclusive economic zone and within the area of jurisdiction of the Namibian High Court without a permit granted in respect of the said vessel.

The accused was convicted of illegal fishing in the Namibian waters with a foreign vessel without a permit.

³²⁴ Nichols, *supra*, note 39, p.327.

The court accordingly sentenced the accused to pay a fine of N\$ 400,000 and for failure to pay such a fine, to go to prison for six years. The court also ordered the ship, the *Friopesca Uno*, with all its equipment and contents to be declared forfeited to the State under the terms of s 17 of the Sea Fisheries Act. The fish were also forfeited to the state under the terms of s 6 (6) (a) of the Sea Fisheries Act. The court further concluded that it would be unjust for the owners or charterers and the accused to benefit from the unlawful fishing venture.

This case study is testimony that the implementation of the management regime started shortly after the attainment of independence. It is clear that in trying to send a very strong warning to other would-be foreign fishers, the illegal foreign fishers were quickly dealt with by the Namibian courts. This is also testimony of how serious the government of Namibia was in implementing the fisheries management system in order to allow stocks to grow and to build a strong and lucrative Namibian fishing industry.

b) Case study 2: *S v Martinez 1996 NR 1(HC)*

In this case the accused, the captain of a Spanish fishing vessel, was charged with contravention of s 22A (4) (b) (which made it an offence to use a fishing vessel registered in a foreign state within a fishing zone without a permit), alternatively s 8(1) (which prohibited the use of a fishing vessel without the necessary licence having been issued), read with ss 1, 6, 8, 16, 17, 18 and 24 (1) of the Sea Fisheries Act 58 of 1973 (RSA) and further read with ss 1, 4, 5, 7 and 8 of the Territorial Sea and Exclusive Economic Zone of Namibia Act 3 of 1990 (Nm) and ss 90 and 250 of the Criminal Procedure Act 51 of 1977 (RSA). The charges related essentially to the unlawful fishing activities of the accused within Namibia's EEZ and that approximately 183 tons of fish with a value of R 810,500 had been caught inside the EEZ.

The accused was subsequently convicted and he testified in mitigation that he expected to receive as remuneration 2% of the value of the catch in Spain, or approximately R 22,000. The State requested the court to impose a fine of R 22,000 under the terms of s 16(2) (a) of the Sea Fisheries Act (which section provided that where any person was convicted in terms of the Act, the court shall determine the monetary value of

any advantage which such person may have gained in consequence of the offence, and impose a fine equal to the amount so determined) in addition to any other penalty the court may impose.

The court however held that as to the issue of the imposition of a fine under the terms of s 16(2) (a), the word 'may' obviously referred to an advantage which had accrued in the past, the object of the provision being to prevent a convicted person from profiting by his spoils, and also that inasmuch as the accused had been arrested before any advantage had accrued to him from his unlawful catch, he could not be punished under the terms of s 16 (2) (a).

The court held further as far as the seizure and forfeiture of the ship, its contents, and the fish caught were concerned, that a blanket seizure of contents where the contents were very varied and where some were attached to the ship and could only be detached with difficulty was not an adequate seizure in terms of s 6 (1) (c) of the Sea Fisheries Act: such contents should have been itemized to enable the court to exercise proper discretion. The court also held that as there had been no valid seizure of contents under s 6(1) (c), there could be no forfeiture thereof under the terms of s 6(6) (a) of the Act, but further that the same considerations did not necessarily apply for fish – there was no difficulty in identifying such fish and an itemization thereof was not necessary: accordingly the forfeiture of the fish could not be set aside.

The court then, taking all the above factors into consideration, sentenced the accused to a fine of R300,000 or four years' imprisonment.

c) Case study 3: *S v Pineiro & Others 1999 NR 13 (13)*

The events that led to this case took place in the Atlantic Ocean in March 1991. The first applicant had sailed from Spain in the vessel CP in February 1991 to fish off the Falkland Islands. En route he received instructions to sail to the west coast of South Africa to await instructions regarding the transshipment of fish already caught. In a position approximately 100 miles from the South African coast and south of the boundary separating the South African fishing zone from Namibia's EEZ, 'he waited' until 21 March 1991.

On that day a helicopter flew overhead and an inspector of Namibian Sea Fisheries and two soldiers came on board. The first applicant refused to sign a letter admitting that he had been fishing off the Namibian coast. He was then ordered to sail to Lüderitz, but he refused to do, contending that he was in South African waters. He was later relieved of his captaincy. On the evening of 22 March two South African Navy warships came alongside and he informed them that he could go to a South African port but not to Lüderitz. Notwithstanding this, he was ordered by the South African navy to proceed to Lüderitz which he did under their escort.

On arrival at Lüderitz on 25 March, he and the other Masters and their respective officers were placed in police custody in police cells. On 28 March, they appeared in the magistrate's court of that town, on a charge of contravening s 22A (4) (b) of the Sea Fisheries Act (58 of 1973). An application for bail was refused and they remained in custody. First applicant maintained that neither the Sea Fisheries inspector nor the Namibian soldiers had been entitled to take him and his crew into custody and to seize his ship while they were in the South African fishing zone and he said that such custody and seizure were unlawful.

2. Monitoring and surveillance of catches

Monitoring and surveillance is the task and name of a department which is part of the Ministry Directorate of Operations. The directorate operates from both ports, namely Walvis Bay and Lüderitz. As earlier mentioned, the MCS system is the regulatory component of fisheries management within the 200 nautical mile EEZ.

As a matter of general observation, evaluation of the success of the system in relation to the three strategic objectives³²⁵ concluded that: a) the first objective, to restrict fishing activity to those entitled to do so, has been relatively satisfactorily achieved; b) the second objective, to ensure that fishing activity is conducted within legal and administrative guidelines, has been partially achieved, and c) the third objective, to ensure

The 11 accused were subsequently convicted of fishing without permission in Namibia's EEZ in contravention of s 22 of the Sea Fisheries Act 58 of 1973. Before they were sentenced, a Spanish bank (*Caja de Ahorros de vigo*) applied to establish its interests in the two fishing vessels used in the commission of the offence. The fishing vessels concerned were the *Cabu Primero* and the *Cotorredondo Cuatro*. From the evidence presented it appeared that the bank held registered first mortgage bonds over the vessels.

The accused were subsequently sentenced and the court also confiscated the vessels *Cabu Primero* and *Cotorredondo Cuatro*. This forfeiture was ordered under the terms of s 17 of Act 58 of 1978. The court consequently ordered that such forfeiture be subject to the bank's rights under the registered first mortgage bond. The State thereupon applied to reserve certain questions of law arising from the forfeiture of the vessels. The court held that the questions arising from the enquiries in terms of s 17 of the Sea Fisheries did not arise on the trial of any person as intended by s 319 of the Criminal Procedure Act 51 of 1977 and therefore the State is not entitled to reserve a question of law in respect thereof and the State's application was accordingly refused.

that the revenues from landings are correctly calculated, has not been achieved.

As far as the first and second objectives are concerned, evidence supports that compliance has generally improved over the last decade, although levels vary considerably across fisheries. Regular inspections by the patrol vessels have reduced the number of violations. Analysis of the demersal fishery yielded very low violation rates, which were supported by survey results on perceived compliance levels. This fishery gave a strong correlation between economic return from the fishery and the level of violations, supporting the theory that financial viability of the fishery affects the behaviour of fishers. The mid-water fishery on the other hand, a fishery of less social and economic importance

325 See above Section II.3 ('Institutional and organizational structures') under MFMR's Directorate of Operations.

to Namibia, is faced with unacceptably high levels of non-compliant behaviour. This fishery also provided evidence that an increase in economic return coincided with a decrease in violations. This, a predominantly foreign fishery (often using flags of convenience), was also the least compliant. The pelagic fishery that has gone through severe financial difficulties in the last years has kept a steady level of recorded violations, with no evidence of a link between the economic return of the fishery and the violation level. Results indicated that progress in improving the compliance level across all fisheries is hampered by the low deterrence value of the fines imposed and the delay between crime and punishment.

The third objective, ensuring that revenue from landings is correctly calculated, has not been successfully implemented. Evidence indicated that the calculation of revenue was very unreliable and that in 1999, N\$ 700,000 was lost in bank interest, while the loss due to inaccurate reconciliation and underreported catches was impossible to estimate, but may have been considerable.

The cost of MCS over the last two years was 41% and 42% of the industry revenue: this was considered an acceptable level, as was the distribution of cost across MCS components. However, serious concern was raised over the future cost.³²⁶ A fisheries expert made the following recommendations for the MCS operations:³²⁷

V. Conclusions

The Namibian management regime has in many cases been successful, especially if one takes into account that they inherited totally devastated fisheries. The swift and speedy prosecution of foreign vessels found fishing illegally in Namibian waters was a deterrent to many and showed that the new regime meant business.

Domestic legal instruments are adequate and are generally adhered to, and the fish stocks are responding relatively well to the management regime, but there are instances where, despite conservative management,

- (a) Setting compliance targets to streamline logistical operations and planning;
- (b) Improving the performance of MCS platforms to increase cost effectiveness;
- (c) A more analytical approach to balancing enforcement and voluntary compliance in order to unlock potential increases in compliance;
- (d) Shortening the decision-making process to promote more immediate reactions to serious violations;
- (e) Increasing fines to ensure that crime does not pay;
- (f) Creating an MCS information system to facilitate cross verification and improved planning; and finally, and most importantly,
- (g) Redesigning working practices and information systems used to calculate landings in order to ensure that catch limits are not exceeded and that revenue is correctly calculated.

In addition, the low level of sanctions against serious offences was seen as reducing the value of the penalty system as a punishment measure. It is vital that crime does not pay and that the penalty meted out is greater than the potential economic gain from the crime. Correcting this imbalance may boost the deterrent effect of penalties enough to allow a reduction in other more costly areas of MCS operations.

the status of the resource is worse than before. The reasons for this are multifaceted. It can be attributed to adverse environmental conditions affecting fisheries. It can also be an indication that the scientific predictions of the availability of stocks are flawed and, hence, the reliance on them to determine TACs results in excessive or over-use of the resource.

Generally, the industry respects and applauds the efforts of the government in trying to balance biological sustainability and economic survival of the industry.

326 See above Section I. 5 ('Public perception of basic fisheries issues').

327 Bergh and Davies, *supra*, note 91, p.312.

Many agree that this is not an easy task, and at times clashes between the industry and the government cannot be avoided. They, however, appreciate the open and friendly cooperation between the two.

The basic issues as identified above are a reflection that a dynamic system is at play and conflicts are bound to arise where human beings and resource use are concerned.

Namibia takes environmental protection and sustainable use of natural resources seriously to the extent of it being one of the few countries whose constitution specifically provides for this.

The Marine Resources Act³²⁸ is hailed as encapsulating one of the best management practices in the world. Hence, it ensures that Namibia complies with most of its international obligations. Further, in terms of Article 144,³²⁹ all international agreements duly entered and ratified by Namibia become part of domestic law and, hence, can be enforced in domestic courts. The down-side to this, however, is that Namibia has become a signatory to many international agreements and it is proving to be difficult to adhere to all their prescriptions. If this means that it will enable us to use resources in a sustainable manner, then it is worth the difficulty.

As mentioned earlier, Namibian products are popular amongst foreign markets as a result of the quality and the high standards maintained. Namibia in general readily accepts most of the sanitary and phytosanitary measures (SPS) requirements imposed on exported goods to importing countries. Namibian fisheries companies vigorously implement the Hazard Analysis Critical Control Point (HACCP) as a measure to meet stringent quality control measures required by importing markets such as the European Union.

The Monitoring, Control and Surveillance measures are laudable and are to a large extent effective. However, there is always room for improvement. The implementation of the Vessel Monitoring System (VMS) and the installation of Automatic Location

Communicators (ALC) on each vessel operating within Namibian waters is good news. Some sceptics are quick to point out that these will be costly to maintain. The benefits derived for the industry and the sustainability of the marine resources by far outweigh the cost factor. It will improve MCS and is a necessary tool to fulfil Namibia's international obligations. The fact that the installation of the ALCs is a compulsory precondition prior to a vessel being allowed to fish will ensure compliance.

Some further suggestions for reform might include the following:

- The Marine Resources Act 27 of 2000 is seen by many as a complex piece of legislation and this hampers compliance because its interpretation is not clear even to those that have to implement its provisions. The provisions must be clarified.
- Failure to replenish and reconstruct stocks of certain species is a cause of concern even with the existence of a conservative management system. There are extra-legal causes for the failure of the stocks of certain species, such as Sardine and Hake, to recover. The MCS system needs to be improved by the setting of realistic compliance levels, improving the efficiency and effectiveness of MCS operational platforms and dealing with future financial implications.
- There is clear concern from the industry questioning the accuracy and reliability of estimations of stocks used to determine TAC. The scientific basis used by the ministry should be transparent, accessible and verifiable by all the actors in the industry. The general view is that there is a need for better consultation between government and industry in the setting of TACs to avoid distrust of government by industry.
- As pointed out and discussed above, the government is losing out as a result of unreliable revenue calculation methods. This is due to weaknesses in the manual calculation method used

328 Act 27 of 2000.

329 Constitution of Namibia.

at factories by fisheries inspectors. A further impediment is the inaccurate reconciliation process and cumbersome work routine when data is collected and registered. Fisheries inspectors at factories are a very important element in the verification of landings. If they are ineffective, it leaves the system dependent on the industry figures and no independent verification of actual landings.

- As mentioned earlier, one of the objectives of the MFMR is to redistribute revenue amongst the formerly disadvantaged and to Namibianize the industry. The government has failed to reinvest revenue generated from fisheries in other forms of productive capital, and as such misses an opportunity to build national wealth.
- There is a further need for government to rethink the manner in which the empowerment of the previously disadvantaged is achieved. A capital-

intensive industry such as this requires availability of resources.

- Namibia, with its abundance of fish and marine resources, imports fish products from other nations, while not providing protection measures for the local market against heavily subsidized fish coming in from other countries. Even though fish consumption in Namibia is insignificant, it nonetheless is a market that should be enjoyed by locals and not overtaken by imported goods.
- The absence of a Namibian Bureau of Standards leaves us at the mercy of the South African Bureau of Standards. This body is widely recognized and respected for its exceptionally high standards, but any respectable country cannot allow its standards to be determined by foreign nationals who, in most cases, are not privy to domestic circumstances.

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Field itinerary

Fieldnote 1

Ms D van Bergen
Chairperson
Confederation of Fishing Associations
September 2006

Fieldnote 2

Mr Kallie Jacobs
Director
Erongo Marine Enterprises
September 2006

Fieldnote 3

Mr Johannes Van Zyl
Chairman
Large Pelagic Association and Hake Long Line
Association
September 2006

Fieldnote 4

Dr Kirsten Manastemy
Quality System Consultant
September 2006

Fieldnote 5

Dr Hashali Hamukuaya
Executive Secretary
SEAFO
September 2006

Fieldnote 6

José Ruiz
Managing Director
Overberg Fishing
September 2006

Fieldnote 7

Messrs Makuti and Kakujaha
The Municipality of Walvis Bay
September 2006

Fieldnote 8

Mr Bobo Kathindi
Managing Director
Etale Fishing
September 2006

Fieldnote 9

Hermanus Kasper
Business Personality
Special Interest in Fisheries
March 2007

Fieldnote 10

Mr Steven Ambambi
Deputy Director
Directorate of Operations
March 2007

Fisheries resources

Marine resources

Freshwater resources

Aquaculture Act

Inland Resources Act

Sea areas

Fishing business

Merchant Shipping Act

National Fishing Corporation of Namibia Act

Sea Shore Ordinance

Walvis Bay and Offshore
Islands Act

Territorial Sea and
Exclusive Economic Zone Act

Marine Resources Act

4 Promotion and Management of Marine Fisheries in Brazil

Mauro Figueredo¹

Summary

This report analyzes Brazilian marine fisheries policy and law during the last four decades with a view to understanding the management of marine fisheries and its relation with various stakeholders including environmental protection agencies in the coastal zone and exclusive economic zone (EEZ) of Brazil.

It concludes that policies and laws related to fisheries are more focused on economic than ecological concerns.

In the coastal zones fish resources are largely overexploited. This is due to the basic difference of interests between the production and environmental sector which is reflected in diverging demands on the coastal zone and a conflict between the artisanal and industrial fishing industry. In view of the constitutional classification of the Brazilian coast as a national patrimony, coastal management must find a way to accommodate economic and social aspects with more effective resource preservation. Therefore, better management tools as well as the participation of stakeholders in the process of making and applying

rules are of fundamental importance (for coastal management). It is noted throughout the report that Brazilian society and government are making progress towards the participatory management of fisheries, although this is still a slow and complex process.

Resources in the EEZ are largely exploited by other nations. Hence, Brazil actively promotes the enlargement of its national fleet in order to reserve the resources for its own benefit. However, care must be taken not to develop overcapacity of catch. Capacity must align with catch quantities in line with sustainable use of resources.

A case study on the planning and evolution of a Marine Protected Area (MPA) in the south of the country through participative management shows that the country has great potential to improve fisheries management, find its way to sustainable development and reach its obligations according to policies and rules expressed in national legislation and important international treaties.

I. Environmental and socio-economic background

Brazil has a long coast of approximately 8,500 km with numerous islands, making a total of 3.5 million km² of Exclusive Economic Zone (EEZ) that goes from Cape Orange (5°N) to Chui (34°S), and which is located mostly within tropical and subtropical regions (CNIO, 1998). The environmental conditions of the ocean within Brazil's EEZ are basically determined by

three currents: (1) the north-east current off the northern coast of Brazil; (2) the Brazilian current that goes south, both resulting from the South Equatorial Current; and (3) the Malvinas current. The dominant tropical and subtropical characteristics contribute to the lack of abundant fish stocks, which explains fishing effort being focused on those few species that offer

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conditions that support a profitable economic activity. The immediate concern, in the absence of efficient forms of management, has been the depletion and drop

1. State of the relevant fisheries resources²

The fisheries statistics currently available in Brazil are not especially useful because there are many difficulties in gathering data due to the precarious structure, not only of the government, but also of scientific institutions. The lack of a proper fisheries management organization and the strong presence of artisanal fishing, which makes production more difficult to control, are other obstacles to effective data collection. Nevertheless, efforts are being made to gather more information and to find organizations in the sector that might be able to acquire more effective statistics.

According to a study by José Dias Neto and Simão Marrul Filho in July 2003, Brazil's main fish resources are the following:

Camarão-rosa da Costa Norte (*Farfantepenaeus subtilis* and *F. brasiliensis*)

The Camarão-rosa da Costa Norte (Pink north coast shrimp) is the main fish resource of Brazil's northern coast. Until 1996, it was considered to be one of the only resources for which government-led management has been successful. Nonetheless, there is a strong possibility that the resource is presently being overfished.

Piramutaba (*Brachyplatystoma vaillantii*)

Piramutaba are mainly captured at the mouth, but also in the main channel, of the Amazon River. Production in recent years has been above 20,000 t. The species is considered to be in a recovery phase from excessive fishing.

Lobster (*Panulirus argus* and *P. laevicauda*)

Lobsters are the most important seafood resource in the northeastern region. The two species are found in the Atlantic from the southern US coast to the south-eastern part of Brazil. In certain areas they have been dangerously overfished, which has resulted in unstable

in the economic profitability of important fish stocks along the Brazilian coast (MMA/IBAMA, 2001).

catches and a high degree of uncertainty concerning their reproduction capacity.

Pargo (*Lutjanus purpureus*)

Historically, the Pargo is an important fishing resource for the northeast and, recently, for the north as well. The species is mainly found on ocean banks from the Brazilian border with Guyana to Rio de Janeiro. After a collapse in 1988-1990, followed by a period of significant recovery from 1991-1999, the production of Pargo declined again in 2000-2001. The catch in recent years has been influenced by two factors: the recovery of the resources in overfished areas and the expansion of the total catch area. Nevertheless, the increased number of young individuals in the catches is a concern for specialists.

Caranguejo-uça (*Ucides cordatus*)

The Uça crab is one of the main components of the mangrove swamp fauna and is found along the Brazilian coast from Oiapoque, Amapá to Laguna, Santa Catarina. The states of Maranhão and Para have the most extensive areas of mangrove swamp eco-systems. The crabs caught in these two states make up nearly 50% of the total controlled catch of the Uça crab in the entire Brazilian north and northeast in recent years, with catches varying from 10,000-12,000 t.

Sardinha-verdadeira (*Sardinella brasiliensis*)

The Sardinha-verdadeira is one of the main pillars of industrial fishing in south-eastern and southern Brazil from 22°-29°S. Currently, there is a crisis-level decline in the catch of this species.

Other fish species of south-eastern and southern Brazil: ***Corvina*** (*Micropogonias furnieri*), ***Castanha*** (*Umbrina canosai*), ***Pescada Olhuda*** (*Cynoscion guatucupa*, *C. striatus*) and ***Pescadinha Real*** (*Macrodon ancylodon*)

2 All the information in this chapter was taken from the document presented to the Interministerial Working Group created to define the Finance Program of the Fleet for Oceanic Fisheries and Construction or Renovation and Modernization of the Coastal Fleet (Pro Fleet). Available at www.ibama.gov.br (visited 28 March, 2007).

These are important fish species caught with dragnets or drift nets in the coastal region. According to the Grupo de Estudos Permanente (GEP),³ these resources are being fished to their limit or have even been overfished since 1984.

Camarão-rosa from the south/south-east
(*Farfantepenaeus brasiliensis* and *F. paulensis*)

The Camarão-rosa harvest is dominated by artisanal fishing. The record catch was recorded in 1972 when it reached 16,629 t. By 1994, the catch had fallen to 2,072 t. In 2001, the total catch was only 1,166 t, the lowest recorded to date. The status of this resource is considered critical.

Camarão-sete-barbas, Seven-whisker shrimp
(*Xiphopenaeus kroyeri*)

Camarão-sete-barbas (Seven-whisker shrimp) is caught in the south-east and south, from Espírito Santo to

Santa Catarina, by industrial, artisanal or small-scale fishing. Production in 1999 was only 4,116 t, the lowest in the past 30 years. In the past two years, there has been a slight recovery. The status of this resource is poor.

Tuna and related fish

Tuna fishing in Brazil is one of the most complex activities in the sector because of the variety of methods used and the quantity of species involved. It is practised along the entire coast. Most of the important tuna species found throughout the Southern Atlantic are being fished to their limits according to the International Commission for the Conservation of Atlantic Tunas (ICCAT), with the exception of the bonito-listrado (*Katsuwonus pelamis*), while other species are suffering from overfishing.

2. Overview of multiple demands on the coastal and exclusive economic zones

a) Coastal zone

Currently, nearly a quarter of the Brazilian population lives in the coastal zone, that is, approximately 42 million inhabitants that are distributed over 324,000 km². Both estuaries, as well as the shorelines, are very attractive areas for productive activities.⁴

There are many economic activities in the coastal zone. It is important to remember that Brazil was discovered from the coast and the first economic activity was the logging of the Pau-Brazil tree, *Caesalpinia echinata*, from the Atlantic Forest, which is now a species threatened with extinction.

Logging was once intense along the Brazilian coast, which contributed considerably to the degradation of the Atlantic Forest, which today covers only 7% of its original area. Exploitation of the Atlantic Forest and its associated ecosystems continues, although to a lesser degree due to environmental legislation and a general awareness throughout Brazilian society. Nonetheless, there is still much to be done to contain forest

degradation. The resulting situation is not only due to forestry, but also to other activities in the coastal zone that contribute to the deforestation that began even before European settlement, though certainly accelerated after 1500.

Tourism is an important economic activity that is accompanied by the growth of beach communities, the hotel sector, and holiday homes.

Real estate speculation is increasing, and most coastal cities do not have satisfactory urban planning which causes poor land use and contributes to the degradation of land and marine ecosystems. That, in return, directly affects the quality of life in inhabited areas.

Regions with low demographic density on the Brazilian coast, which are historically locations with traditional, semi-isolated communities, have in recent decades been incorporated into the market economy, which is principally driven by tourism and holiday

3 IBAMA Permanent Study Groups (Grupos de Estudos Permanentes – GEP) are groups created by IBAMA with the objective of researching the ecological and socio-economic aspects of fishing resources.

4 Federal Action Plan for the Brazilian Coastal Zone instituted by Resolution CIRM n° 07/2005. Available at www.mma.gov.br/estruturas/sqa/_arquivos/pafzc_out2005.pdf (visited 24 April, 2007).

activities. Real estate speculation is causing an increased dislocation of the populations that traditionally depended on fishing, agriculture and extractive activities. It has also often led to the degradation and destruction of naturally sensitive areas in the coastal region.⁵

Mining activities that serve the civil construction industry have become a serious problem that affects ecosystems in the coastal zone. In addition to the destruction of the Atlantic Forest, mining for stone, gravel, clay and sand has had an intense impact on the landscape of the Brazilian coast.

Coal mining is another problem in the coastal zone. In some locations in southern Brazil, coal mining is destroying freshwater supplies. Coal is used principally in electrical generators that are highly polluting and thus have a negative impact on the quality of life for adjacent communities.

The petroleum industry has also had a strong impact on the coastal zone. Moving petroleum via underwater pipelines or tankers has caused countless accidents in the coastal region. Despite efforts by the industry to prevent and contain these accidents, they are extremely harmful to the ecosystems and the economy in the regions where they are found, essentially affecting artisanal fishing which is severely curtailed by the pollution.

In addition, the installation and operation of the oil platforms and pipelines, shipping traffic, and land installations of the petroleum industry, interfere directly with the coastal zone, causing the growth of cities and modifying the socio-economic activities of the local populations.⁶

A variety of industrial activities are found in the coastal zone including chemical, pharmaceutical, metallurgy, machinery, agro-industrial, textile, shoe, paper, printing, semiconductor, software and other sectors. Demand for transportation services and facilities is also growing in the coastal zone. Ports, roads and airports are being expanded, modernized and

restored to serve the needs of commerce, industry and society in general.

Aquaculture, and especially shrimp farming, is a growing activity in Brazil's coastal zone. Such activities, conducted without proper planning, have led to considerable conflicts due to their strong environmental impact. In only five years of activity, shrimp farming, which is concentrated in the Brazilian northeast and in Santa Catarina State, has contributed more than US\$ 155 million to Brazil's balance of trade surplus. With growth rates of 50% per year, shrimp farming creates conflicts with other sectors, particularly with traditional fishing communities in the coastal region. This is due to the occupation of the areas determined by law to be protected areas, as well as the release of effluents without proper treatment. Shrimp farming itself suffers from industrial and urban pollution that is also caused by the lack of integrated planning in the coastal zone.⁷

Fishing is of considerable social and economic importance in the coastal zone. Its cultural role is also significant because in many coastal communities, culture is linked to fishing and its relationship with the sea.

There are cities in which the economic activity of a large portion of the population is linked to the sea which is principally fishing. Of course, this is no longer the rule in the coastal region due to the growth of the other economic sectors mentioned above, although fishing still contributes considerably to the socio-economic profile of inhabitants at the Brazilian coast.

In the municipality of Governador Celso Ramos in Santa Catarina for example, fishing is the most important economic activity as described below:

...The greatest concentration of fishermen is located in Governador Celso Ramos, which is the only municipality in Santa Catarina with two fishing colonies. Nearly 5,000 people and 800 boats are directly linked to this activity which is the principal element in the municipal economy – indirectly

5 Ibid.

6 Ibid.

7 Ibid.

*involving 90% of its population of 11,000 residents. Like Governador Celso Ramos, the fishermen of Bombinhas, the second largest colony, depend on the waters that surround the Reserve for their sustenance.*⁸

Geo Brasil – *Relatório Oficial do Brasil sobre Recursos Pesqueiros na Rio + 10* [The Official Report of Brazil About Fish Resources at Rio + 10] – estimates that fishing activity in the country is responsible for the generation of 800,000 jobs, and that there are nearly 300 companies related to fishing and processing. Nevertheless, as the text states, fishing activity does not have considerable importance in the national socio-economic context. However, it is considered as a source of employment and food for that portion of the population that lives along the coast and rivers and thus it has regional importance. The Federal Action Plan for the Coastal Zone emphatically affirms that the socio-economic importance of the activity is uncontested, not only as a supplier of animal protein for human consumption, but also due to the number of jobs it generates and because nearly four million people depend directly or indirectly on the sector.

b) EEZ

The economic activities in the Brazilian EEZ go beyond fishing activities. Among them we highlight petroleum exploration and ship traffic.

Brazil extracts approximately 80% of its petroleum production, which accounts for nearly 1.4 million barrels per day, from platforms located in the EEZ, and therefore in the Amazonia Azul (Blue Amazon).⁹ Petróleo Brasileiro S/A (PETROBRAS) is highly active

in the EEZ and is assisting the country in the project to expand its territory. The company was one of those responsible for the LEPLAC project. The project was essential for establishing the basis for Brazil's request to the United Nations (UN) for the increase of its territory in the sea. To legalize this space of 'wet territory', Brazil was required to undertake a detailed scientific mapping of the continental platform. The 17-year process was conducted by the Navy from 1987-2004. In this period, US\$ 40 million were invested – half of the cost paid by PETROBRÁS – in the so-called *Plano de Levantamento da Plataforma Continental Brasileira – LEPLAC* (Plan for Surveying the Brazilian Continental Shelf), with Navy ships travelling 230,000 km in the region, the equivalent of five and a half trips around the globe. The data collected by the Navy and PETROBRAS was presented to the UN.¹⁰ An increase in Brazil's territorial extent would have a direct impact on petroleum exploration activities. 'One immediate effect of the marking of the Brazilian continental platform in the field of the petroleum industry will be that the blocks placed for auction by the National Petroleum Agency, which are now restricted to 200 miles, can be extended to the outer limit of the platform'.

Shipping traffic in the EEZ is very important for the country's economy. Nearly 95% of Brazil's foreign commerce (imports and exports) circulates through Brazilian seas. However, the current situation of the Merchant Navy is that the great majority of goods that the country imports and exports are transported by ships with other flags.¹¹

3. Structure of the fisheries sector

The structure of the productive sector in Brazil reflects, in general terms, the structure of Brazilian society. On the one hand, capital invested in fishing activities seeks profit. On the other hand, a worker is responsible for sustaining his family. Fishing is usually one of his few alternatives for survival.

Marine fishing in Brazil is composed of artisanal or small-scale fishing and industrial activities. There is also scientific or recreational fishing, but this is beyond the scope of this work.

8 APRENDER. (2003). Colony is the term used in Brazil for officially recognized professional associations of independent fishermen.
 9 http://www.brasilpnuma.org.br/pordentro/artigos_012.htm (visited 24 April, 2007).
 10 <http://www.vermelho.org.br/base.asp?texto=17436> (visited 8 May, 2007).
 11 http://www.brasilpnuma.org.br/pordentro/artigos_012.htm (visited 24 April, 2007).

Normative Instruction No. 3 of May 12, 2004 deals with the operation of the General Fishing Register. Article 4 Item I of the Rule offers the definition by the Special Secretariat for Aquaculture and Fishing (SEAP) of the professional fisherman: an individual, 18 years or older, in complete control of his civil capacity, for whom fishing is his profession or principal way of life, whether in artisanal or industrial fishing.

The Coastal Zone encompasses both industrial and artisanal fishing activities whereas in the EEZ, only industrial ocean fishing takes place. The report *Brazil and the Sea in the 21st century* presents a definition of artisanal fishing, coastal industrial fishing and ocean industrial fishing:

Artisanal fishing (*Pesca artesanal*): encompasses the segment with commercial objectives, but without employment ties with the fish processing or commercialization industry. It uses small- or medium-sized boats, with or without motors, and operates close to the coast. These boats are generally made of wood and the capture technology is capable of producing small- or medium-sized catches. It constitutes the largest part of the national fishing fleet and contributes up to 60% of the total catch.

Coastal industrial fishing (*Pesca industrial costeira*): conducted by boats with greater autonomy, capable of operating in areas far from the coast, effecting the exploitation of fishing resources that are relatively concentrated in geographic areas. These boats have mechanized capture equipment, are propelled by high-powered diesel engines and have electronic equipment for navigation and detection of fish schools. The hulls may be of steel or wood.¹²

Industrial ocean fishing (*Pesca industrial oceanica*): industrial fishing is incipient in Brazil and involves boats suitable to operate throughout the EEZ, including the most distant ocean regions, even in other countries. The fleet has great autonomy, with on-board industrialization, use of sophisticated equipment for navigation and detection of fish schools, and is extensively mechanized. Nearly all boats are leased from foreign countries.

Artisanal fishing is predominantly an informal activity as Diegues explains:

Artisanal or small-scale fishing is centred around the family unit or a group of neighbours. The fisherman is not always the owner of the means of production (boat, nets, hooks, etc.). The fisherman often uses another owner's boat and equipment and shares the catch with the owner. The owner of the boat is, usually, also a fisherman who participates with the others in the entire fishing task.¹³

Art. 4 I of IN – SEAP N° 3 de 2004 defines an artisanal fishing professional in a similar manner as Diegues which is one who, with his own means of production, exercises his activity autonomously, individually or as a family business, or even with the occasional help of other partners, without formal employment ties.

Artisanal fishing is practised by local communities in Brazil's coastal region. These populations are not indigenous and descend mainly from European settlers. In general they have little schooling and a very low average income. The fisherman spends many days at sea, while the woman cares for the family and the household.

Upon analyzing the structure of the corporate-industrial fishing sector, Diegues reports that it is divided into two subcategories: one developed by fishing outfitters and the other by the corporate or industrial sector:

The former is characterized by the fact that the owners of the boats and of the fishing equipment – the outfitters – do not directly participate in the production process, a function delegated to the captain of the boat. The boats are bigger and have a larger range of operation than those used by the small-scale fishermen. They also require a certain division of labour among the crew: a captain, cook, freezer operator, machinist, fisherman, etc. It also has, in addition to the propulsion motors, machinery that requires formal training for certain functions which, however, does not completely supplant the know-how

12 Comissão Nacional Independente sobre os Oceanos. (1998). *O Brasil e o Mar no Século XXI*, p.119.

13 Diegues, cited in Dias Neto, J. (2002). *Gestão do uso dos recursos pesqueiros marinhos no Brasil*. Brasília: Universidade de Brasília, Centro de Desenvolvimento Sustentável.

of the fishermen, or of the captain, who employs them in the same way as the small-scale fishermen, the social group from which they usually emerge. The crew, as in small-scale fishing, are paid by an apportionment system, even if for some functions there may be complementary salaries.

The second category of the corporate/industrial fishing sector is defined by Diegues:

In industrial fishing, the company is the owner of the boats and the fishing equipment. It is organized in various sectors, and in some cases, the catching, processing and sale is vertically integrated. The boats are highly mechanized not only for propulsion, but also to undertake the fishing tasks such as casting and retrieving the nets, and processing the fish on board (in some cases), etc. Electronic equipment is also found on board to locate schools, assist in navigation, etc.

The definition is better understood within the Normative Instruction – SEAP No. 3 12 May, 2004 Art. 4°III and V. SEAP defines a fish outfitter as being the individual or corporation who, in his name or under his responsibility, offers for use one or more fishing boats, with a minimum gross capacity of 10 tons. Industrial fishing is defined as a corporation that directly or indirectly¹⁴ practises the activities of catching, extraction, collection conservation, processing and industrialization of live animals or vegetables that are aquatic or for which water is the

4. Fishermen's organizations

Fishermen in Brazil are organized through *colonias* (colonies) of fishermen and in unions. The colonies are associations of fishermen that were intended to represent the fishermen before government and society and were created after 1919, with the Mission of José Bonifácio. Although in theory, they are meant to represent fishermen, in practice they are often linked to the dominant political party in the municipality:

most frequented habitat.

The most important point to note is that outfitters just provide the boat while industrial fishing takes in the whole process of production.

The professional fisherman is defined as one who, being formally employed, carries out activities such as catching, collecting or extracting fishing resources in fishing boats owned by individuals or companies registered in the *Registro Geral da Pesca* (RGP)¹⁵ within the corresponding category.

It is thus clear that the productive sector is composed of distinct categories. Each fishing category has its own structure and *modus operandi*. This division of the productive sector directly affects the form of political organization, revealing the clear separation between rich and poor, capital and labour. In this sense, Marrul Filho explains:

Both fishermen as well as fishing companies, or outfitters, are distinguished by the technology of equipment that they use, by the environment or resource that they exploit, by the ownership or not of the boats, if they are small-scale fishermen, or if they participate in industrial fishing, among other differences. In this way, it is logical for there to be different and often conflicting objectives, interests and visions, and for them to dispute, each from their own perspectives, the resources that they exploit.¹⁶

It is also quite common for the position of president of the colony to be held by individuals who are not fishermen and who are linked to local politicians. An example is the case of the Colony of Fishermen of Coqueiral (AL), which was controlled by people who belonged to the local elite and not by the fishermen. These non-fishermen were often elected to the Directorate because in the entire community of

¹⁴ Instructional Norm – SEAP no. 3 of May 12 2004 Art. 4°III.

¹⁵ *Registro Geral da Pesca* (General Fishing Register) was established by Decree Law no. 221/67 and is regulated by Instructional Norm – SEAP no. 3 of 12 May, 2004.

¹⁶ Marrul Filho. (2003).

*fishermen they were the only ones who could read and write. By means of this mechanism, it is not uncommon for the brokers or merchants to control the fishermen's association. To the degree that the colonies do not represent the interests of the fishermen, their participation is, in general, reduced, although it is compulsory.*¹⁷

In reality, each colony has its own special characteristics. Depending on the work, knowledge, and culture of the president and his associates, the relationship of the fishermen to the colony varies. In some, the associates only appear to solicit the few social benefits that they are given by governments and for the fishermen who are linked to the colonies. In more organized colonies, there are partnerships with non-governmental organizations (NGOs) and/or the government to help educate the fishermen in subjects that include citizenship, environmental issues, and training in computer use. In summary, some colonies provide representation and others do not.

The fishing colonies in a given state constitute the State Federation, while the individual federations combined form the National Confederation of Fishermen (CNP). This system of representation was strongly linked to the government administration given that until the mid 1980s, the position of the President of the Confederation, according to its own bylaws, was named by the Ministry of Agriculture.¹⁸

5. Political perception of basic fisheries issues

The exploitation of fishing resources in Brazil was stimulated in the 1960s with the expansion of the legal, economic and tax structure to provide incentives to the fishing industry. At that time, fishing resources were only considered from an economic perspective, which had negative consequences that can still be noticed today. The lack of sustained management of fishing activities and of a proper structure of the sector has

In addition to the colonies, the fishermen are organized in movements such as the National Fishermen's Movement (MONAPE) and the Fishermen's Pastoral, an agency linked to the National Conference of Bishops of Brazil (CNBB). These are considered more advanced than the *colonia* system. However, they occur more in the north and northeast, and meet the resistance of the leaders of the more traditional system which is represented in all states.¹⁹ Although they are more common in the north and northeast, MONAPE and the Fishermen's Pastoral have representation in the National Council of Fishing and Aquaculture.

A third organizational structure is the union. However, unions appear to be not so popular amongst the fishermen. Many of them are members and pay union dues, but do not participate because they believe that it is controlled by middlemen.²⁰

With this surfeit of representative entities for fishermen, it is difficult to find a common perspective in the sector. This dilutes efforts by fishermen to strengthen themselves as a professional class.

The sector of business leaders linked to industrial fishing is organized into unions such as the Union of Fishing Companies of Itajai, and in councils such as the National Council of Fishing and Aquaculture, which is represented on the National Council of Aquaculture and Fishing.²¹

affected the stocks in such a way that there is now a grave crisis in the sector as demonstrated by Dias Neto and Marrul Filho:

The attempt to modernize fishing, initiated at the end of the 1960's and which carried on until the beginning of the 1980s, [is] linked to the current economic model, which concentrated capital,

17 Dias Neto (2002) citing Diegues.

18 Dias Neto, supra, note 13, p.148.

19 Ibid., p.149.

20 Ibid., p.149.

21 The National Council of Fishing and Aquaculture (CONEPE) is a private agency while the National Council of Aquaculture and Fishing (CONAPE) is linked to the Special Secretariat of Aquaculture and Fishing, a representative council that brings together the country's principal actors in the sector.

*encouraged exports, was over-scaled, technologically intensive and ecologically predatory. Government capital via tax and financing incentives had a large and important role in this process. The application of this model to the fishing sector in Brazil has caused serious problems related to the sustainability of exploited resources.*²²

The effort of the Brazilian government to expand fishing activities was focused on the industrial sector. This new and modern fleet began to act aggressively in the coastal zone, a preponderant factor in the degradation of the ecosystems and the consequent depletion of fish stocks.

Much of the artisanal fishing takes place in the coastal zone in particular. This is due to the size and quality of the boats, which are not able to navigate beyond the coastal region. Nevertheless, industrial fishing boats are also present, causing considerable conflict between the two groups. This divides the fishermen and weakens their representation. The

conflict generated by the presence of industrial fishing in the coastal zone was highlighted in the Geo Brasil 2002 report – *O Estado dos Recursos Pesqueiros: Pesca Extrativa e Aqüicultura*:

*It is important to highlight the element of conflict and competition between artisanal and industrial fishing. In these cases, the government has historically positioned itself in the conflict in a manner clearly favourable to the capitalist business leaders (...). The government, through induced strategies, [has provoked] an increase in the concentration of capital by investing heavily in the large companies. It has also ignored the wealth and complexity of the endogenous local organizational forms of small production. It considers the dual interests – ancient versus modern – as independent spheres of activities and sees the small fisherman as a reactionary individual, uncultured and predatory, incapable of assimilating technological standards aspired to by the Government and the industrial bourgeoisie.*²³

II. The legal regime governing fisheries

1. Legislation and institutions relating to coastal and marine management

Brazilian law had a fishing law instituted at the time of the military dictatorship, the Decree Law nº 221 of 1967. This law, called the Fishing Code, has since then remained in force although most of its elements were subsequently altered by the approval of new rules. The Code deals with the protection and promotion of fishing and other measures. Its character of stimulating fishing activities was typical of a historic moment in which fish was seen predominantly as an economic resource. The fishing code included fiscal incentive policies that survived until 1988. Those fiscal incentives were abolished by Law nº 7.714/88.²⁴

Since 1985, with the return to democracy, the country began to modernize its legislation, including the Federal Constitution, which caused changes in the fishing legislation. The rules that affect fishing activities

currently involve environmental, territorial, tax, social security, labour and other issues.

a) The Constitution

The Constitution of the Federal Republic of Brazil, in article 23, items VI and VII, establishes responsibilities for the Federal Government, the States, the Federal District and the Municipalities:

- To protect the environment and combat pollution in any of its forms;
- To preserve the forests, fauna and flora.

Specifically in relation to fishing resources, Article 24 of the Constitution establishes that it is the responsibility of the Federal Government, the States and the

22 Dias Neto, J. and Marrul Filho, S. (2003). *Síntese da Situação da Pesca Extrativa Marinha no Brasil*. 1: /DIFAP-BSB 2: SBF/MMA July 2003. www.ibama.gov.br.

23 IBAMA (2002). *Perspectivas do Meio Ambiente no Brasil - O estado dos recursos pesqueiros: pesca extrativa e aqüicultura*. Report – Geo Brasil.

24 Dias Neto and Marrul Filho, supra, note 22.

Federal District to establish legislation concerning forests, hunting, fishing, fauna, nature conservation, defence of the land and of natural resources, environmental protection and pollution control.

Although the Constitution establishes that the Federal Government, the States, and the Federal District are responsible for establishing legislation concerning fishing, the states and the federal district have remained inactive because the ocean and its natural resources are under federal jurisdiction. Hence, only the Federal Government has enacted any legislation for marine fisheries.

The Constitution contains a chapter on environmental protection in Article 225, establishing a right to an ecologically balanced environment:

Everyone has the right to an ecologically balanced environment, which is an asset for the common use of the people and is essential for a healthy quality of life, imposing on the Government and society as a whole the duty to defend it and preserve it for the present and future generations.²⁵

By entitling humans to this fundamental right, the Brazilian Constitution adopts the first principle of the Stockholm Declaration for the Environment issued in 1972.²⁶

The measures that should be used by the government to effectively ensure the right to an ecologically balanced environment are listed in the seven items of Para 1 of Article 225. Four of these instruments, I, II, III and VII, as well as §§ 3 and 4 are essential to this study.

Article 225

§ 1 In order to ensure the effectiveness of this right, public powers are entrusted to:

(i) – preserve and restore the essential ecological processes and promote the ecological management of species and ecosystems;

(ii) – preserve the diversity and integrity of the genetic patrimony of the country and monitor the entities dedicated to research and manipulation of genetic material;

(iii) – define, in all the units of the federation, territorial spaces and their components to be especially protected, with their alteration and suppression only permitted by law, and with the prohibition of any use that compromises the integrity of the attributes that justify their protection;

(iv) – protect the fauna and flora, and prohibit, by law, those practices that place at risk their ecological function, provoke the extinction of species or subject animals to cruelty.

§ 3 Any conduct and activity considered harmful to the environment will subject offenders, individuals or corporations, to criminal and administrative sanctions, independent of the obligation to repair the damage caused;

§ 4 The Brazilian Amazon Forest, the Atlantic Forest, Serra do Mar, the Pantanal of Mato-Grosso and the coastal zone are national patrimony, and their use must be conducted according to law, within conditions that assure environmental preservation, including the use of natural resources.

According to § 4 of Article 225 of the Constitution, the coastal zone, together with the Amazon Forest, the Pantanal of Mato-Grosso, the Atlantic Forest and the Serra do Mar, are a National Patrimony.²⁷ This means that the utilization of the coastal zone must be conducted ‘within conditions that assure environmental preservation’.²⁸

25 Constitution of the Federal Republic of Brazil, Brasilia: Federal Senate, 1988.

26 *Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated.* See <http://www.unep.org/Documents.multilingual/Default.asp?DocumentID=97&ArticleID=1503>.

27 National Patrimony is defined in the text of the National Coastal Management Plan II (PNGC II) approved by Resolution No. 005 of the Inter-ministerial Commission for Ocean Resources (CIRM) from December 1997: ‘National Patrimony – all those assets belonging to the Brazilian nation, of common use, with special historic, scenic, socio-economic, environmental or other similar characteristics, conferring to them special status and requiring the preservation of their basic conditions for existence.’

28 Even before the promulgation of the Federal Constitution, the PNGC was instituted on the basis of Law No. 7.661 of 1988, under the auspices of the CIRM in an attempt to guide the rational utilization of coastal resources. It was published in Resolution CIRM No. 001/90,

b) Legislation creating agencies and allocating powers

In January 2003, the Secretaria Especial de Aquicultura e Pesca da Presidência da República (SEAP) was established at ministerial level. The Secretariat was created on the first day of the current government that issued Provisory Measure No. 103, later converted into Law No. 10.683 of 2003. The SEAP assumed the following responsibilities upon its establishment as determined by Article 23 of this Law:

SEAP is responsible for providing direct and immediate assistance to the President of the Republic in the formulation of policies and guidelines, and particularly, to promote the execution and the evaluation of measures, programmes and projects to support the development of industrial and artisanal fishing, as well as the actions aimed at the implantation of support infrastructure to the production and commercialization of fish and the support to fishing and aquaculture, to organize and maintain the General Register of Fishing called for in Art. 93 of Decree-Law No. 221, of 28 February, 1967, to regulate and establish, with respect for environmental legislation, measures that allow the sustainable use of the highly migratory fishing resources and of those that are overexploited or not exploited, as well as supervising, coordinating and guiding the activities related to the support infrastructure for production and circulation of fish and the aquaculture stations and posts, and establish, in coordination with the federal district, states and municipalities, rational programmes for the use of aquaculture in public and private waters, with a basic structure including the Cabinet, the National Council of Aquaculture and Fishing and up to two Subsecretaries.

Furthermore, according to Article 23 of Law No. 10.683 of 2003 the SEAP is responsible for:

- Issuing licences, permissions and authorizations for the exercise of commercial and artisanal fishing and aquaculture in the fishing grounds in national territory, including the continental, interior waters and the territorial sea of the Continental Shelf,

the Exclusive Economic Zone, adjacent areas, and international waters for the capture of:

- a) highly migratory species, according to the United Nations Convention on the Law of the Sea (UNCLOS), with the exception of marine mammals;
 - b) under or non-exploited species; and
 - c) overexploited species or those threatened with overexploitation, observing the dispositions of § 6 of Art. 27;
- Authorizing the leasing of foreign fishing boats to operate in the capture of species mentioned in lines a and b of item I, except in interior waters and in the ocean territory;
 - Authorizing the operation of foreign fishing boats, in those cases called for in international fishing accords signed by Brazil, to exercise their activities under the conditions and limits established in the respective accords;
 - Supplying the Ministry of the Environment with data from the General Registration of Fish related to the licences, permissions and authorizations issued for fishing and aquaculture, for the purposes of automatic registration of beneficiaries in the Federal Technical Register of Potentially Polluting Activities and Users of Environmental Resources;
 - Passing on to the IBAMA 50% of the income from fees for services charged as a result of the activities indicated in item I, that are related to the expenses for the activities of inspection of fishing and aquaculture;
 - Supporting, providing assistance and participating, in interaction with the Ministry of Foreign Relations, in the negotiations and events that involve compliance with rights and the interference in national interests about fishing, the production and commercialization of fish and the interests of this sector in particular;

as an integral part of the National Environmental Policy (PNMA), instituted by Law No. 6.938 of 1981, and by the National Marine Resources Policy (PNRM), created by a decree of 12 May, 1980.

- Granting economic subsidies for the price of diesel fuel instituted by Law No. 9.445 of 1997 operational.

Law No. 10.683 of 2003 attributes to the Ministry of the Environment responsibilities for the fishing activities related to SEAP, as expressed in Article 27 item XV:

The issues that constitute the areas of responsibility of each Ministry are the following:

Ministry of the Environment:

- a) ...
- b) policies for preservation, conservation and sustainable use of ecosystems, biodiversity and forests;

§ 6 In the exercise of the responsibility indicated in line “b” of item XV, in the factors related to fishing, it is up to the Ministry of the Environment:

- To establish the rules, criteria and standards for use of the species that are overexploited or threatened with overexploitation, as determined by the best existing scientific data, except for those referred to in line “a” of item I of § 1 Art. 23;
- To provide support, assistance and to participate, in conjunction with the Special Secretariat of Aquaculture and Fishing of the President of the Republic, and together with the Ministry of Foreign Relations, in business and events that involve the compliance with rights and interference in the national interests concerning fishing.

In addition to SEAP fisheries are co-managed from the aspect of resource protection. The policies for the preservation, conservation and sustainable use of natural resources are under the jurisdiction of the Ministry of the Environment (MMA) and the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA). Thus, IBAMA, the executive

organ of the National Environmental Policy, is in charge of coastal zone and EEZ fisheries from an environmental protection perspective. In the coastal states of the federation, joint action between the state and federal government is possible for monitoring natural and fishing resources.

The Brazilian government travelled a long way to reach the current organizational structure in relation to fishing activities. After the creation of the Superintendence of Fishing Development (SUDEPE) in 1962, the fisheries sector in Brazil was linked to the Ministry of Agriculture. This was only modified in 1989 when SUDEPE was absorbed by IBAMA. Thus, with the creation of IBAMA, fishing stocks, from the government’s perspective, would not be considered only as an economic resource, but also as natural resources. Dias Neto affirmed:

Thus, the 1990s began under the aegis of a new perspective. Fishing began to be managed by an agency that considered fishing resources as environmental resources and whose activity is predominantly informed by the public interest.²⁹

After 1998, with the creation of the Department of Aquiculture and Fishing at the Ministry of Agriculture, IBAMA decreased its responsibility in terms of fishing. With responsibility for the sector divided between a Ministry responsible for the conservation of natural resources and another responsible for the development of an economic activity, the conflict became apparent. Dias Neto commented on this conflict that was created by placing the Department of Fishing and Aquiculture (DPA) within the structure of the Ministry of Agriculture:

Decree No. 2681, of 21 August, 1998, which created the Department of Fishing and Aquaculture (DPA), in the structure of the Ministry of Agriculture, Animal Husbandry and Food Supply (MAPA), instigated the competition for space within the executive branch. Although DPA was not structured and provided with human resources in the states to execute its functions, its existence only intensified the institutional disputes between the MMA and MAPA, to the degree that

29 Dias Neto, supra, note 13, p.138.

*DPA did not demonstrate a willingness to work together with IBAMA to resolve the concrete problems of national marine fishing, but disputed politically and in discourse all the attributions concerning the management of national marine fishing.*³⁰

With the creation of SEAP, the conflict did not change. The dispute for space in the executive power continued because the Secretariat functioned with the status of a Ministry, and thus had power equal to the MMA in the federal government. The clash of policies for the Development of Economic Activity and those for Environmental Protection is evident. This applies not only to the fishing sector. Ministries such as Agriculture, and Mines and Energy also have serious conflicts with the MMA for the same reason.

Concerning the maritime region, the need to find a common language between the federal government ministries and coordinated issues related to the National Policy for Marine Resources, established in 1974, resulted in the creation of the Inter-ministerial Commission for Ocean Resources (CIRM). The CIRM developed into a forum with a tremendous opportunity to establish a unified federal government policy for marine resources. It did, however, not demonstrate considerable effectiveness.

All of this commotion related to the control of marine fishing in Brazil caused fishermen to lose confidence in the government. Due to this lack of trust, government efforts seeking participation of fishermen have had difficulties in achieving success.

c) Legislation on nature conservation

Art. 225 of the Constitution is the basis for the Law No. 9.985/2000 which established the Sistema Nacional de Unidades de Conservação da Natureza (SNUC). This law is responsible for presenting means and strategies to society for attaining the right to an ecologically balanced environment as expressed in the Brazilian Constitution. The law also establishes the obligation of society to protect the environment, which is also contained in the Constitution, i.e., in Art. 225, which states that ‘it is the responsibility for the

government and society to protect and preserve the environment for present and future generations’. This means that the SNUC Law incorporates the principle of participation of society in the management of natural resources.

In addition to the Brazilian Constitution, international treaties signed by the Brazilian government call for public participation in environmental management. As Biderman and Telles do Valle note:

*Different international treaties refer to public participation in environmental management as a presumption of sustainable development. Agenda 21 calls for broad public participation, principally through the active involvement of non-governmental organizations and all the groups involved in decision making. It proposes that formulation and decision making, in all segments, must be conducted through consultative processes. More recently, the Millennium Declaration, signed by the United Nations in 2000, established principles that sought to strengthen democracy in environmental management. In 2002, during the United Nations World Summit on Sustainable Development, the Johannesburg Declaration on Sustainable Development was signed, where the signatory nations recognize that sustainable development requires a long-term perspective and the broad participation of society in the formulation of public policies, decision making and in the implementation of measures, at all levels. It also establishes that all the actors should act as partners with all the important agents, with respect for the independent role of each.*³¹

In this sense, the SNUC Law follows a global trend in opening management processes of natural resources to civil society. That is one of the reasons why the SNUC Law can positively affect the management of fisheries in Brazil.

In addition to the principle of social participation, the SNUC Law reflects the principle of precaution because the creation of protected areas is based on the concept of avoiding environmental damage in areas of

30 Dias Neto, supra, note 13, p.116.

31 Biderman, R. and Telles do Valle, R.S. (2003). *Parecer jurídico sobre premissas e condicionantes para a gestão compartilhada de unidades de conservação: reflexões e propostas para a construção de um modelo para o Estado de São Paulo*. São Paulo.

important environmental interest. This principle is also applied to the buffer zones³² of conservation units (UCs).

Another strategy to assure the right to an ecologically balanced environment is to impose sanctions against offenders as prescribed in § 3 of Article 225 of the Constitution. This Constitutional Article was implemented by Law No. 9.605/1998, called the Environmental Crime Law, which addresses in Articles 33, 34, 35 and 36 conduct related to fishing activity.

Article 33 declares to be criminal the act of provoking, by the release of effluents or dumping of materials, the destruction of aquatic fauna species in rivers, lakes, ponds, lagoons, bays or Brazil's territorial waters.

2. Instruments promoting fisheries

With the transfer of responsibility from the Department of Fishing and Aquaculture to the SEAP, the latter was given the mission to formulate guidelines and policies for the development and support of fish production. SEAP seeks to support the formulation of these policies in the National Council of Aquaculture and Fishing (*Conselho Nacional de Aquicultura e Pesca – CONAPE*) because it is responsible for: a) supporting the formulation of national policy for fishing and aquaculture; b) proposing guidelines for the development and support of aquaculture production and fishing; c) reviewing guidelines for the development of the action plan for aquaculture and fishing; and d) proposing measures aimed at guaranteeing the sustainability of fishing activities and aquaculture. The Council, established by Law No. 10.683 of 2003, is presided over by the Secretary of the SEAP and involves the principal actors related to fishing in Brazil. Nevertheless, the Council is not a forum that is completely able to help in the formulation of policies to structure the fishing sector in Brazil because it includes neither agencies reporting to the Ministry of the Environment nor sectors linked to the environmental field of organized civil society.

Articles 34 and 35 focus on the act of fishing during banned seasons, in prohibited locations or by non-permitted means.

Article 36 determines that fishing is considered to be all acts intended to remove, extract, collect, catch, seize or capture specimens of the group of fish, crustaceans, molluscs, and aquatic vegetation, susceptible or not to economic use, with the exception of species threatened with extinction, found in the official lists of flora and fauna. This is a more complete definition than the previous one found in Article 1 of the Fishing Code of 1967 which defined fishing as all acts that intend to capture or extract animal or vegetable elements for which the water is their normal or most frequent living environment.

When it began its activities, SEAP presented a project that countered the former project of the Department of Fishing and Aquaculture of the Secretary of Rural Support and Cooperativism of the Ministry of Agriculture as demonstrated by the text of the project presented in January 2003:

The previous policy of the Department of Fishing and Aquaculture – DPA/MA - had as its guidelines the sustainable development of fishing and aquaculture, the generation, adaptation and transfer of scientific and technological knowledge, the definition of requirements for quality, cleanliness and safety for products of fish origin. Its strategy was aimed at the support of ocean fishing in the EEZ and in international waters, the development of continental and marine aquaculture, the recovery and rationalization of coastal fisheries, the competitive insertion in the international market and the opening of the spaces for the attraction of capital, with the strategic vectors, ocean fishing and aquiculture.

Although these policies and strategies formally include artisanal fishing, family aquaculture, and the

32 Buffer zone: the surrounding areas of a conservation unit, where human activities are subject to specific norms and restrictions, in order to minimize negative impact on the unit. Art. 2º XVIII Law no. 9985/00.

recovery of coastal and continental fishing, in practice priority was nearly exclusively given to industrial marine fishing and aquaculture. Coastal and continental fishing – by artisanal, family or small and micro outfitters – suffered a process of stagnation or decline, resulting in part from an unsuitable administrative model and applied policy due to the historic absence of an appropriate organization and the consequent overexploitation of stocks.

To change this reality the new SEAP policies seek to focus also on small fishermen, although support of ocean fishing in fact continues. The policies, in addition to being worked within the realm of the National Council, have the support of two National Conferences of Aquaculture and Fishing. They are summed up in the summary text prepared by SEAP for the first National Conference for Aquaculture and Fishing.

The role of the state under the auspices of SEAP/PR will be to provide support by investing in the modernization of the production chain of aquaculture and fishing, stimulating partnerships with the states and municipalities, and encouraging the formation of cooperatives and associations. Its goal will be to provide the aquaculture and fishing sectors with support infrastructure for activities that consider not only the stimulation or creation of modern companies for fish processing, but also support for exports and internal commercialization.

The policies developed for the fishing sector have been based only on the apparent needs of the sector because the actors involved in public consultations are mostly members of the productive sector and government. Universities and environmentalists have little space in the debate, for example, in the National Conferences.

In this context a so-called Pro-Fishing Fleet programme was created by Federal Law No. 10.849/2004. The second article of the law establishes financing for the purchase, construction, conversion, modernization, adaptation, and outfitting of fishing boats in order to reduce pressure on over-exploited stocks, provide efficiency and sustainability to the coastal and continental fishing fleet, promote maximum utilization of the catch, increase production

of national fishing, use fishing stocks in the Brazilian Exclusive Economic Zone and in international waters, consolidate the nation's ocean fishing fleet, and improve the quality of the fish produced in Brazil.

The law that created the Pro-Fishing Fleet programme is implemented by Decree No. 5.474 of 2005, which, in Article 13, establishes conditions for the projects presented to the programme. In addition to being subject to economic-financial analysis, the projects and proposals for the construction, purchase and modernization of boats must have detailed technical specifications and meet the following requirements:

- (i) – have approval from the Special Secretariat for Aquaculture and Fishing of the Presidency of the Republic of the proposals' technical factors, as well as approval of the applicant's capacity to develop the proposed activity;
- (ii) – have previous permission to fish by SEAP; and
- (iii) – have a licence to build or convert a boat issued by the Marine Command.

It should be noted that environmental variables must be considered in the approval of the project because the sole paragraph of Article 13 establishes that the technical specifications in the Article should be within the guidelines of the environmental and technical manual prepared jointly by SEAP, the Ministry of the Environment and the Ministry of Defence and published and distributed by SEAP.

Decree No. 5.474 furthermore creates a Management Group for the Pro-Fishing Fleet Programme, composed of a representative of each of the following bodies:

- Special Secretariat for Aquaculture and Fishing of the President of the Republic, which will coordinate the Group;
- Ministry of the Environment;
- Ministry of Defence;

- Ministry of National Integration;
- Treasury Ministry;
- Ministry of Transportation;
- Ministry of Planning, Budget and Management;
- Banco do Nordeste do Brasil S.A. – BNB;
- Banco da Amazônia S.A. – BASA; and
- Banco Nacional de Desenvolvimento Econômico e Social – BNDES.

A subsidy for the purchase of diesel fuel was established by Federal Law No. 9.445/97 which authorizes the Executive Branch to provide economic support for diesel fuel purchased to supply Brazilian fishing boats. It is limited though to the amount of the difference paid between national and foreign fishing boats. The law was implemented by Decree No. 4.969/04, which establishes in its second article that beneficiaries of the subsidy will be owners of vessels, outfitters and those that lease Brazilian fishing boats. It also determines that Brazilian individuals who lease foreign fishing boats under the terms of the law will have the same rights as the other beneficiaries indicated in this article. For approval and support under the measure, the individual or corporation can be represented by a federation or colony of fishermen, a fishing cooperative, a union of outfitters or fishermen, or any other outfitters' or fishermen's association.

This type of policy appears to oppose global trends because on the world scene there is recognition of the growing overcapitalization of the fishing sector and the need to stimulate the 'decommissioning' of boats.³³ This criticism is warranted, but the modernization of the fleet is also important as it allows Brazil to better exploit its EEZ. As long as the programme is articulated in accordance with the country's environmental policies and respects the international accords to which Brazil

is a signatory, it can be useful to the Brazilian nation.

Concerning the recovery of stocks, which is essential for the strengthening of the Brazilian fishing sector, there is no well-defined policy as there is a considerable lack of information. It is essential that scientific research is supported, especially on indicators for the state of the stocks and their ecosystems.³⁴ Dias Neto demonstrates that scientific research is the indispensable basis for obtaining success in promoting the management of the sustainable use of fishing resources:³⁵

*Among the various types of information needed for each resource we highlight the life cycle, population dynamic, potential, the environment where it is found, the interaction between the resource, the environment and fishing, as well as the social, economic and the political and institutional aspects related to fishing activities.*³⁶

The structural policies in the fishing sector in Brazil seem retrogressive due to the division of competencies between IBAMA and SEAP. It strengthens the competition for power in the government and does not help in the dialogue with the stakeholders because people do not perceive government as one entity. It is more difficult to create sound policies if the voice of the government is divided.

The paradigm in the elaboration of policies has strong economic aspects, although it is well known that there is a need to focus on fishing technologies that cause less impact and on developing environmental awareness of actors related to fishing. After all, Brazilian environmental legislation is well developed and some sectors of the government seek to implement it. Unfortunately, the government as a whole has done little to implement environmental policies in the country. The implementation that has taken place has been due to a strong effort by the Ministry of the Environment and support from organized civil society. However, other government sectors have tended to

33 Jablonski, S. (2005). 'Relatório enviado ao Centro de Gestão de Estudos Estratégicos (CGEE) do Ministério da Ciência e Tecnologia'. In: *Seminários Temáticos para a 3ª Conferência Nacional de Ciência e Tecnologia*. Brasília.

34 Ibid.

35 Dias Neto, supra, note 13, p.92.

36 Ibid., p.93.

ignore environmental legislation or interpreted rules in an extremely permissive manner. Yet, there are laws that were prepared over many years and provoked an important debate in the nation and are playing an important role in the Brazilian natural resource

3. Instruments of fisheries management

Brazil uses many instruments of fisheries management. They include licensing requirements, establishing seasons when fishing is prohibited, minimum catch size, gear restrictions, limitations on the size and/or number of fleets, closing of areas to fishing, and the establishment of protected areas, such as marine UCs.

However, as noted above, the effectiveness of these instruments suffers from uncoordinated competences of diverging administrative authorities. Access and capture restrictions are regulated by IBAMA, the Ministry of the Environment and SEAP in accordance with their responsibilities established by Law No. 10.683/03.

On the one – the environmental – side, Article 27 of Law No. 10.683/03 entrusts the MMA with competences to enact policies for the sustainable use of ecosystems and to establish the rules, criteria and standards for use of those species that are overexploited or threatened with overexploitation. Art. 1 of Decree No. 5.583/05 delegates powers to IBAMA to establish rules about the sustainable use of fishing resources referred to in the Article cited above. These powers are executed by regulatory acts established in consultation with other Ministries and Secretariats of SEAP, as well as those that involve foreign institutions or authorities. The text of the decree also maintains that the rules established by IBAMA must obey the guidelines, criteria and standards defined by MMA.

On the other – the economic – side, Article 23 of the same Law No. 10.683/03 entrusts SEAP with competences of supporting the development of the fisheries sector, of establishing measures concerning sustainable fisheries, and of issuing authorizations for the exercise of commercial and artisanal fishing.

a) Licensing

The registration and licensing of fishing activities is regulated by SEAP's Normative Instruction No. 3 of

management. It is clear in Brazil that fishing and environmental policies must be compatible. SEAP, besides the fishery users, should have a closer dialogue with the Ministry of Environment and civil society before establishing structural policies.

12 May, 2004. SEAP is also in charge of implementing the rule. It operates the General Fishing Register (RGP) which was established by Decree Law No. 221 of 1967. The following activities need to be registered or licensed:

- Any professional fisherman – artisanal or industrial – must be registered and carry a card documenting the registration (Art. 6);
- Any fishing vessel must be registered (Art. 17);
- The construction, importation, acquisition and conversion of a fishing vessel as well as the operation of the vessel for fishing purposes must be authorized. In the authorization the methods of catch, species to be caught and the area of catch must be determined (Articles 10 and 11);
- A shipowner operating one or more vessels above 10 tonnes needs a special registration (Art. 9); and
- Fish processing industries operating in Brazilian territory (Art. 20).

The criteria guiding the registration and authorizations aim at allowing the administration an overview of fishing activities (including also to ensure the payment of taxes) rather than striving for the regulation of fisheries in terms of sustainability. It is true that the authorization of vessels and their operation would allow some kind of resource protection by limiting catch capacity but in the absence of overall plans this potential appears not to be used. Anyway, no individual catch quotas are allocated. In sum, therefore the Brazilian fisheries management does not apply what is called a rights-based system.

b) Closed seasons

This management tool has been used for a long time in Brazil. Closed seasons relate to a specific species in a

designated area. While a species in a particular area is off-limits, the government provides social security for the fishers who are not allowed to work. This is a way of helping the workers to feed their families but also a strategy to keep fishers away from the stocks. One example of a species that cannot to be taken at a particular time of year is the Seven-whisker shrimp (*Xiphopenaeus kroyeri*). According to IBAMA's Normative Instruction No. 91/2006, fishing of this species is forbidden every year from 1 October-31 December in the area between the parallels of 18°20'S (border between the states of Bahia and Espírito Santo in the northeast) and 33°40'S (Chuí river, state of Rio Grande do Sul next to the border with Uruguay).

c) Minimum catch size

The minimum catch size of certain species is fixed in a specific region according to scientific data. After the first scientific meeting for the determination of the minimum catch size of marine and estuarine fishes in the south-east and south of Brazil in 2003, IBAMA established, by Annex I and II to Rule No. 73/03, the minimum catch size for 39 species.

d) Gear restrictions

Restriction of gear is an important management tool to avoid bycatch and damage to the sea floor. Technology has not provided gear that protects ecosystems as a whole but the use of explosives, for example, is completely forbidden in Brazil. It is important to specify which gear can be used to fish which species. Rules relating to the fishing of many species in Brazil fix which gear can be used. For example, the MMA/SEAP Rule No. 23/2005 determines that the only gear that can be used to catch the Frog fish (*Lophius gastrophysus*) are bottom-fixed nets. The same rule limits the number of nets that can be transported by each vessel to 1000.

e) Limiting vessel size and numbers

Limiting the size and/or number of vessels is fundamental to controlling fishing effort and achieving sustainable fishing. For instance, fishing in the buffer zone of Arvoredo Biological Marine Reserve is one

example of how size limitations are implemented. Large boats (more than 10 gross tons) are prohibited in this zone.³⁷ Another example: fishing for Royal crab (*Chaceon ramosae*), a fleet of only three vessels is allowed within the area between the parallels 19°00'S and 30°00'S.³⁸

f) Participation and accords

Participatory management of fishing resources is still incipient in Brazil, although some initiatives are being taken. While they have not yet been tested in marine fishing, Brazil has achieved positive results with the 'Fishing Accords'. The legal base for the accords was established in IBAMA's Normative Instruction No. 29³⁹ and is aimed at fishing in inland waters. Nevertheless, it appears to be an adequate model for participatory management of fishing resources that could go far in helping to resolve conflicts between those involved in marine fishing and government agencies.

The Fishing Accord is a set of specific measures obtained through consensual agreements among the various users in a fishing community and the management organ of the fishing resources in a given geographic area. The measures should meet certain criteria:

- (i) – that they represent the collective interests operating in the fishing resources (commercial fishermen, subsistence fishing, riverside dwellers, etc.) in the area to which the Accord applies, as long as they do not harm the environment which is a public asset to be assured and protected;
- (ii) – that they maintain the sustainable use of fishing resources, in order to strengthen fishing and fishermen;
- (iii) – that privileges not be given to one group more than others, that is, the restriction of equipment, size of the fleet, protected areas, etc., must be applicable to all those interested in using the resources;

37 See Section III below.

38 Normative Instruction SEAP No. 4/2005, Art. 2 III.

39 IBAMA Normative Instruction No. 29 of 31 December, 2002.

(iv) – that they are operationally viable, principally in terms of inspection;

(v) – that they do not include regulation elements which are exclusively attributed to the government as described by law (penalties, fines, fees, etc.);

(vi) – that they be concretized by normative decrees complementary to the general normative decrees, which regulate the fishing activity in each hydrographic basin.⁴⁰

As can be observed, a new chapter has begun in Brazil in the history of fishing resource management. Nevertheless, there is still a long way to go until the state and society mature enough to allow for a definitive change in comparison to historical trends.

A bottom-up approach must be established in the country. Although standards managing fisheries rules are based on technical studies, most of them have flaws due to the centralized form in which they are prepared. In most cases it does not involve the actors and neglects traditional knowledge of the fishermen, as well as their interests. Fishing control will certainly be not successful if there are conflicts with fishermen due to ignoring their ability to participate in the management processes. If we analyze the means of administration applied to some of Brazil's principal fishing regions and stocks, the need for change becomes obvious.

One example are lobsters (*Panulirus argus* and *P. laevicauda*) which have been largely overfished⁴¹

4. Special provisions of fisheries governance in the EEZ

a) *Geographical scope*

Brazil's Federal Constitution of 1988 defines in article 20, item V, the assets of the federal government as the natural resources of the continental shelf and of the EEZ. The Brazilian EEZ is governed by Law No. 8.617 of January 1993 concerning the territorial sea, the contiguous zone, the EEZ, the Brazilian continental

although the following measures have been taken: limiting the number of boats, establishing a closed season, setting a minimum catch size, restricting the use of some types of gear, among others. These measures may be observed, e.g., in Normative Instruction No. 5 of 4 May, 2005 from the Ministry of Environment.

Similar measures have been deployed in the case of the *Camarão-rosa* or Pink shrimp (*Farfantepenaeus brasiliensis* and *F. paulensis*) in the south/south-east, whose stock levels are considered to be at a critical level.⁴² These measures are issued in rules such as IBAMA's Normative Instruction No. 92 of 2006.

The *Sardinha-verdadeira* (*Sardinella brasiliensis*) stock has suffered one of the most serious collapses⁴³ in the area. The management measures for sardine include limitation of the fleet, a minimum catch size and the adoption of closed seasons.

Certainly the Brazilian government, in addition to changing methods for elaboration of management rules for fishing resources, needs to strengthen its inspection and control structure because the rules in force have not been adequately enforced. This is not only because of the fragile technical and participatory base in their elaboration, but also because of the great shortage of personnel and resources in the relevant government agencies, especially the Brazilian environmental agency, IBAMA.

shelf and other measures. According to article 6 of this Law the Brazilian EEZ extends out to 200 nm from the shoreline, determined from the base lines that serve to measure the width of the territorial sea.

The Brazilian EEZ encompasses nearly 3.5 million km². It is bordered in the north by the estuary of the

40 See items I-VI of Art. 1 of Normative Instruction No. 29.

41 Dias Neto and Marrul Filho, *supra*, note 22.

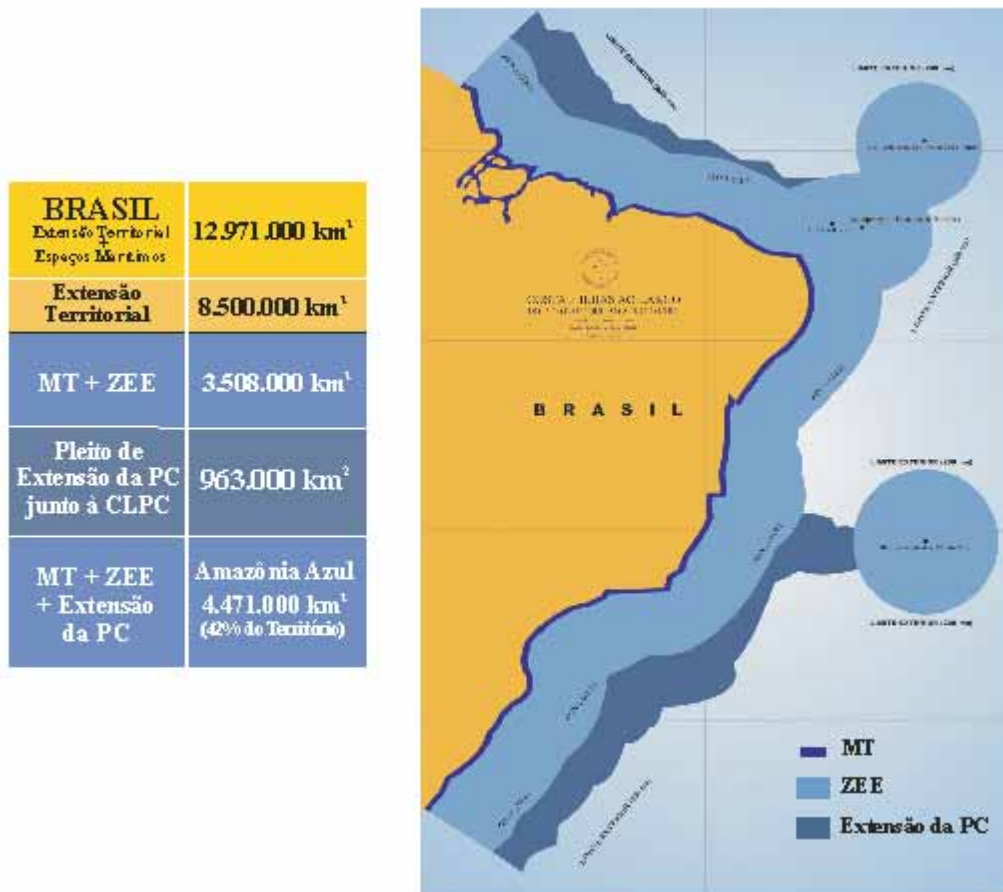
42 Ibid.

43 Ibid.

Oiapoque River and on the south by the mouth of the Chuí River. It reaches to the east and includes the areas around the Atol das Rocas, the Fernando de Noronha, São Pedro and São Paulo archipelagos and the islands of Trindade and Martin Vaz.⁴⁴ Brazil has requested from the United Nations an increase of 900 thousand km² to this area, at points where the continental shelf extends beyond the 200 nautical miles (up to 370 km).

If the Brazilian proposal is accepted, Brazilian jurisdictional waters will total nearly 4.5 million km². An area larger than the green Amazon, it composes an Amazon of the sea, the Amazonia Azul (Blue Amazon).⁴⁵ The request was presented in 2004 and in 2007 the United Nations (UN) approved 75% of what Brazil had asked for.

Figure 1. Map of Brazilian sea including the demanded extension of the continental shelf (Amazonia Azul)



Source: CIRM Brazilian Navy

44 <http://www.mma.gov.br/index.php?ido=conteudo.monta&idEstrutura=19&idConteudo=1189> (visited 20 April, 2007).
 45 https://www.mar.mil.br/menu_v/amazonia_azul/amazonia_azul.htm (visited 20 April, 2007).

b) Fisheries management in the EEZ

Fishing is an important activity in the EEZ. The method of fishing used in the region is to a large part industrial ocean fishing.⁴⁶ Nevertheless, Brazil does not have a fleet large enough to fully exploit the fishing resources found in its EEZ. As pointed out earlier, the country has about 30,000 vessels, that are officially registered by SEAP, but only 10% of them are considered as industrial fleet.⁴⁷ This fleet is designed to operate in fishing grounds more than 200 metres out from the shore-line. It offers, in the short term, a growth potential or expansion of fishing effort.

In accordance with UNCLOS, Brazil has sovereign rights and jurisdiction over its EEZ. Thus, Articles 7 and 8 of Law 8.617 of 1993 which transposes Article 56 of UNCLOS provides:

Art. 7. In the Exclusive Economic Zone, Brazil has sovereign rights for purposes of exploration and utilization, conservation and management of natural resources, living or non-living, of the waters superjacent to the seabed as well as its subsoil, and in relation to the other activities that seek the exploration and utilization of the zone for economic purposes.

Art. 8. In the Exclusive Economic Zone, Brazil, in the exercise of its jurisdiction, has the exclusive right to regulate scientific marine research, the protection and preservation of the maritime environment, as well as the construction, operation and use of all types of artificial islands, installations and structures.

Sole paragraph. Scientific marine study in the Exclusive Economic Zone can only be conducted by other States with the previous consent of the Brazilian government, according to the terms of the legislation in vigor that regulate the issue.

According to article 62 of UNCLOS, however, when a coastal state does not have the capacity to harvest all of its allowed catch, it should give other States access to the surplus of this catch, through

accords or other adjustments in conformity with the modalities, conditions, laws and regulations. To compensate for the lack of Brazilian boats, the country allows foreign boats to use its EEZ for fishing as long as these boats are leasehold or are under the benefits of international agreements concluded by Brazil.

This question is handled by Federal Decree No. 4810 of 2003, which established rules for the operation of fishing boats in Brazilian fishing zones, in the High Sea and through international agreements. According to Article 4 of the decree, the leasing of foreign fishing boats by a Brazilian fishing cooperative or company is considered a temporary instrument of the national ocean fishing development policy. The goal, established by the decree, is to provide the following benefits: a) an increased supply of fish on the domestic market and generation of income; b) increased labour opportunities and generation of jobs in the Brazilian fishing sector; c) the rational and sustainable occupation of the EEZ; d) a stimulus to the formation of a national fleet capable of operating in deep waters and to the use of equipment with modern technologies; e) expansion and consolidation of the fishing sector; f) a source of data for improving knowledge of the living resources of the continental platform and in the EEZ; and g) the sustainable use of fishing resources in international waters.

The Brazilian fishing cooperative or company that intends to lease foreign boats must ask for authorization from SEAP which can issue permission for this kind of business as expressed in Art. 5 of Decree No. 4810. The decree established a two-year period for Brazilian companies to adopt this leasing policy. Therefore, since 2005 the only boats that have been operating in the country are those whose permissions were signed in this period (2003-2005) and are still in force. In the realm of SEAP there are discussions on a possible extension of the leasing policy.

For the conscious regulation of fishing activity in the EEZ, profound knowledge of the living resources

46 This method of fishing is incipient in Brazil and involves boats that can operate throughout the EEZ, including the most distant ocean regions, even in other countries. The boats are largely autonomous, with on-board industrial processing facilities, sophisticated equipment for navigation and for detection of schools, and they are extensively mechanized. The boats are nearly all leased from foreign countries.

47 <http://200.198.202.145/seap/html/diagnostico.htm#2> (visited 10 July, 2007).

of the region is required. For this reason, and in observance of the requirements of UNCLOS, Brazil has realized the Programme for the Evaluation of the Sustainability Potential of Living Resources in the Exclusive Economic Zone (the REVIZEE Programme).

The programme has two basic lines of motivation. The first is related to agreements reached by Brazil, upon signing UNCLOS in 1982 and ratifying it in 1988. The second is based on the internal dynamic of the national fisheries potential. An MMA analysis explains the situation:

While the estimates of the potential for marine fishing resources in Brazil are for amounts superior to 1.5 million tons per year, the effective harvests of Brazilian fishing have regularly been below 700 thousand tons per year. While the estimates – usually based on the fishing potential in known areas – may be exaggeratedly high, the limited scope of the fishing effort and the poor knowledge of the Brazilian coastal resources is undeniable. Paradoxically, this situation coexists with the overfishing and depletion of stocks of most coastal species that are the traditional targets of the Brazilian fishing sector.⁴⁸

This shows that Brazil is in need of consistent and up-to-date technical and scientific data to support the administrative measures, regulation, support and development of national fishing.

The REVIZEE and other programmes, and the leasing of foreign boats are part of the strategy to exploit the Brazilian EEZ. However, this exploitation requires innovative measures for the management of fishing.

For example, Normative Instruction SEAP No. 23 of 4 June, 2005 denotes criteria and procedures (and other measures) for catching Frog fish (*Lophius*

gastrophysus) in Brazilian jurisdictional waters in the south-eastern and southern region between the 21°00S parallel and the southern limit of the Brazilian EEZ. It is an example of a rule that translates new trends in fishing resource management in Brazil into the legal context. New management tools include:

- Setting an annual maximum catch limit of, in this case, 1,500 tons (Art. 2 V);
- Utilization of ship-borne satellite tracking equipment that allows automatic and real-time monitoring of the geographical position of the boat and of the local depth every hour (Art. 7 II);
- Placing observers on board in 100% of the fishing operations (Art. 7 III); and
- Establishing no-take areas⁴⁹ (Art. 10).

Part of the difficulties in complying with the rules established by Normative Instruction MMA – SEAP/PR No. 23 derive from the delay in introducing satellite tracking systems and the National Programme for on-board observers, which has recently been finalized by the SEAP/PR, MMA and Navy Command after more than two years of preparation.⁵⁰ Other difficulties have included the resistance of the production sector, principally due to the costs involved of the installation and maintenance of the tracking equipment and the remuneration of the on-board observers by the fishing companies.⁵¹ Overall, the Brazilian government still does not have infrastructure for controlling fisheries in the EEZ. Cooperation with the Brazilian Navy and other Brazilian institutions for controlling fisheries is needed. Much time and money have been spent drawing up new rules for the sustainable use of fisheries in the EEZ. However, a concentration of efforts and the commitment of all stakeholders involved are needed, for the rules to become effective.

48 <http://www.mma.gov.br/index.php?ido=conteudo.monta&idEstrutura=19> (visited 8 May, 2007).

49 *Áreas de Exclusão de Pesca*.

50 See Normative Instruction SEAP/PR – MMA – CM No. 2, of 4 September, 2006.

51 Peres, J.A.A. (2007). 'Áreas de exclusão de Pesca Demersal em Águas Profundas da Costa Brasileira'. In: *Áreas Aquáticas Protegidas como Instrumento de Gestão de Pesca*, p.209. Brasília: MMA.

5. Special provisions of fisheries governance in the coastal zone

Governance of fisheries, which is the sum of legal, social, economic and political arrangements used to manage fisheries, has international, national and local dimensions. It includes legally binding rules, such as national legislation or international treaties, and it relies on customary social arrangements as well as on the respective national framework provided for all economic activities.⁵²

The management of fisheries in the coastal zone is necessary, given the great impact that the development of coastal cities and economic activities is having on marine resources. Thus, a social, economic and environmental approach is needed for managing fisheries.

a) *National Coastal Management Plan*

As observed before, Brazil has had a National Coastal Management Plan since 1988. In 1997, as determined by Law No. 7.661 in Article 4 and under the influence of commitments made by Brazil at the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, the National Coastal Management Plan was revised in order to take account of the principles and guidelines called for in international agreements such as Agenda 21 and the Rio Declaration for Environment and Development of 1992. This so-called PNGC II was established by Resolution No. 005 of CIRM.

The National Coastal Management Plan comprises seven sections: 1. Introduction; 2. Principles; 3. PNGC's Area of Influence; 4. Instruments; 5. Objectives; 6. Programmed Actions; 7. Attributions and Competencies; 8. Funding.

Of these, we will focus on the instruments, and the attributions and competencies. The instruments are:

- State Coastal Management Plan;

- Municipal Coastal Management Plan;
- Information System of Coastal Management;
- Coastal Monitoring Environmental System;
- Report on the quality of the environment in the Coastal Zone;
- Ecological Economic Coastal Zoning (ZEE); and
- Coastal Zoning.

As regards attributions and competencies, responsibilities are shared amongst the federal, state and municipal levels. At the federal level, the responsibility is divided between the Environmental Ministry and IBAMA in the following manner.

The Ministry of the Environment, Water Resources and the Legal Amazon⁵³ (*Ministério do Meio Ambiente – MMA*) is the central organ in the National Environmental System (*Sistema Nacional do Meio Ambiente – SISNAMA*). The Ministry will coordinate the implementation of the PNGC and will also have the following remit:

- a) to permanently supervise and evaluate the implementation of the PNGC, ensuring compatibility of the State and Municipal Plans with the PNGC and other federal rules, without prejudicing the authority of other agencies;
- b) to promote inter-sectoral and inter-institutional coordination;
- c) to promote institutional strengthening, through technical, financial, and methodological support;

⁵² <http://www.fao.org/fishery/topic/2014> (visited 12 January, 2008).

⁵³ Amazonia Legal (Legal Amazon) is a political concept used for territorial and economic planning. It corresponds to the geographic space that covers the states of Amazonas, Amapá, Acre, Mato Grosso, western Maranhão, Pará, Rondônia, Roraima and Tocantins, with a surface of approximately 5 million km² which is about 60% of the national territory. The concept was instituted by Law 1.806 of 1953.

- d) to propose general rules, referring to the control and maintenance of coastal environmental quality;
- e) to promote the consolidation of the Coastal Management Information System (*Sistema de Informação do Gerenciamento Costeiro – SIGERCO*);
- f) to establish procedures for broad promotion of the PNGC; and
- g) to structure, implement and monitor the programmes for Monitoring, Control and Regulation in the areas of its responsibility.

The MMA will work closely together with agencies and councils at the federal, state and municipal levels, whose remits are linked to PNGC activities.

To support the MMA, the PNGC II also instituted a commission and a sub-commission relevant in our context. The commission, created within the CIRM, is called the Group for Integration of Coastal Management (*Grupo de Integração do Gerenciamento Costeiro – GI-GERCO*). It promotes and articulates federal actions in the realm of the coastal zone based on the approval of the Federal Action Plans (*Plano de Ação Federal para a Zona Costeira – PAF-ZC*). The sub-commission is linked to GI-GERCO and promotes integration amongst states, and within the federal government, over all issues related to coastal management.

According to SISNAMA, the MMA has the role of the articulator of policies, while IBAMA is responsible for the execution of policies. IBAMA has the following remit:

- a) to execute federal control and maintenance of coastal environmental quality in strict compliance with rules established by CONAMA;
- b) to support and participate in the consolidation of the Coastal Management Information System (SIGERCO), jointly with MMA and

other member agencies of SISNAMA in actions needed for its complete operationalization;

- c) to execute and accompany the Monitoring, Control and Regulatory programmes;
- d) to propose actions and projects for inclusion in the Federal Action Plan;
- e) to execute actions that seek to maintain and support sustainable economic activities in traditional communities in the coastal zone;
- f) to execute actions of the PNGC according to the guidelines defined by the MMA;
- g) to prepare Annual Operating Plans related to the activities under its responsibility, in a form compatible with priorities defined in the Federal Action Plan;
- h) to supply information and results obtained from implementation of the PNGC, as a contribution to the Report on Environmental Quality in the Coastal Zone;
- i) to make the actions of the PNGC compatible with public policies that apply to the coastal zone;
- j) to conduct environmental licensing of development or activities of regional or national impact within the coastal zone, taking into account applicable rules; and
- k) to promote, in alignment with the states and municipalities, the establishment of federal UCs and to support the implantation of state and municipal UCs in the coastal zone.

On the state level, responsibilities are similar to those at the federal level, though all information must be shared with other states and the Federal Government in order to help the planning of the country's coastal zone as a whole. It is important to emphasize that the states and municipalities are essential for the coastal management plans to become effective.

States will, within their spheres of responsibilities and jurisdiction, plan and execute the coastal management activities with the aid of municipalities and society. The states are responsible for:

- a) designating the Coordinator of the State Coastal Management Plan;
- b) preparing, implementing, executing and monitoring the State Coastal Management Plan, obeying the federal legal rules and the PNGC;
- c) organizing and consolidating the state Coastal Management Information System;
- d) organizing, implementing, executing, and accompanying the monitoring programmes with information that should be consolidated periodically in the Environmental Quality Report for the State Coastal Zone;
- e) promoting inter-sectoral and inter-institutional accordance at the state level in their field of responsibility;
- f) promoting the strengthening of entities directly involved in coastal management, through technical, financial and methodological support;
- g) preparing and supporting the broad promotion of the State Coastal Management Plan and the PNGC; and
- h) promoting the organization of the State Council.

Planning at the municipal level is essential for establishing territorial order. It is important that the municipalities, when planning their territories, consider policies relevant to the coastal zone. The municipalities also have a great capacity to supply essential information for the planning of the coastal zone at the

state and federal level. The municipalities, observing federal and state rules and standards, will plan and execute their coastal management activities in intergovernmental accordance and with the participation of society. The municipal responsibilities are:

- a) to prepare, implement and accompany the Municipal Coastal Management Plan, following the PNGC and the State Coastal Management Plan guidelines;
- b) to structure the municipal Coastal Management Information System;
- c) to structure, implement and execute the monitoring programmes;
- d) to promote the strengthening of the entities directly involved in coastal management through technical, financial and methodological support; and
- e) to promote the structuring of the municipal council.

In December 2004, Law No. 7.661 was specified by Decree No. 5.300. In Article 3, items I and II of this decree, the most common definition of the coastal zone is given:

The Brazilian coastal zone, considered a national patrimony by the Constitution of 1988, corresponds to the geographic space of the interaction of air, sea and land, including its resources, renewable or not, encompassing a maritime portion and a terrestrial portion, with the following limits:

The maritime portion: the space that extends for 12 nautical miles, measured from the base lines, thus including the totality of the territorial sea;

Land portion: the space composed of the limits of the Municipalities that suffer direct influence of the phenomena occurring in the coastal zone.⁵⁴

54 Federal Decree 5.300 of December 7, 2004.

This definition of the coastal zone reveals the great importance of this region for a country, which has 8,500 km of coastline. The Brazilian coast is divided into four regions: north, north-east, south-east and south.

From an environmental perspective, one possible way of managing fisheries characteristic to the coastal area (although it could also be applied to the EEZ) is the establishment of marine protected areas (MPAs) by means of UCs.⁵⁵ It is important to understand that the implementation of MPAs is not part of SEAP's policy. It is just starting to be studied by specialists and the government as a fisheries management tool, though in reality the management of MPAs in Brazil have contributed a lot to improving fisheries management. However, the need to restore fish stocks has drawn attention to the need to manage fishing using the ecosystem approach. Reserves are comparatively more effective than traditional tools of fishing management. They can be established more simply and incur similar or even lower implementation and management costs.⁵⁶ Of course, the implementation of MPAs should not be the only way of managing fisheries:

They offer one important strategy for maintaining biological diversity but should not be relied upon as a single solution for management. Reducing the effects of pollution from land and freshwater are important resource management strategies as are fishing gear restrictions, catch limits and other fisheries management techniques, such as timed closures.⁵⁷

The strategy to establish MPAs suggests a new paradigm for the management of fishing resources. In Brazil, it has become common to call these areas Natural Conservation Units. Since 2000, the country has a National System of Natural Conservation Units (SNUC).

The system, established by Law no. 9.985, encompasses the basic principles of environmental law such as the principle of public participation in the environmental management. Despite the fact that the system was designed basically for terrestrial areas, it may also be applied to marine sites with a great degree of effectiveness. To better understand the National System of Conservation Units, a brief analysis of its principal measures will be conducted focusing mainly on its participative elements.

b) *The National System of Natural Conservation Units – SNUC*

Until the promulgation of the SNUC Law, Brazil did not have a legally established system of UCs. The different categories were created by a few laws that treated the units in an isolated manner and with no planning to integrate the different categories.

Nevertheless, as Mauricio Mercadante reveals, since the 1970s, the planning and creation of UCs were being integrated as they matured in form.

Until the 1960s, the creation of national parks, national forests and forest reserves did not follow any broader planning.

UCs were established for aesthetic reasons and when politically favourable circumstances existed. There was not, then, a policy for the creation of a UC with the purpose, for example, of assuring the conservation of representative examples of Brazilian ecosystems. The idea of establishing a system of UCs composed of different types of management categories and administered in an integrated manner did not yet exist. There was no strategic relationship, for example, between the creation of national parks and biological reserves.

55 Art. 2 I of Federal Law No. 9.985/2000 – Conservation Unit: territorial space and its environmental resources, including the territorial waters, with important natural characteristics, legally instituted by the Government, with the objectives of conservation and defined limits, under a special administrative mechanism, to which suitable guarantees of protection are applied.

56 Jablonski, supra, note 33.

57 Dorfman, D. (2006). 'The Marine Realm'. In: Dudley, N. and Parish, J. *Closing the Gap – Creating Ecologically Representative Protected Area Systems: A Guide to Conducting the Gap Assessments of Protected Area Systems for the Convention on Biological Diversity*. Technical Series no. 24. Montreal: Secretariat of the Convention on Biological Diversity.

The planning and creation of UCs at a broader scale began to take off and produce the first results in the 1970s. In 1976, the work concluded with an analysis of priorities for nature conservation in the Amazon. This document was the foundation for the elaboration of the “Plan for the System of Conservation Units in Brazil”, the first phase of which was published in 1979 and the second in 1982.⁵⁸

It was only in 1988 that a law was drafted that would legally create the SNUC. The draft law was considered in the Federal Chamber of Deputies in 1992.⁵⁹ During the debate over the proposal, which lasted nearly eight years, efforts were made by the legislature and the social-environmentalist sector to add objectives, guidelines and mechanisms to the system that would allow the participation of civil society and traditional populations in the creation, management and implementation of UCs. In this period, the principle of participation of civil society in the management of natural resources was already established in important documents such as Agenda 21 and the Rio Declaration on Environment and Development.⁶⁰ Thus, due to the extensive participation of NGOs in the legislative process, the resulting Law No. 9.985/00 confirmed this participation in its text.

The objectives, guidelines and categories of the SNUC are defined in this law. The objectives are established in Article 4 and include a) promotion of sustainable development based on natural resources and the use of principles and practices of nature conservation in the development process (IV), b) giving social and economic value to biological diversity (XI) and protecting the natural resources needed for the subsistence of traditional populations, c) respecting and giving value to their knowledge and culture and promoting it socially and economically (XIII). To achieve these objectives, Article 5 of Law No. 9.985/00 creates guidelines that govern the SNUC. These guidelines include some aspects that refer to social participation:

- Assurance of the mechanisms and procedures needed for the involvement of society in the establishment and revision of the national policy for conservation units;
- Assurance of the effective participation of local populations in the creation, implementation and management of the conservation units;
- Seeking the support and cooperation of NGOs, private organizations and individuals for the development of studies, scientific research, and practices of environmental education;
- Ecological tourism and leisure activities, monitoring, maintenance and other activities of management of the conservation units;
- Encouraging the local populations and the private organizations to establish and administer conservation units within the national system;
- Considering the conditions and needs of the local population in the development and adaptation of the methods and techniques for the sustainable use of natural resources; and
- Guaranteeing alternative means of subsistence, or fair indemnification for the resources lost to the traditional populations whose subsistence depends on the use of natural resources existing within the conservation unit.

The SNUC consists of federal, state and municipal UCs and will be administered by the following agencies with the following remits (Art. 6):

- Consultative and Deliberative Agency: the National Environmental Council (CONAMA) with the responsibility of monitoring the implementation of the System;

58 Mercadante, M. (2001). ‘Uma década de debate e negociação: a história da elaboração da Lei do SNUC’. In: *Direito ambiental das áreas protegidas*, p.190. Rio de Janeiro: Forense Universitária.

59 *Ibid.*, p.195.

60 See Principle 10 of the Rio de Janeiro Declaration on Environment and Development: ‘The best way to handle environmental issues is to assure the participation, at the appropriate level, of all the interested citizens’.

- Central Agency: the Ministry of the Environment, with the task of coordinating the System;
- Executive Agencies: Instituto Chico Mendes⁶¹ as lead agency, together with IBAMA, and the state and municipal agencies, which have the function of implementing the SNUC, subsidizing the proposals for creating and administering the federal, state and municipal UCs.

CONAMA is an organ that involves the sectors of society, allowing broad debate before decisions are made. The designation of CONAMA as the consultative and deliberating agency shows once again the importance of the participation of civil society in the management of the SNUC.

The SNUC expanded the responsibility of CONAMA, which was created by Art. 8 of Law No. 6.938/81, which established the National Environmental Policy.

Categories of Conservation Units

For the objectives of the SNUC to be reached, the categories of UCs were defined and divided into two groups: Integral Protection Units and Sustainable Use Units. The objectives of the SNUC are to meet the primary objectives of each one of the categories of UCs that are part of the system.⁶² Article 7 of the SNUC Law No. 9.985, regarding the division of the UC groups, established the basic objectives of the two different groups:

The basic objective of the Integral Protection Units is to preserve nature, permitting only the indirect use of its natural resources with the exception of those cases presented in this Law.

The basic objective of the Sustainable Use Units is to create a conservation of nature compatible with the sustainable use of its natural resource”.

It was the first time in Brazil that two different types of conservation units, with different objectives, were explicitly defined in this way.⁶³

There are five categories in the Integral Protection group: the Biological Reserve, the Ecological Station, the National Park, the Wildlife Refuge and the Natural Monument (Art.7). The first two categories are very similar and there would be no problem if they were unified.⁶⁴

The Sustainable Use group has seven categories: the Environmental Protection Area, Area of Important Ecological Interest, National Forest, Extractive Reserve, Fauna Reserve, Sustainable Development Reserve and Private Reserve of Natural Patrimony.⁶⁵

Creation of Conservation Units

According to Article 22 of the SNUC Law, UCs are created by the government. The creation of a UC must be preceded by technical studies and public consultation that allow the location, size and most suitable boundaries to be determined.

Articles 2-5 of Decree No. 4.340 of 22 August, 2004 stress the need for public consultation. Public consultation and technical studies demanded by law for the creation of a UC, except for the Biological Reserve and the Ecological Station, are essential to the success of unit placements. The exception established for the Biological Reserve and the Ecological Station must be seen as a legislative error because they are the most restrictive categories of the SNUC.

In addition to public participation in the creation of UCs, there is also a need to involve social actors in the management process. For instance, consultative and deliberative councils should be instituted to assist in the elaboration of management plans and serve for co-management of the units. Entities called *Organizações da Sociedade Civil de Interesse Público – OSCIP* (Civil

61 Instituto Chico Mendes was created by Law No. 11.516 of 28 August, 2007 and is now the main executive agency of the SNUC.

62 Mercadante, supra, note 58, p.204.

63 By contrast, the IUCN World Commission on Protected Areas uses six different categories based on the different management objectives. Worldwide, there are more than 140 different names applied to protected areas of various types. See Langley, S. (2001) The system of protected areas in the United States. In: *Direito ambiental das áreas protegidas*, p. 133. Rio de Janeiro: Forense Universitária.

64 Mercadante, supra, note 58, p.207.

65 Law No. 9985/00, Art. 14.

Society Organizations in the Public Interest) can play a major role in this regard. As Wiedmann notes:

*Law No. 9.985 of 18 July, 2000, by instituting the National System of Conservation Units (SNUC), incorporated social participation in various articles. Item V of Article 5, which lists the guidelines for the system, includes those that 'encourage local populations and private organizations to establish and administer conservation units within the national system'. And Article 30 allows the management of conservation units by OSCIP's under a Partnership Agreement signed with the agency responsible for the unit.*⁶⁶

Wiedmann also commented that the new social environmental policy seeking partnerships constitutes an important turning point away from the kind of command and control that has for so long dominated environmental policy.⁶⁷ This change of concept is essential for the successful implementation of UCs.

Two types of councils are called for in the SNUC Law. The first, the so-called deliberative council, has decision-making powers, while the second has consultative functions.

Decree No. 4.340, Article 20 establishes the responsibility of both council categories:

The Deliberative Council of the Conservation Unit is responsible for:

- Preparing its internal regimen, within a period of 90 days, from its installation;
- Accompanying the preparation, implementation, and review of the Management Plan for the Conservation Unit and if relevant, guaranteeing its participative character;
- Seeking integration of the UC with other UCs and protected territorial spaces;

- Pursuing compatibility between the interests of various social segments related to the unit;
- Evaluating the budget for the unit and the annual financial report prepared by the executive organ with regard to the objectives of the UC;
- Expressing its opinion in its consultative function, ratifying, in its deliberative function, and in the case of shared management (of the unit) contracting and dealing with the terms of the partnership agreement with the OSCIP;
- Monitoring the management of the OSCIP and recommending decisions for the partnership agreement when any irregularity is found;
- Delivering statements on activities that potentially may impact on the UC, its buffer zone, mosaics or ecological corridors; and
- Proposing guidelines and actions to share, integrate and improve the relationship with the population in the surroundings or within the unit, depending on the situation.

The UCs for Integral Protection must establish consultative councils as determined by Art. 29 of the Law:

Each conservation unit in the Integral Protection group will have a Consultative Council, presided over by the agency responsible for its administration and constituted by representatives of public agencies, civil society organizations, owners of lands located in the Wildlife Refuge or the Natural Monument, when that is the case, and in the hypothesis foreseen in § 2 of Art. 42, by the traditional resident populations, as determined by the regulation and by the act that created the unit.

It is clear that the law intends to maintain decision-making power within the State concerning questions related to units with integral protection.⁶⁸

66 Wiedmann, S.M.P. (2002). 'O controle estatal das parcerias em Unidades de Conservação – Bem de uso comum do povo'. In: *Unidades de conservação: atualidades e tendências*, p.115. Curitiba: Fundação O Boticário de Proteção à Natureza.

67 Ibid., p.116.

68 Ibid., p.117.

Two categories of Sustainable Use UCs have deliberative councils: the Extractive Reserves and the Sustainable Development Reserves. Within deliberative councils, considerable decision-making power is delegated to civil society, which must be well prepared to exercise this activity.

Brazil still has no Sustainable Development Reserves in marine areas. However, there are 11 federal marine Extractive Reserves, spread throughout the country's coastal regions.⁶⁹

The Extractive Reserve, according to Article 18 of the SNUC Law, is an area used by traditional extractive populations whose livelihoods are based on extraction and also on subsistence agriculture and the raising of small animals. The basic objectives of the extractive reserve are to protect the livelihood and culture of these populations and to ensure the sustainable use of the natural resources within the unit. The deliberative council managing the Extractive Reserve is governed by the agency responsible for its administration and is composed of representatives of public agencies, civil society organizations, and traditional communities resident in the area, as determined by the regulations and the legal act creating the unit.

Although the model was first established for populations that live by subsistence agriculture and raising small animals, the institution of well administered Extractive Reserves has proven to be very effective in marine and coastal areas.

Management Plan for Conservation Units

Article 27 of the SNUC Law provides that the UCs must have a management plan. Article 2 of the SNUC Law defines the management plan to be:

a technical document which, based on the general objectives of the conservation unit, establishes the zoning and rules that must govern the use of the area and the management of the natural resources, including the installation of the physical structures

needed to manage the conservation unit.

The planning must, as determined by the first paragraph of article 27, encompass the area of the UC, its buffer zone and any ecological corridors. This includes measures with the purpose of promoting its integration in the economic and social life of the neighbouring communities. In this context, the participation of society is essential, because this is the *sine qua non* condition for the community to be integrated with the UC. In this respect, paragraph 2 of Article 27 says:

In the preparation, revising and implementation of the Management Plan for Extractive Reserves, Sustainable Development Reserves, Environmental Protection Areas, and when applicable, National Forests and Areas of Important Ecological Interest, broad participation of the resident population will be assured.

Astonishingly, none of the categories cited belong to the Integral Protection group. However, this omission was rectified by methodological instructions which IBAMA was entrusted to elaborate on the basis of Article 14 of Decree No. 4.340. These instructions were published in 2002. They are aimed at all protection categories in the SNUC, including those belonging to the Integral Protection group. They determine that the planning must be continuous, gradual, flexible and participative.

The methodology established seeks the involvement of society in the planning and implementation of measures in the UCs and their surroundings. It acknowledges the importance of the UC and its contribution to society. At the same time, it allows the identification of leaders that can support the resolution of conflicts occurring in a UC and its surroundings:⁷⁰

Now considered indispensable, participative planning has been adopted by IBAMA since the 1990s and constitutes an established and highly recommended

69 See <http://www.ibama.gov.br/siucweb/listaUcCategoria.php?abrev=RESEX> (visited 25 April, 2006).
70 Methodological Instructions for Planning, IBAMA, 2002.

practice. The success of this practice finds resonance in the SNUC Law, which adopted it as one of the legal precepts for the management actions of the Conservation Units. Thus, prepared under a participative focus, the Management Plan is organized and implemented with the involvement of society, governmental and non-governmental organizations, and in particular, in the case of the units located along the border, the institutions of national security, constituting a truly democratic and socialized instrument for the Conservation Units.⁷¹

Even if the SNUC Law gives greater emphasis to land areas, when it comes to planning MPAs, it is possible, with society's participation in the elaboration of management plans, to resolve conflicts generated by the creation of the area. The participative process is very important and can be a decisive factor in the organization of society, principally of artisanal fishermen. They are very interested in the process and are (quite) willing to collaborate by interacting with other actors, contributing their knowledge of the area and presenting the basic demands of the sector.

Co-Management of Conservation Units

Among the forms of social participation, Article 30 of the SNUC Law calls for the possibility of co-management:

The conservation units can be managed by civil society organizations for the public's interest with objectives akin to those in the district, through the instrument to be signed with the agency responsible for its management.

As Claudio Maretti affirms:

Co-management is a more specific type of partnership that implies the shared management of a conservation unit by two or more organizations, with one of them being the institution legally responsible for the

protected area, in which there is delegation of the management. This delegation can be total or partial, with partiality possible both in terms of the area as well as the management programmes.⁷²

Shared management of UCs is a global trend and has already existed in Brazil before the SNUC Law, as Biderman and Telles do Valle observe:

Although the first legal mention of shared management of conservation units arose only in 2000, this does not mean that it did not exist before. On the contrary, formal and informal sharing between government and NGOs of the management of Conservation Units, both federal as well as state, have existed for more than a decade, and it was based on this accumulated experience, in order to adapt to global trends, that the legislature decided to formally provide the possibility for co-management, opening a fertile field for the strategic partnership between the State and organized civil society in the protection of Brazilian biodiversity.⁷³

The co-management process is regulated by Decree No. 4.340, which provides in Article 21 that the partnership agreement is the instrument to be signed with the responsible agency, as shown by Art. 30 of the SNUC. Such an agreement is based on Law No. 9.790 of 1999 which concerns the qualification of private non-profit entities such as OSCIPs. It establishes and defines the partnership agreement and other measures. This law is considered a landmark for civil society organizations ('the third sector') in Brazil. OSCIPs are non-profit entities that, in compliance with the requirements of Law No. 9.790, are accredited by the Ministry of Justice. The criteria for an OSCIP to manage a UC are expressed in Article 22 of Law No. 9.790 and parts of Decree No. 4.340:

The OSCIP that fills the following requirements can manage a conservation unit:

71 Ibid.

72 'Desafios e Oportunidades para a Co-gestão'. In: Seminário Internacional – Construindo um Modelo de Co-gestão de Unidades de Conservação para o Estado de São Paulo. São Paulo, May 5, 2003 (International Seminar – Building a Model for Co-Management of Conservation Units for São Paulo State).

73 Biderman and Telles do Valle, supra, note 31.

(i) – has among its institutional objectives the protection of the environment or the promotion of sustainable development; and

(ii) – proves that it has conducted activities for environmental protection or sustainable development, preferably at the conservation unit or in the same biome.

The participation of society in councils and/or through OSCIPs by means of co-management, is still a process that must be strengthened by government as well as NGOs. Nevertheless, it provides a great opportunity for UCs to reach their management objectives.

III. Case study: the Arvoredo Biological Marine Reserve

The case presented here demonstrates how management of a MPA can affect the management of fishing resources, considering social participation in decisions that directly affect coastal communities and their relation with marine and coastal ecosystems. It involves the management of the Arvoredo Biological Marine Reserve, a marine UC located on the northern coast of Santa Catarina (State). The analysis of the management of the reserve is based on the previously mentioned Law No. 9.985 of 2000 that established the SNUC in Brazil. The case demonstrates how instruments of social participation contained in the law can help in the management of marine resources in general. In Brazil, the only activities permitted in a Biological Reserve are scientific research and environmental education. It is a UC within the group of integral protection and therefore fishing is legally not possible within the reserve.

a) Location

As a place of high biological diversity, the Arvoredo Biological Marine Reserve deserves the special attention of the Brazilian government. The archipelagic reserve located in the coastal region north of the city of Florianópolis, the capital of Santa Catarina, protects a representative sample of ecosystems of the region. The reserve lies at the southern limit of Brazil's south-eastern coastal region, which stretches from Cabo Frio, Rio de Janeiro to Cabo de Santa Marta, Santa Catarina. Extreme seasonal climatic changes allow the appearance of cold climate species in winter, such as the Sea lion (*Arctocephalus*) and the Southern right whale (*Eubalaena australis*), which share the same space with

tropical species.⁷⁴ This is made possible by the influence of two ocean currents: the warm-water Brazil Current from the north and the cold-water Malvinas Current from the south.⁷⁵

b) Creation of the reserve

The Arvoredo Archipelago, composed of the islands of Arvoredo, Galé and Deserta and by the Calhau de São Pedro, has been part of the Arvoredo Biological Marine Reserve since 1990. The process for the creation of the reserve began at the end of the 1980s. It is the result of an environmental movement that sought to protect the area from predatory and unorganized actions, such as fishing and tourism activities.

The efforts of the environmentalists were recognized by IBAMA, which conducted complementary studies for the creation of the UC. Contrary to the expectations of society, which had called for the creation of a marine national park, IBAMA technicians suggested the creation of a biological marine reserve. The reserve was created by Decree No. 99.142 of 1990, with the goal of protecting a representative sample of ecosystems of the coastal region of Santa Catarina Island, its neighbouring islands and islets, waters and continental shelf and all associated natural resources.

A planning seminar was held in March 2003 that included the principal actors involved with the UC. The participants in the seminar identified the following problems in the process of creation and management of the reserve:

74 Environmental Monitoring Program of the Arvoredo Biological Marine Reserve, Santa Catarina, Brazil. Paper presented at the 1st Latin American Congress of National Parks and Other Protected Areas, held May 21-28, 1997, in Santa Marta, Colombia.
75 Report of the Bioregional Management Project (IBAMA, 2003).

- The exclusion of the Baía do Farol (Lighthouse Bay);
- The reserve was created without the consultation of the parties involved;
- Questionable limits, established without knowledge of the region;
- There was no complete study to establish this category of UC;
- No appropriate territorial area;
- Creation of the reserve without knowledge of the society; and
- Prohibition on fishing the species that pass through the regional waters (*anchova*/blue fish, *tainha*/mullet).⁷⁶

The list reveals a lack of communication between government and society. The communities that inhabit the surroundings of the reserve were hardly involved. The management agency (IBAMA) has a bad reputation in the region because of its harsh punishment of breaches of environmental rules. Rather, IBAMA should have considered showing the communities why it was important to create the reserve and how this could help to improve the social and economic quality of life of the local population.

c) *Fishing activity in the reserve*

Fishing has been practised in Santa Catarina since pre-history. This is revealed by the presence of archeological sites. The region of the Arvoredo Reserve represents this history. From the time of our pre-historic ancestors, through the eras of the Carijós Indians and the Portuguese colonizers, fishing has been an important economic activity for the resident populations. There are now 10 fishing colonies in the communities around

the Arvoredo Biological Marine Reserve, which represent some 15,000 fishermen. Nine of these colonies are dependent on artisanal fishing conducted in the region. In addition to artisanal fishing, industrial fishing is also conducted in the Arvoredo region.

The artisanal fishermen were the most affected by the creation of the UC. It caused deep indignation in the fishing communities. Many fishermen still do not understand today why they cannot catch the so-called 'passing' fish at this location. In most cases, rules were laid down without the participation of the community and were afterwards enforced without the community being properly informed of their creation. Nevertheless, the fishermen now respect, in a certain way, the limits of the reserve, although many things have changed in the region since its creation 17 years ago.

One issue that has been highly criticized in relation to the Arvoredo Biological Marine Reserve is related to Article 4 of the decree that created the reserve. This article declared that catching juveniles of any species was prohibited in the region north of parallel 27°00'S, and south of parallel 27°30'S, bordered to the west by the continental coast line and to the east by meridian 48°18'W. In practice, Article 4 is largely ineffective because most fishing methods in the region end up capturing juveniles, which are present in the bycatch or are captured on purpose. Collection of mussel seeds, used for mariculture in the region, and fishing for live bait, conducted by the tuna fleet,⁷⁷ are some types of fishing that capture juveniles in the prohibited region. It is common to observe live bait fishing occurring openly near beaches in the region. The purpose of Article 4, according to the reasons given for the decree that created the reserve, is to allow for declining populations to recover.⁷⁸ Until today, this has not been successful because it has been disregarded by both artisanal and industrial fishers.⁷⁹ The inspection system is too weak to make them comply.

76 Information from a report of a planning workshop for the Reserve, promoted by *APRENDER Entidade Ecológica* (Ecological Entity APRENDER), as part of the project to prepare the management plan for the UC. Thirty participants in the workshop represented the principal social segments involved with the UC.

77 Währlich, R. (1999). *A Reserva Biológica Marinha do Arvoredo (SC) e a atividade pesqueira regional*, p.100. Dissertação de Mestrado em Geografia. Centro de Filosofia e Ciências Humanas da Universidade Federal de Santa Catarina. Florianópolis.

78 Exposition of motives of Decree No. 99.142/90.

79 Währlich, supra, note 77, p.129.

Another provision, IBAMA Rule No. 51 of 1983, prohibits trawling in any form in areas such as bays, coastal lagoons, canals and estuaries in Santa Catarina. By implication this stopped trawling in the Bay of Tijucas, which is part of the reserve's buffer zone. Since Rule 51/1983 took effect, combined with Article 4 of the decree that created the Arvoredo Biological Marine Reserve, much of the fishing activity in the region has been conducted illegally. This has generated indignation principally among artisanal fishermen who have fed their families with the catch from the region for many years. These rules did not have any great practical effect and fishermen were always running the risk of having their fishing equipment and their catch confiscated by inspectors when these were active.

d) Projecting a new approach

With the advent of the SNUC Law, the management of the Arvoredo Biological Marine Reserve began to adopt a new management paradigm. The enactment of the law allowed for the opening up to society of the management process of the UC. This was directly reflected in the management of fishing in the region around the reserve.

Based on the new guidelines established in the SNUC Law, the IBAMA office in Santa Catarina sought to reach an understanding with the local communities in order to establish a partnership for the maintenance and management of the Arvoredo Biological Marine Reserve. Negotiations between IBAMA and the NGO APRENDER resulted in the signing of two documents. One of them, the Technical Term of Cooperation (TCT), was signed on 27 August, 2001 and was published in the *Diário Oficial da União* on 18 September of the same year. The purpose of the TCT is the implementation and realization of activities related to environmental education, research, exchange of information and mutual assistance necessary to the consolidation of the UC *Arvoredo Environmental Reserve*.⁸⁰ Days before the signing of this document, another agreement was signed which, in addition to IBAMA and APRENDER, involved PETROBRAS.

The agreement was the fruit of Administrative Process No. 02001.000110/92-05 which resulted in the company's commitment to finance an Integral Protection UC 'through the participation of PETROBRAS in the maintenance of the Arvoredo Biological Marine Reserve'.⁸¹

After the first few months of the partnership, APRENDER began to structure its support programme for the management of the reserve and to collaborate effectively in the implementation of the UC. The programme prepared by APRENDER involved three projects. Two were coordinated by the APRENDER team: the Integral Protection Project and the Project for the Elaboration of the Management Plan for the Arvoredo Reserve and Consolidation of its Implementation Mechanisms. A third project, the Tijucas Bay Responsible Fishing Project, was coordinated by the Universidade do Vale do Itajaí (UNIVALI). This project also involved IBAMA and fishing colonies Z-9, Z-10, Z-22 and Z-25, all located in municipalities around the Arvoredo Biological Reserve.

The three projects show the broad scope of issues that must be dealt with in the management of UCs. The change of paradigm in the management of marine resources, especially fishing, through a systematic approach requires continuous, gradual and flexible work based on environmental education, involvement of society, and scientific research. The principal project in this context was the Elaboration of the Management Plan for the Arvoredo Reserve and Consolidation of the Implementation Mechanisms. The Integral Protection project was an accessory to this and the Responsible Fishing Project in the Tijucas Bay is already part of the implementation of the Reserve Management Plan.

The first phase of the Integral Protection Project was carried out in November 2002-July 2003. Its general objective was to support the management of the Arvoredo Biological Marine Reserve and to

80 *Diário Oficial da União*, 18 September, 2001, p.55. NB the publication mistakenly referred to the unit as the Arvoredo Environmental Reserve, while the correct name is the Arvoredo Marine Biology Reserve.

81 *Ibid.*

strengthen its various administrative lines. This was accomplished through inspection and environmental perception as well as education activities in the area of the reserve and the surrounding region. These were based on a systemic, holistic and permanent interdisciplinary approach, which sought the effective implementation of the UC in a decentralized and participatory form, integrated with various social segments.⁸²

The specific objectives of the project were:

- To carry out monitoring and awareness-raising activities in the area of Arvoredo Reserve and the surrounding region;
 - To survey levels of environmental perception and education in the region surrounding the Arvoredo Reserve, in order to identify the social environmental context in which the reserve exists and identify areas that should be recovered, protected and occupied;
 - To survey the support needed for the future elaboration of a Proposal for Environmental Perception and Education, to be developed in a continuous and participative form, through introduction into schools and with institutional contacts, to support integration and cooperation among different social segments;
 - To visit the surrounding municipalities (Florianópolis, Governador Celso Ramos, Tijucas, Bombinhas and Porto Belo), providing information via talks and the distribution of an information bulletin, thus promoting Arvoredo Reserve and the work undertaken by the various institutions for its maintenance and conservation;
 - To collect information through the application of guided research on the perception of the surrounding communities towards Arvoredo Reserve and the degree of environmental awareness of the residents and visitors to these localities;
- To establish institutional contacts and make future partnerships for the development of the project with political agents, public agencies, universities, fishing colonies, NGOs, and other representatives of civil society viable;
 - To support integration and cooperation among representatives of three sectors of civil society, through the example of the partnership between IBAMA-APRENDER-PETROBRAS, the State Environmental Police (CPPA)⁸³ and the Coast Guard in order to enhance environmental education and preservation; and
 - To provide logistic support to the realization of the project for preparation of the Reserve Management Plan (Agreement APRENDER/FNMA).⁸⁴

These objectives reflect the new concern of the UC to work closely with the community, given that in the 13 years since its creation, IBAMA's image has been quite poor in these communities because it only conducted inspection and control activities. IBAMA's bad reputation in the community reflects the enormous difficulty in the relationship between society and government. In this case, a NGO can seek a better relationship with the surrounding communities, showing that the reserve does not belong to the agency but to the whole of society. It is also noted that the project was executed in parallel to the project for the preparation of the Management Plan for the unit. This is why the principal actors related to the reserve actively participated in the preparation of the Plan.

e) Preparing the Reserve's management plan

As required by Article 27 of the SNUC Law, UCs must have a management plan, which is defined in Article 2, item XVI. The plan is a technical document that, based on the general objectives of the UC, establishes

82 *Projeto Proteção Integral* (Integral Protection Programme).

83 *Companhia de Polícia de Proteção Ambiental* (State Environmental Police).

84 *Fundo Nacional do Meio Ambiente* (National Fund for the Environment).

its zoning and rules that govern the use of the area and the management of the natural resources, including the installation of the physical structures needed to manage the UC. The planning must encompass the area of the UC, its buffer zone and ecological corridors, and include measures aimed at promoting its integration in the economic and social life of the neighbouring communities.

The project proposal for the preparation of the Management Plan for the Arvoredo Biological Marine Reserve was prepared by APRENDER in partnership with IBAMA and CPPA. The project was executed through the following steps:

- A technical meeting with researchers at the reserve;
- A survey of the reserve and its surroundings;
- A meeting with researchers participating in the survey;
- Meetings with the reserve's management team;
- Meetings with institutional contacts;
- A Participatory Planning workshop;
- A technical meeting about zoning at the reserve;
- A meeting about inspection and control;
- Technical meetings about the buffer zone;
- Meetings with the management plan supervising team;
- Strategic meetings of the planning team;
- A training workshop for potential board members of the council of the reserve;
- A seminar to present and discuss the plan; and
- A seminar for public presentation of the plan.

Note from the steps described that the project seeks the participation of society at various stages in the planning process, as laid down in the guidelines of SNUC and IBAMA's Methodological Plan. The range of actors participating in the project is very important for the later implementation of the plans because the decisions taken by the planning team will be based on the knowledge and desires of those who will interact daily with the UC.

With legislation prohibiting fishing within the reserve, the participation of fishermen and technicians from the fishing area was essential for the planning of the reserve's buffer zone. This is mainly due to the reasons presented above, such as Article 4 of the decree that created the reserve and IBAMA Rule 51 of 1983. With the planning of the buffer zone in observance with the demands of the artisanal fishing sector,⁸⁵ technical studies were conducted that allowed a zoning for the region that changed the previous rules.

The management plan for the Arvoredo Biological Marine Reserve was finalized after 20 months of work. The text was incorporated into the Brazilian legal order by means of IBAMA Rule no. 81 of 2004. The Management Plan marked out a buffer zone and changed the rules on fishing for juveniles established by the previously mentioned, and controversial, Article 4. It also altered the ban on trawling, previously prohibited in the Bay of Tijucas by Rule No. 51 of 1983. The new rule sought a more harmonious way of resolving the conflicts in the buffer zone while guaranteeing the conservation of fishing resources in the region.

The new rules for fishing activities in the reserve's buffer zone are as follows:

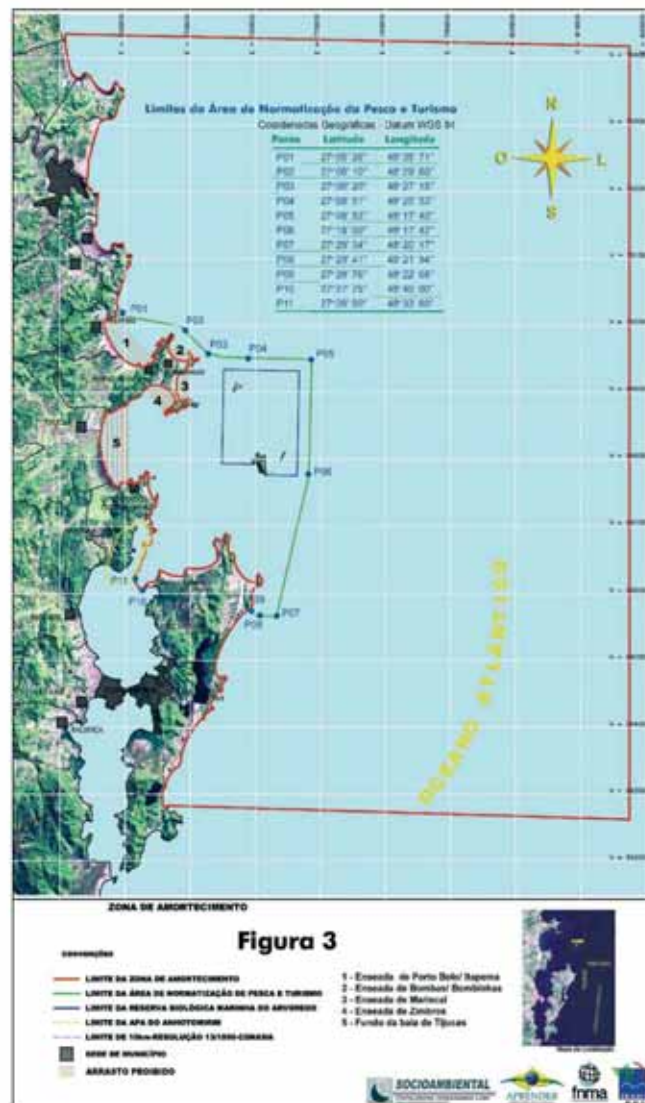
- Fishing in the area of the buffer zone, as regulated by the Fishing and Tourism Regulation, is prohibited for large boats (more than 10 tons gross).
- Trawling is allowed for boats smaller than 10 tons gross, except in some areas of the bay and its coves.

85 Note that representatives of the industrial fishing sector did not participate in this because they did not accept the invitation to participate in the process of elaboration of the management plan.

- Around the islands, close to the reserve's borders, nets must be kept a minimum distance of 50 metres away from the coast, as determined by current law (IBAMA Decree No. 143/1994).
- Trawling is restricted to five distinct locations within the buffer zone. These include part of the Tijucas Bay, Zimbros Cove; Mariscal Cove; Bombas and Bombinhas Cove; and the Porto Belo Cove.

The figure below shows the demarcation of the three zones: the buffer zone, the area of regulation of fishing and tourism; and the Arvoredo Biological Marine Reserve.

Figure 2.



Source: *O Farol*.⁸⁶

- **Limit of the Buffer Zone**
- **Limit of the Area of Regulation of Fishing and Tourism**
- **Limit of Arvoredo Biological Marine Reserve**

With these new rules, artisanal fishermen are the only ones who can operate in the region surrounding the reserve. Industrial fishing continues to be prohibited. As they were not pleased with these new rules, the Fishing Industry Union filed suit to change the rules.

f) *The lawsuit against the management plan*

In the lawsuit, the Industrial Fishing Union sought to have declared null and void the act that prohibited boats of more than 10 tons gross (precisely those used by its members) from fishing (for which they were authorized by the Special Secretariat for Aquaculture and Fish/Santa Catarina Office) in the buffer zone of the Arvoredo Marine Biological Reserve, created by the Reserve Management Plan on 1 September, 2004. The plaintiff alleged that this stipulation of the management plan was illegal and unconstitutional. The allegations made by the Union, as expressed in the judge's decision issued 8 November, 2006, were the following:

- a) The principle of equality was not respected (Art. 5 of the Constitution), given the absence of preliminary studies comparing the environmental impact and the socio-economic factors of boats larger and smaller than 10 tons gross. The plaintiff affirms that smaller trawlers do more harm to the environment than larger ones, because their equipment is less good.
- b) IBAMA did not clearly state what criteria were used to distinguish, in relation to the buffer zone, the fishing conducted by boats larger than 10 tons gross from that undertaken by lighter boats.
- c) The plaintiff affirms that the criteria justifying the exclusion of the affiliates from the buffer zone were more 'socio-economic than biotic' and aimed to allow artisanal fishermen with smaller boats, that are not allowed to navigate in high seas, to carry out their activities in the buffer zone.

- d) Given the absence of an invitation, the Union was not given an opportunity to defend the interests of the group that it represents in the Participatory Planning workshop held from 12-14 March, which met to discuss the Management Plan. Here, it is pertinent to mention that there is not just one Union of Industrial Fishermen in the state, but a number of them, according to the region of fishing undertaken by the members.

Based on the positions of the parties and having followed the proper legal process, the Union's request was ruled unfounded by the judge of the environmental court of the Federal Justice in Florianópolis, Santa Catarina.⁸⁷

Concerning the compatibility of the management plan with the principles of equality and resource protection, the judgement argued:

The plaintiff's allegation that the exclusion of industrial fishing in the Area of Regulation of Fishing and Tourism is discriminatory and infringes on the principle of equality makes no sense when it argues that the trawling conducted by the smaller boats, in addition to harming the environment, does not account for the sustenance of the large majority of fishermen.

Given that it is generally conducted with one or two boats, which drag a net over the bottom of the sea, taking everything in front of it, turning the most superficial substratum into a large cloud of 'dust', disrupting algae, sponges, starfish, molluscs and crustaceans that live there, there is no doubt that trawling is extremely harmful to the environment and the conservation of fishing stocks. In this process, many unwanted fish, molluscs and crustaceans are captured, technically known as 'bycatch'. This normally includes larva and the juveniles from shrimp and commercial fish, which are too small to sell and for this reason are discarded. As a result of this practice, nearly all of the marine life captured

87 *Sindicato da Indústria da Pesca de Florianópolis v. IBAMA. Processo No. 2005.72.00.008766-3/SC. Justiça Federal Santa Catarina. Sentença de primeiro grau. Florianópolis: 2006, available at www.jfsc.gov.br.*

in the net die, even if returned to the sea, either because of the time they are out of the water, or because they are crushed.

Therefore, it is unacceptable that the referred to predatory form of fishing is used as an argument by the author to permit, in the same region, industrial fishing in a mean-spirited attempt of the old saying 'if everyone is being destructive, I want to destroy as well'. One destructive activity cannot justify the practice of another.

In various parts of the country, trawling has been limited or prohibited, a measure that sooner or later will be extended over the entire area of the Arvoredo Reserve. Nevertheless, one cannot simply analyze the issue strictly from an ecological and scientific perspective, given that this type of fishing has been conducted for decades in the region, a tradition passed from father to son for generations. This is aggravated by the fact that the large majority of artisanal fishermen have little schooling and their only known source of income is usually this type of fishing.

A change of habits, in this case, can only be implemented from the moment that environmental education effectively reaches the fishing colonies with the goal of implementing viable alternatives for subsistence (...). These alternatives should also be extended to the crew of the boats of the plaintiff's members, because it is a fact that the decline of fishing in the world has intensified, so that sooner or later they will lose their employment in any case.

For this reason IBAMA is correct when it concluded that the current permission for the artisanal fishermen to practise fishing in the area in question clearly has an element of social assistance, as determined by the sole paragraph of Art. 8 and Sect. 8 of Art. 195 of the Federal Constitution of 1988.

The creation of marine reserves throughout the world has, among other goals, the aim of protecting fishermen, whether artisanal or industrial, because it allows an increase in fish reproduction in adjacent areas, according to information found in the National

Plan of Protected Areas of the Ministry of the Environment (<http://www.mma.gov.br/planoap.pdf>). In the case of the Arvoredo Reserve, this increase in fish stocks is particularly found in the buffer zone, which is the area immediately surrounding the reserve, offering support to thousands of families for whom fishing is their principal subsistence activity.

The Management Plan was prepared following legal and methodological principles established by the federal government. In this sense, the broad participation of those interested in the various stages of planning was guaranteed. Since IBAMA's methodological plan restricted the planning workshop to 35 participants, representatives of the Industrial Fishing Union of Itajai were the only ones invited. Nevertheless, besides not participating in the workshop, the industrial sector did not contact IBAMA at any time in order to participate in the process. The Union in Florianópolis is now alleging that the population did not adequately participate in the preparation of the new rules. The judge's response to this claim is the following:

Concerning the alleged lack of consultation of the population directly affected, as mentioned in the documentation included in this suit, it is concluded that the legal and formal requirements for its approval were properly observed. In relation to this issue, the lucid and clarifying report of the Federal Public Ministry at sheets 339/344 should be adopted, in particular when it affirms:

'The Public Hearing was planned in a convenient and scientific manner, and called the Participatory Planning Workshop. In this sense, it should be highlighted that the discussion and preparation of the Arvoredo Reserve management plan was assisted by the Federal Public Ministry, by its technical assistant, and the participation of various representatives of the communities and the local authorities (from the area of influence of the unit) was corroborated.'

The absence of the plaintiff, as well as of any other interested party, in the event of discussions about the

*preparation of the plan does not compromise its validity in any way.*⁸⁸

For the reasons mentioned above and others found in the filings of the suit reported here, the request of the plaintiff was declared unfounded. The lack of basis for the suit filed by the Union has reinforced the provisions established in the Management Plan and provides legal security for those applying the regulations, in this case IBAMA.

In practice, inspection of fishing in the region is still precarious. However, artisanal fishermen are now allied with the Instituto Chico Mendes and IBAMA in combating predatory industrial fishing. A good programme to raise awareness could turn fishermen into active citizens in the defence of their exclusive right to fish in the area.

g) *Responsible fishing in Tijucas Bay*

The case study ends with an account of how the general rules elaborated for the Arvoredo Reserve and its buffer zone were once more modified in one smaller area, the Tijucas Bay, and how this was made in a participatory way.

Proposed and coordinated by UNIVALI and financed by the National Fund for Environment/MMA, the project Responsible Fishing in Tijucas Bay also involved IBAMA, APRENDER and fisher colonies Z-9, Z-10, Z-22 and Z-25, all located in municipalities around the Arvoredo Biological Reserve. Inspired by documents such as the FAO's *Code of Conduct for Responsible Fisheries*, the project's objective was to survey the fishing activity in the region and

make a plan of action with the participation of the direct users of fishing resources.

Many activities such as the characterization of the artisanal fishing fleet in Tijucas Bay, a rapid participative appraisal of the fishing of the Seven-whisker shrimp (*Xiphopenaeus kroyeri*), the dissemination of the new rules created by the management plan of Arvoredo Reserve, participative monitoring of the artisanal fishing and research on the socio-economic profile of the artisanal fishers in the region of Tijucas bay, were carried out during the project.

The project does not focus directly on the Arvoredo Reserve but is very important for the implementation of the reserve since it works in the buffer zone and the surrounding area of the reserve. One of the positive results of the project was mobilizing and organizing the artisanal fishers to change the closed season on the Seven-whisker shrimp in Tijucas Bay. The previous rule banned fishing during the most productive season. The new partnership between scientists and fishers, putting together scientific and traditional knowledge, came to the conclusion that the closed season in this specific area could be redefined. This had been proposed earlier by scientific experts in a meeting in 2001. The proposal had come to the attention of the fishers who collected 650 signatures and submitted a petition to IBAMA. After a number of meetings and negotiations, IBAMA in 2006 issued Normative instruction No. 91 establishing the closed season at a different time of year. This matched with the proposal submitted by the scientists and was supported by the fishers of the Tijucas Bay area.

88 Information taken from the decision issued for Suit No. 2005.72.00.008766-3/SC on 8 November, 2006 – www.jfsc.gov.br. The plaintiff has appealed but as of September 2008 the Regional Federal Tribunal had not returned a decision.

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List of abbreviations

AEP	<i>Áreas de Exclusão de Pesca (No-take areas)</i>
AL	<i>Alagoas State</i>
APRENDER	<i>Ações para a Preservação dos Recursos Naturais e Desenvolvimento Econômico Racional (Actions for the Preservation of Natural Resources and Reasonable Economic Development)</i>
CF	<i>Constituição Federal (Federal Constitution)</i>
CIRM	<i>Comissão Interministerial para os Recursos do Mar (Inter-ministerial Commission for Ocean Resources)</i>
CNBB	<i>Confederação Nacional dos Bispos do Brasil (National Conference of Bishops of Brazil)</i>
CNIO	<i>Comissão Nacional Independente sobre os Oceanos (National Independent Commission for the Ocean)</i>
CNP	<i>Confederação Nacional dos Pescadores (National Confederation of Fishermen)</i>
CONAMA	<i>Conselho Nacional do Meio Ambiente (National Environmental Council)</i>
CONAPE	<i>Conselho Nacional de Aquicultura e Pesca (National Council of Aquaculture and Fishing)</i>
CONEPE	<i>Conselho Nacional de Pesca e Aquicultura (National Council of Fishing and Aquaculture)</i>
CPG/Demersais	<i>Comitê Consultivo Permanente de Gestão dos Recursos Demersais de Profundidade (Permanent Consultative Council for the Management of Deep Demersal Resources)</i>
CPPA	<i>Companhia de Polícia de Proteção Ambiental (State Police for Environmental Protection)</i>
DPA	<i>Departamento de Pesca e Aquicultura, MAPA (Department of Fishing and Aquaculture)</i>
EEZ	<i>Exclusive Economic Zone</i>
FNMA	<i>Fundo Nacional do Meio Ambiente (National Fund For Environment)</i>
GEP	<i>Grupo de Estudos Permanente (Permanent Study Group)</i>
GI-GERCO	<i>Grupo de Integração do Gerenciamento Costeiro (Group for Integration of Coastal Management)</i>
IBAMA	<i>Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (Brazilian Institute for the Environment and Natural Resources)</i>
ICCAT	<i>International Commission for the Conservation of Atlantic Tunas</i>
ICMS	<i>Imposto sobre Operações Relativas à Circulação de Mercadorias e sobre Prestações de Serviços de Transporte Interestadual e Intermunicipal e de Comunicação (Tax on the Circulation of Goods, Services, Transport and Communication)</i>
IN	<i>Instrução Normativa (Normative Instruction)</i>
IUCN	<i>International Union for Conservation of Nature</i>
LEPLAC	<i>Plano de Levantamento da Plataforma Continental Brasileira (Plan for Surveying the Brazilian Continental Shelf)</i>
MAPA	<i>Ministério da Agricultura, Pecuária e Abastecimento (Ministry of Agriculture, Animal Husbandry and Food Supply)</i>
MMA	<i>Ministério do Meio Ambiente (Ministry of the Environment)</i>
MONAPE	<i>Movimento Nacional dos Pescadores (National Fishermen's Movement)</i>
MPA	<i>Marine Protected Area</i>
NGO	<i>Non-governmental Organization</i>
OSCIPs	<i>Organizações da Sociedade Civil de Interesse Público (Civil Society Organizations in the Public Interest)</i>
PAF-ZC	<i>Plano de Ação Federal para a Zona Costeira (Federal Action Plan for the Coastal Zone)</i>
PETROBRAS	<i>Petróleo Brasileiro S/A</i>
PNGC	<i>Plano Nacional de Gerenciamento Costeiro (National Coastal Management Plan)</i>
PNMA	<i>Política Nacional do Meio Ambiente (National Environmental Policy)</i>
PNRM	<i>Política Nacional dos Recursos do Mar (National Marine Resources Policy)</i>

REVIZEE	<i>Programa de Avaliação do Potencial Sustentável dos Recursos Vivos da Zona Econômica Exclusiva (Programme for the Evaluation of the Sustainability Potential of Living Resources in the Exclusive Economic Zone)</i>
RGP	<i>Registro Geral da Pesca (General Fishing Register)</i>
SEAP	<i>Secretaria Especial de Aquicultura e Pesca da Presidência da República (Special Secretariat for Aquaculture and Fishing)</i>
SIGERCO	<i>Sistema de Informação do Gerenciamento Costeiro (Coastal Management Information System)</i>
SISNAMA	<i>Sistema Nacional do Meio Ambiente (National Environmental System)</i>
SNUC	<i>Sistema Nacional de Unidade de Conservação da Natureza (National System of Natural Conservation Units)</i>
SUDEPE	<i>Superintendência de Desenvolvimento da Pesca (Superintendence of Fishing Development)</i>
TCT	<i>Termo de Cooperação Técnica (Technical Term of Cooperation)</i>
UC	<i>Unidades de Conservação (Conservation Units)</i>
UN	<i>United Nations</i>
UNCED	<i>United Nations Conference on Environment and Development</i>
UNCLOS	<i>United Nations Convention on the Law of the Sea</i>
UNIVALI	<i>Universidade do Vale do Itajaí</i>

5 Promotion and Management of Marine Fisheries in Mexico

G. Ponce-Díaz,* F. Arregín-Sánchez,* A. Díaz-de León** and P. Alvarez Torres**

Summary

The main concern of Mexican fisheries management is overfishing of several species, fleet overcapacity, overcapitalization, limited addition of value to fishing products and lack of compliance with fishing regulations in inshore waters, the EEZ or the open sea.

During the past two decades, fishing activities in Mexico have shifted from government actions promoting fishing efforts to a more sound use of marine resources with a management approach based on better information and analysis inputs, as well as with a greater

participation of environment-related federal offices (e.g. Ministry of the Environment and Natural Resources) and of fishing resource users themselves.

The new Fishing Law promotes a more participative fisheries management through the division of competences between the Federation, the States and the Municipalities, as well as through greater participation of fishermen, industry, and other fishing stakeholders like academia and non-governmental organizations (NGOs).

I. Environmental and socio-economic background

1. Geography

Mexico comprises a land area of 1,964,375 km², including an Exclusive Economic Zone (EEZ) of 3,149,920 km², and has a long coastline of approximately 11,500 km, divided into two parts: a) The Gulf of Mexico and Caribbean Sea, and b) the Mexican Pacific Ocean. In 2001, the population totalled 100,456,000 inhabitants, and the gross

national product (GNP) was US\$ 623,900 million, with fisheries accounting for 0.8% of the total.¹ Fisheries accounted for 247,765 direct jobs in 2001 (fishing and aquaculture). Fishing trade amounted to US\$ 184.6 million in imports and US\$ 602 million in exports in 2001.²

2. Fisheries

There are a total of 99 different types of fisheries in Mexico harvesting 636 species, which account for 90% in terms of total fishing production and value, respectively. Seventy-one fisheries are deemed maximally exploited, 17 could be further expanded, and 22 are declining.³ About 20% of fisheries are

overexploited if by overexploitation it is understood that a species is fished beyond its renewal capacity.⁴ Fin fish is the sector experiencing the most serious problems due to the ever growing increase in fishing effort over the past years.

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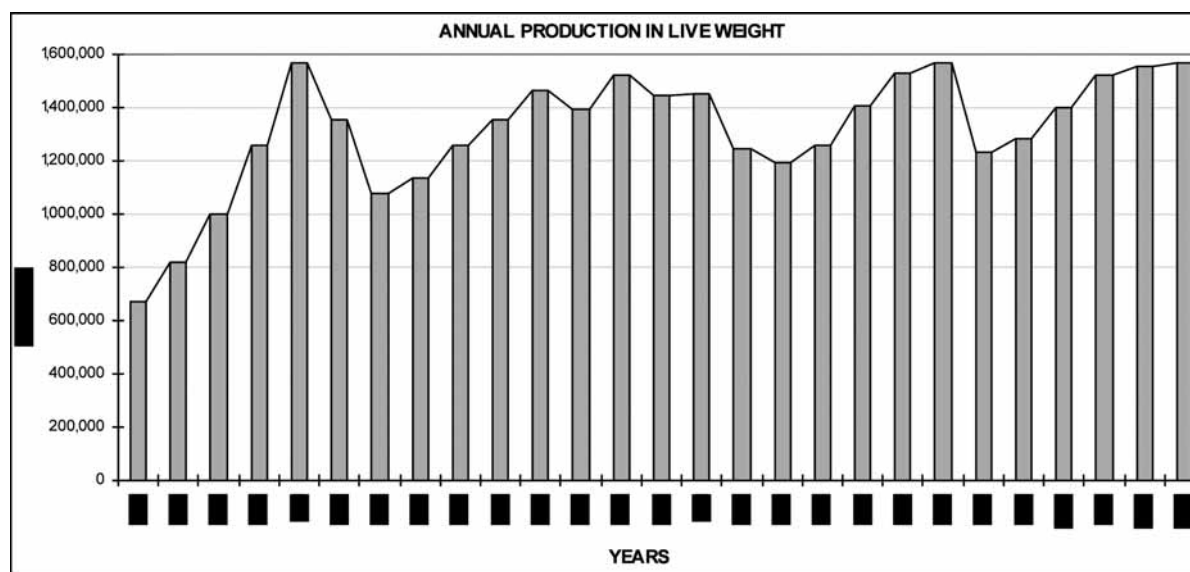
1 All financial information has been calculated using the exchange rate of Mex\$ 11.3 pesos/US\$ 1.

2 FAO. (2003). 'Informative summary on fishing per country: Mexican United States'. Available at: <http://www.fao.org/fi/fcp/es/MEX/profile.htm>.

3 SEMARNAT. (2002). *Compendio de Estadísticas Ambientales*. México, D. F.

4 Ibid.

Figure 1. Total national catch



Source: *Anuario Estadístico de Pesca 2003* (2003 Fisheries Statistics Yearbook).

Fisheries in Mexico cover a wide variety. They rely on massive offshore resources, generally of low value, plus inshore resources, some of which are highly valued (abalone, lobster, shrimp, sea urchin, sea cucumber, snails, etc.) and others not (fin fish and shark).

In the past years, the total national catch has ranged between 1.2 and 1.5 million tons in live weight (Figure 1).⁵

a) Minor pelagic species

Harvest of small pelagic species accounts for 35% of the total national harvest, with Sonora, Baja California Sur, Sinaloa and Baja California being the main producing states,⁶ all bordering the Gulf of California. The value of this fishery, considering its industrial process, represents nearly 10% of the total fisheries income in Mexico.⁷

Species harvested include: Monterrey or Pacific sardine (*Sardinops caeruleus*); anchovy (*Eungraulis mordax*); *Crinuda* sardine or Thread herring

(*Opisthonema libertate*); Blue *crinuda* sardine (*O. bulleri*); *Crinuda machete* sardine (*O. medirastre*); mackerel (*Scomber japonicus*); sardine (*Centegraulis mysticetus*); *Charrito* or Jack mackerel (*Trachurus symmetricus*); *Japonesa* sardine or Round herring (*Etrumeus teres*) and *Piña* sardine or Shortjaw leatherjack (*Oligoplites refulgens*).⁸

Overall, the status of the fishery is considered stable. In Sonora, the fishery is recovering after a steep decline in numbers of the Monterrey sardine; in Ensenada the recovery process is slower; in Bahía Magdalena and Mazatlan, fisheries have remained stable with an ascending trend. However, increasing the current fishing effort is not recommended.⁹

b) Major pelagic fish

Tuna

This category includes the following species: Yellowfin tuna (*Thunnus albacares*), Northern bluefin tuna (*T. thynnus*), *Patudo* or Bigeye tuna (*T. obesus*), *Barrilete*,

5 SAGARPA. (2003). *Anuario Estadístico de Pesca*.

6 Ibid.

7 SAGARPA, Instituto Nacional de la Pesca. *Sustentabilidad y pesca responsable en México. Evaluación y manejo 2006. La Pesquería de Peces Pelágicos menores*, pp.263-301.

8 National Fisheries Chart. Official Gazette of the Federation. 15 March, 2004.

9 Ibid.

Bonito or Skipjack tuna (*Katsuwonus pelamis*), Black *barrilete* or Black skipjack (*Euthynnus lineatus*), *Bonito* (*Sarda chiliensis*), and *La Melva* or *Bonito* (*Auxis thazard*).

In Mexico, tuna is the second most important fishery, both in terms of weight of fish landed, after sardine, and in economic revenues, after shrimp. Yellowfin tuna represents 75%-90% of annual fisheries harvested by Mexican vessels, whereas *Barrilete* catches range between 7%-20%. Currently, 114 vessels operate, with a load capacity ranging between 50 and 1,700 tons.¹⁰ At least since 1993, the harvest of tuna and tuna-like fish species in Mexico has remained at levels exceeding 120,000 tons, and peaked in 2003 with 189,270 tons¹¹.

The Yellowfin tuna fishery is considered as exploited to its maximum sustainable level. The Bigeye tuna is harvested beyond its maximum sustainable yield (MSY), although there is uncertainty over the level of exploitation. Skipjack tuna fisheries have the potential to grow further.¹²

Marlin

Other major pelagic fisheries in Mexico include various billfish species caught in recreational fishing. These species include the Striped marlin (*Tetrapturus audax*), Blue marlin (*Makaira mazara*), Black marlin (*M. indica*), and Shortbill spearfish (*T. angustirostris*).

These species are fished mainly along the Mexican Pacific coast using sport fishing boats with individual rods and reels and under a daily operation scheme. Up to four fishermen may participate in boats with a carrying capacity below 10 tons, whereas up to 25 may do so in boats of larger capacities. Marlin species are exploited only for sport fishing, with the striped marlin being the most caught species. Over 40,000 fishing operations per year take place catching 23,000 game

fishes off the southern tip of the Baja California peninsula.¹³

The income in this region of Mexico just from rentals and expenses directly related to sport fishing trips has been estimated at US\$ 44 million in 1995.¹⁴

This resource is classified as exploited up to its MSY. However, reference limits (RL) have been established in an attempt to avoid the decline of resources available for sport fishers, who frequently release their prey. The application of control measures is recommended if catches of Striped marlin drop below 0.55 fish/trip for the southern Baja California area.

Shrimp

The Mexican shrimp fishery is most important in terms of economic value, employment and in its contribution to Mexico's total seafood exports. The Mexican Pacific Ocean accounts for 70%-80% of the total national shrimp production.¹⁵

Species comprising the shrimp fishery on the Mexican Pacific coast are: Brown shrimp (*Farfantepenaeus californiensis*), Blue shrimp (*Litopenaeus stylirostris*), White shrimp (*L. vannamei*) and Crystal or Red shrimp (*F. brevirostris*), Tehuantepec white shrimp (*L. occidentalis*), 'Botalón' shrimp (*Trachypenaeus pacificus*), Zebra shrimp (*T. faoea*), 'Japanese', 'Rock' or 'Peanut' shrimp (*Sicyonia penicillata*), and Sea-bob shrimp (*Xiphopenaeus riveti*).

The value of shrimp fisheries, considering ex-vessel prices for catches and shrimp farmed in the Gulf of California, the Pacific, and Gulf of Tehuantepec amounts to US\$ 310 million.¹⁶

In open-sea fishing, shrimps are harvested by vessels with the capacity to carry over 10 tons of raw produce, equipped with trawling nets (generally two) adapted

10 Ibid.

11 SAGARPA, supra, note 5.

12 National Fisheries Chart, supra, note 8.

13 Ibid.

14 Ditton, R.B., Grimes, S.R. and Finkelstein, L.D. (1996). *A social and economic study of the recreational billfish fishery in the southern Baja Area of Mexico*. Report prepared for The Billfish Foundation, Fort Lauderdale, FL, USA.

15 SAGARPA, supra, note 5.

16 SEMARNAT, Instituto Nacional de la Pesca. *Sustentabilidad y pesca responsable en México. Evaluación y Manejo 1999-2000. La Pesquería de camarón del Pacífico*, pp.3-50.

with turtle excluders, and with a crew of six to eight fishermen. Shrimping in inshore areas is generally carried out in smaller vessels with 55 HP outboard motors which are equipped with nets including line seine nets, cast nets and regional nets (*suriperas*).

The fishery occurs sequentially, i.e., it is harvested by different fleets, using different fishing gear for the three phases of the shrimp lifecycle: i) adults, harvested by open-sea or industrial vessels; ii) juveniles, harvested by smaller fishing vessels (*pangas*) along shallow inshore areas, coastal lagoons, estuaries, and bays; iii) post-larvae (shrimps measuring 6-12 mm which migrate into coastal lagoons for growth and shelter) caught in their natural environment for farming purposes.¹⁷

Overall, considering all the species and major landing ports, the shrimp fishery in the Mexican Pacific Ocean is currently exploited to its maximum sustainable level, and the current fishing effort should not be increased any further in any region and for any species. Since some stocks display a biomass well below peak productivity, further measures to reduce fishing effort are required. These include regional closed seasons, control of artisanal exploitation rates, and assessment of the industrial fishing capacity, aiming at resource recovery and improving the economic yield levels.¹⁸ Overcapitalization has also been identified as a problem, and recommendations have been issued since the late 1970s to reduce the fishing fleet.

The Gulf of Mexico shrimp fishery underwent a crisis as a result of the collapse of Pink shrimp stocks in the early 1970s. Recent studies¹⁹ suggest that the decline in the abundance of this species is strongly linked to long-term environmental changes, coinciding with a global drop in primary productivity at the Campeche Sound.

Of course, this decline in shrimp abundance has led to a reaction in terms of fishing investments. In the Tamaulipas region, the Brown shrimp is fully

exploited, whereas in the Campeche Sound it is heavily overexploited and in Contoy it is overexploited.

Shark

The shark fishery is an artisanal multi-species fishery with importance from the food and labour perspectives. Its commercial value varies according to meat type, fins and size. During the 1940s the fishery reached a peak, plummeting afterwards due to synthetic shark fins and other products. Currently, its demand derives from the use of shark cartilage as an artisanal and pharmaceutical product. Species of this fishery have biological characteristics that make them prone to overexploitation. Shark fishing involves gear varying in material, construction and dimensions: nets ('scale', shark, *cazoneras*, *sierreras*, *tendales* and seine nets), and hooks (hand line, *cimbras* and long-liners *palangres*).²⁰

Up to the year 2000, the status of the shark resource in the Gulf of California could not be determined according to analyses by government offices like the National Institute of Fisheries (INP in Spanish). However, in the case of the open-sea shark fishery in the Mexican Pacific, the *Zorro* or Pelagic thresher shark (*Alopias pelagicus*) is classified as a declining resource, while other shark species are exploited at their maximum potential.

More than 15 shark species and more than 10 rays are typically harvested in the littoral zone along the Gulf of Mexico. Species with the highest commercial importance belong to the genus *Carcharhinus* spp. (with nine species), *Sphyrna* spp. (three species), and especially the *Cazón* or Atlantic sharpnose shark, *Rhizoprionodon terranova*, due to its abundance. In general, the kinds of use, trade and fishing practices are similar to those for the Pacific littoral. The resource is currently regarded as fully exploited, and strict restrictions are recommended to avoid overfishing and collapse of any population, mostly due to their vulnerable life-history characteristics.

17 Ibid.

18 Ibid.

19 Arreguín-Sánchez, F. Personal communication.

20 SEMARNAT, Instituto Nacional de la Pesca. *Sustentabilidad y pesca responsable en México. Evaluación y Manejo 1999-2000. Tiburones del Golfo de California*, pp.237-256.

Finfish

Inshore finfish comprises a broad variety of species, ranging from resources associated with the coastline and estuarine environments, including occasional migrants to inland waters (rivers), to marine fish communities associated with (shallow or deep) hard bottoms, e.g., rocks and reefs, or soft bottoms such as sandy, clayey, or muddy grounds. In the water column, from the coast to the edge of the continental shelf, approximately 200 nm offshore, inshore pelagic fish frequently travel along the coastline following the direction of sea currents. The patterns of their latitudinal movements are easy to recognize and variations occur according to the critical distance from the bottom drop.²¹

According to the National Fisheries Chart, there are at least 194 finfish species included in this category, however, the target species are those with the highest economic value. Nearshore fishing in Mexico includes a large variety of fish species, but *Huachinango* (Red snapper) is the most important target species on which fishing efforts are concentrated. Its high market demand delivers the highest income for the fisherman.²²

Recommendations have been issued not to increase further the current fishing effort for any finfish species. As for species with development potential, fisheries authorities have stated that these will be defined based on information from specific studies.

Giant squid and octopus

The main species exploited in this category is the giant squid, *Dosidicus gigas*. This fishery is carried out mostly in the Gulf of California. It is a highly variable resource, subject to migrations associated with the El Niño phenomenon. It is a fast-growing species that measures up to 60 cm in mantle length.

Fishing units are vessels with a gross capacity greater than 10 tons, including 10 fishermen, plus smaller overboard-motor boats with up to three fishermen.

Catches in the Pacific littoral between 1997 and 2003 ranged between 26,600 and 121,000 tons, with an annual average of 77,451 tons.²³ The fishing season lasts from early August to mid December, during which time mean annual catches are about 12,000 tons, 65% being *Octopus maya* and the rest *O. vulgaris*. It is regarded as a fully exploited fishery, and the high yield levels have been suggested as being associated with the decline in the Red grouper, one of the major predators of octopuses.

Lobster

The lobster fishery in the Mexican Pacific comprises the following species: Red or California spiny lobster (*Panulirus interruptus*), Green spiny lobster (*P. gracilis*), and Blue spiny lobster (*P. inflatus*).

One thousand small vessels are registered for this fishery. Eighty-seven percent of catches are reported in the Baja California peninsula (72% for Baja California Sur), while the remaining 13% are distributed amongst eight states along the Pacific Ocean. The Baja California peninsula fishery has reported a mean annual production of 1,415 tons over the past 15 years, reaching an all-time historical peak in the 2000-2001 season, with a production of 1,973 tons, equivalent to nearly US\$ 30 million.²⁴

The status of this resource is considered as exploited to its MSY, particularly in the Baja California peninsula's central area. However, adequate management measures have been established (on a voluntary basis), including minimum sizes, closed seasons and areas, restrictions on numbers of traps, release of animals below the minimum size, etc., all of which have resulted in producers being able to obtain Marine Stewardship Council (MSC) certification for this fishery.

21 National Fisheries Chart, supra, note 8.

22 SAGARPA, Instituto Nacional de la Pesca. *Sustentabilidad y pesca responsable en México. Evaluación y manejo 2006. Pesquería de huachinango*, pp.101-129.

23 SAGARPA, supra, note 5.

24 National Fisheries Chart, supra, note 8.

Abalone

This fishery comprises mainly two mollusc species: Green abalone (*Haliotis fulgens*) and Pink abalone (*H. corrugata*). Fishing takes place along the Baja California peninsula's western littoral, with the highest abundance of abalone found in its central region. Abalone is caught by diving, and the fishing effort unit is a small motor boat with a compressor or *hooka*, a diver, a captain, and other fishermen to support the diver's activities.

Despite the low catch volumes, the abalone fishery is of significant economic importance, due to the high price paid for the resource. Almost 100% of abalone

3. Fishermen's organizations and communities

From the perspectives of labour and food self-sufficiency, the most important fishing activities in Mexico take place in inshore areas. These areas have the largest fleet, with about 106,000 small vessels, compared to 3,634 larger vessels registered in the country.²⁷

Fishermen are grouped into a number of organizations. Some are of a commercial/business nature, as is the case with the fisheries industry, grouped under the National Chamber of the Fisheries Industry (e.g., CANAINPESCA, tuna, shrimp).²⁸ Other organizations are more socially oriented, such as the fisheries cooperatives and the Federations of Fisheries Cooperatives (groups of cooperatives, e.g., FEDECOOP Baja California, abalone, lobster).²⁹ In both cases, these organizations may attain (and this is frequently the case) a certain degree of influence in fisheries policies established by the government. In recent years these organizations have been consulted with increasing frequency regarding both inshore (coastal) and offshore (EEZ) fisheries policies.

The second article of the Constitution acknowledges the preferential right of indigenous peoples and communities to the sustainable use of fisheries resources in the areas where they live.

The Law of Fishing, currently in force (2007),

catches are exported. This fishery generated income estimated at US\$ 21 million in 2002.²⁵

Since abalone yields were seen to be declining, a recovery plan was implemented in 1996. This is one of the fisheries for which comprehensive research and administration schemes have been developed. Management measures include: fishing licences, fishing quotas, minimum sizes, closed seasons and zones, etc. The fishery is still classified as deteriorated with solitary signs of recovery, so the recommendation is not to increase the current fishing effort any further.²⁶

formally considers all Mexican indigenous communities as having preferential access rights to fishing resources in those areas where they live, as well as the implementation of programmes promoting fishing activities among indigenous communities, using their customary fishing gear and practices. Under identical circumstances, any request from indigenous communities receives preferential treatment.

Furthermore, the new law states that, in cases where a concession or licence has the potential to affect the habitat of any indigenous community, the authorities must consult indigenous community leaders. Likewise, the federal authorities in charge of regulating fishing activities shall set forth the required procedures and mechanisms so that any legal document granting concessions or permits is translated into the language of dealers or licence owners belonging to indigenous communities or, alternatively, make sure that the content is interpreted for them.

In practice, however, there are only a few cases of indigenous populations actually being shown exceptional treatment in relation to fishing activities. Such is the case of the Yaqui and Mayo indigenous communities in Sonora (Tiburón Island), who were allowed to fish without having to request a licence.

25 SAGARPA, Instituto Nacional de la Pesca. *Sustentabilidad y pesca responsable en México. Evaluación y manejo 2006. La Pesquería de abulón*, pp.1-38.

26 National Fisheries Chart, *supra*, note 8.

27 SAGARPA, *supra*, note 5.

28 <http://fis.com/canainpesca>.

29 http://www.wwf.org.mx/wwfmex/archivos/gc/040428_certifPesqueria.php.

4. Public perception of basic fisheries-related issues

There is an ongoing debate and concern, increasingly shared between the conservation and academic sectors, over several aspects of fishing, such as the overfishing of several species (e.g., abalone,³⁰ sharks and rays³¹), overcapacity of fleets (e.g., the shrimp fleet is the country's largest),³² and the lack of compliance with fishing standards, in inshore waters, the EEZ and the open sea.

There is a perception that the estimates of abundance of stocks are inexact because the government agencies carrying them out do not correlate them with the information fishermen have. Moreover, government rarely invites the participation of independent experts.

Some specific examples may be mentioned which are the subject of debate in various respects. The *Dorado* or Dolphinfish (*Coryphaena hippurus*) from the Pacific littoral is a species reserved for sport fishing, for which small-scale commercial fishermen have requested approval for commercial exploitation, leading to a conflict of interests with the tourism sector. In the case of *Vaquita* or Pacific harbour porpoise (*Phocoena sinus*), an endangered species living in the Gulf of California, there is also an ongoing debate between the conservation and commercial fishing sector, particularly concerning *enmalle* (gill) nets and trawler shrimp fishing.

II. Legal regimes governing fisheries

1. Global and regional international instruments

Mexico is party to the following international treaties relating to fisheries:³³

- Agreement to Promote Compliance with International Conservation and Management Measures for Fishing Vessels on the High Seas (1993);
- Agreement for the Creation of the East-Pacific Tuna Organization (1989);
- Constitutive Agreement of the Latin American Organization for Fishing Development (1982);
- Cooperation Agreement between the Mexican United States Government and the Japanese Government in relation to the Fisheries Training Project (1977);
- Fishing Agreement between the Mexican United States Government and the United States of America Government (1976);
- Fishing Agreement between the Mexican United States and the Republic of Cuba (1976);
- German-Mexican cooperation agreement for the Development of Mexican Open-Sea Fisheries off the Mexican United States Pacific Coast (1974);
- Technical Cooperation Agreement between the Mexican United States Government and the Federal Republic of Germany Government for the Development of Marine Biology and Fishing Production Technology (1974);
- Agreement on Fishing by Japanese Vessels in Waters Adjacent to the Mexican Territorial Sea (1968);

30 SAGARPA, Instituto Nacional de la Pesca, supra, note 25.

31 *NORMA Oficial Mexicana NOM-029-PESC-2006, Pesca responsable de tiburones y rayas. Especificaciones para su aprovechamiento*. Official Gazette of the Federation. 14 February, 2007.

32 García, J.M and Gómez Palafox, J.V. (2005). *La pesca industrial de camarón en el Golfo de California: situación económico-financiera e impactos socio-ambientales*. Conservation International.

33 Lic. Amparo Canto, Foreign Affairs, Senate of the Republic. Personal communication.

- Agreement between the Mexican United States Government and the United States of America Government on Traditional Fishing in the Exclusive Fishing Zones Adjacent to the Territorial Seas of Both Countries (1967);
- International Convention for the Conservation of Atlantic Tuna (1966);
- International Agreement on Task No. 112 Relative to Minimum Age of Admission for Fishing Labor (1959); and
- Agreement on Fishing and Conservation of Open-Sea Living Resources (1958).
- APICD – *Acuerdo sobre el Programa Internacional para la Conservación de Delfines* (Agreement on the International Dolphin Conservation Program);
- CICAA – *Comisión Internacional para la Conservación del Atún Atlántico* (International Commission for the Conservation of Atlantic Tunas);
- OCDE – Organización de Cooperación para el Desarrollo Económico (Comité de Pesca) (Organisation for Economic Co-operation and Development (OECD), Fisheries Committee);
- APEC – Asia-Pacific Cooperation Forum (Fisheries Workgroup and Marine Resources Conservation Workgroup);

Mexico is a member of the following international organizations:

- COFI – *Comité de Pesca de la Organización de las Naciones Unidas para la Agricultura y la Alimentación* (UN FAO Fishing Committee);
- CIAT – *Comisión Interamericana del Atún Tropical* (Inter-American Tropical Tuna Commission);
- CICAA – *Comisión Internacional para la Conservación del Atún Atlántico* (International Commission for the Conservation of Atlantic Tunas (ICCAT));
- OLDEPESCA – Organización Latinoamericana de Desarrollo Pesquero (Latin American Organization for Fisheries Development); and
- INFOPESCA – El Centro de Servicios de Información y Asesoramiento sobre la Comercialización de los Productos Pesqueros en América Latina y el Caribe (Information and Advisory Service Center on Latin American and Caribbean Fishing Products Trading).

2. Guiding principles of domestic legislation

a) *The Constitution*

The elements related to the use of natural resources are established in a number of paragraphs of article 27 of the Political Constitution of the Mexican United States.³⁴ This article includes provisions regarding the natural resources constituting flora and fauna for which water is their total, partial or temporary living environment.³⁵

The first paragraph states that: “... Ownership of land and water included within the limits of the national territory belongs to the Nation, which has

had and has the right of transferring the property of these to individuals, constituting private property...” This provision has an important impact on understanding economic activities, since it sets the basis to define property rights as oriented towards transforming public property into access for economic agents (social or private) and thus rejects the notion of free access based on a concept of *res nullius*.³⁶

The fourth paragraph states that: “...The direct domain of all natural resources within the continental shelf and the submarine shelves of islands belongs to

34 *Constitución Política de los Estados Unidos Mexicanos*. (2000). Ed. Porrúa, S.A. México.

Available at: <http://www.diputados.gob.mx/LeyesBiblio/pdf/1.pdf>.

35 Secretaría de Pesca: Universidad Autónoma de México. (1994). *El régimen jurídico de la pesca en México*.

36 Seijo, J.C., Defeo, O. and Salas, S. (1997). *Bioeconomía Pesquera. Teoría, modelación y manejo*. Documento Técnico de Pesca No. 368. Rome: FAO.

the Nation;...”. Here the Nation’s domain over natural resources such as plants and animals is set out, as well as over other goods such as minerals, oil, airspace, etc.

Article 27 fifth paragraph states that: “...The waters within the territorial seas belong to the Nation, with the extension and under the terms established by international laws; inner marine waters; coastal lagoons and estuaries permanently or intermittently communicated to the sea; natural inland lakes directly connected to constant water currents; rivers and their direct or indirect tributaries, from the point where the upper permanent, intermittent or torrential currents become evident...” “...the use of these water bodies will be considered as under public domain, subject to the provisions set forth by the States...”.

The sixth paragraph states: “...In the cases referred to in the two previous paragraphs, the Nation’s domain is inalienable and permanent and the exploitation and use of the resources within this domain by third parties and societies constituted according to the Mexican laws will only be possible under licenses granted by the Executive Power, in accordance with the rules and conditions set forth by the legislation...” This fact sets the ground for all Mexican regulations in matters of fishery resource use.

Last, the eighth paragraph sets forth the Nation’s rights in relation to the extension of sea under Mexican sovereignty by defining that: “...The Nation exerts the sovereign rights and jurisdictions, as determined by the Congress laws, in an exclusive economic zone. The exclusive economic zone will comprise two hundred nautical miles, measured from the baseline from which the territorial sea is measured...”.

b) Fisheries legislation

The Fisheries Law of 1992 relied on an economic modernization approach, avoiding protectionism and

fostering competition and productivity. This included promoting access to fishery resources and defining fisheries as a source of resources that would benefit broader society. This policy was effective in the short term. The law emphasized those elements that guaranteed the rational use of fishery resources and thus created the basis for proper development and administration. In this way, the 1992 Fishing Law set forth, in one of its most relevant articles (Article 4), the licensing of fishing as providing a property right in the Nation’s fisheries resources.³⁷

Apart from the Fisheries Law Mexico promulgated a Law in 1992 which deals with matters of standardization, certification, accreditation, and verification in relation to various branches of economic activity.³⁸ The standards, called Mexican Official Standards (NOMs in Spanish), are set by bodies involving various ministries and inviting the participation of the relevant industries, academics and the public at large. Fishing is also regulated by these standards which prescribe e.g., fishing gear, closed seasons, minimum fishing sizes, etc. In fact however, only a few fisheries (14)³⁹ have been regulated by such standards until now. By 2006, 44 Mexican Official Standards regulating both open-sea fisheries as well as fishing in inland waters and coastal lagoons were in force,⁴⁰ along with three management plans (shrimp, giant squid, and sharks and rays).⁴¹

A new General Law of Sustainable Fishing and Aquaculture came into force in 2007.⁴² This new law stresses the sustainability aspects of fisheries.⁴³ The new law also lays the foundation for allocating powers amongst the Federation, the States and the Municipalities in fishing and aquaculture matters, thus specifying the concurrence principle established in Article 73 Section XXIX-L of the Mexican Constitution.⁴⁴ In accordance with the principles stated in Articles 11, 12, 13, 14, 15, 16, 22 and 24, the new

37 González-Oropeza, M. (Coord.) (1993). *Ley de Pesca Comentada*. Secretaría de Pesca: Universidad Nacional Autónoma de México.

38 *Ley Federal sobre Metrología y Normalización*. (1992). Available at: <http://www.diputados.gob.mx/LeyesBiblio/pdf/130.pdf>.

39 Hernández, A. and Kempton, W. (2003). ‘Changes in fisheries management in Mexico: effects of increasing scientific input and public participation’. *Ocean and Coastal Management* 46: 507-526.

40 Conapesca. *Normas Oficiales Mexicanas Pesqueras y Acuícolas*. Available at: http://www.conapesca.sagarpa.gob.mx/wb/cona/cona_cuadro_de_noms.

41 Conapesca. *Planes de Manejo*. Available at: http://www.conapesca.sagarpa.gob.mx/wb/cona/cona_plan_de_manejo.

42 General Law on Sustainable Fishing and Aquaculture. Official Gazette of the Federation. June 24, 2007.

43 http://www.senado.gob.mx/servicios_parlamentarios.php?ver=estenografia&tipo=O&a=2006 &m=04&d=27.

44 Ibid.

Law establishes the way in which the States, the Federal District, and the Municipalities will participate in these matters: communication of requests to obtain certain licences and permits through the fishing and aquaculture state councils, allowing opinions to be issued regarding those requests; participation in the development of fisheries management programmes, and in fisheries and aquaculture planning projects, as well as in monitoring and surveillance activities.⁴⁵

The national policy in matters of sustainable fishing and aquaculture involves: principles, mechanisms,

3. Institutional structures

The Mexican Republic comprises 31 states and the Federal District. Each of these states is free and sovereign, and has its own constitution and congress. Although the Federal District has no constitution, it does possess a local congress that houses the three federal government powers (Federal Executive, Legislative and the Supreme Court of Justice). The states are divided into municipalities, totaling 2,438 municipalities in all. Of the 31 states, 17 are on the coast: Baja California, Baja California Sur, Sonora, Sinaloa, Nayarit, Jalisco, Colima, Michoacan, Guerrero, Oaxaca and Chiapas on the Gulf of California and Pacific Ocean, and Tamaulipas, Veracruz, Tabasco, Campeche, Yucatan and Quintana Roo, on the Gulf of México and the Caribbean Sea.

a) Administrative agencies

The government agencies with direct power and obligations in relation to the use, management and conservation of fishery resources include the National Commission of Aquaculture and Fisheries (CONAPESCA). The administrative structure of CONAPESCA includes one commissioner, different offices such as planning and evaluation, promotion, fisheries management, physical infrastructure, surveillance, and a legal department. The commissioner is appointed and can be removed by the Federal Executive via the Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food (SAGARPA).

instruments, programmes, and other measures. In order to contribute to solving one of the most critical issues that national fisheries currently face, surveillance and monitoring are strengthened through measures seeking tighter control, the incorporation of scientific and technological progress, and transparent participation processes involving institutions and government powers. Therefore, the Integral Monitoring and Surveillance Program to Fight Illegal Fishing has been created, which is participatory, and implements more severe sanctions for infringements of the law.⁴⁶

CONAPESCA receives advice from the National Council of Fishing and Aquaculture. This Council is composed of representatives of social organizations, producers from the private sector, and governmental representatives.

CONAPESCA's powers and obligations include:

- proposing and coordinating national policies in matters of rational and sustainable use of fishing and aquaculture resources, as well as the development and promotion of fisheries and aquaculture;
- administering, regulating, and developing the use and conservation of fisheries resources and aquaculture development;
- proposing general criteria for the establishment of economic instruments to promote the integral development of fisheries and aquaculture;
- proposing and executing the general surveillance and monitoring policy in aquaculture, commercial, and sport fishing matters, with the participation of other federal government agencies; and
- issuing fishing licences.

45 Ibid.

46 Ibid.

CONAPESCA exercises these powers irrespective of the powers of the Ministry of the Environment and Natural Resources.

The National Institute of Fisheries (INP) is a basic instrument in CONAPESCA's functioning. Today, INP is a decentralized organization of the federal government under SAGARPA.⁴⁷ The mandate and powers of INP are set forth in Section VII, Articles 73 and 77, of SAGARPA's Internal Directive: I. Act as the Ministry's scientific and technical advisor in matters of its competence; II. Conduct research with an integral and interdisciplinary approach, linked to the fishing activity's natural, economic and social processes; III. Support, develop and promote the transfer of research findings and technology generated by INP to aquaculture farmers and fishermen in an accessible way; IV. Elaborate and update the National Fisheries Chart; V. Support the administrative units involved in the conduct of ecological management and environmental impact studies for any activities carried out by the National Commission of Aquaculture and Fisheries in aquaculture and fishing matters; VI. Contribute to conducting risk analyses related to the introduction, establishment and spread of pests and diseases affecting aquaculture and fisheries; VII. Offer professional services to private and public users in scientific and technological research, technical opinions and verdicts, and advice in the Institute's competence areas; and VIII. Identify and register the genetic lines of aquaculture species produced in the national territory, as well as those species for which the genome has been manipulated.

The Ministry of the Environment and Natural Resources (SEMARNAT) is a federal government agency⁴⁸ in charge of marine protected flora and fauna. Its tasks are to promote the protection, restoration and conservation of ecosystems, natural resources, and environmental goods and services, to foster their sustainable use and development, and to issue and lead national policies in matters of natural resources, provided these have not been explicitly assigned to another agency.

SEMARNAT was mainly created out of the infrastructure of the previous Ministry of Fisheries (SP in Spanish), INP, and related staff from these offices, as well as employees from other federal environment-related offices operating before 1994. Hence, from that year, the focus of fishing affairs turned towards conservation.⁴⁹

There are other federal government agencies, including the Ministry of Maritime Affairs, the Federal Attorney's Office for Environmental Protection, the Republic's General Attorney's Office, the Federal Preventive Police, and other local police forces which may assist in enforcing the new Law of Fishing, with special regards towards sanctions.

Finally, there is a series of local institutions at the state government level in coastal states that have been established in relation to fishing and aquaculture activities. They are mostly oriented towards development, supporting investments to get licences, approvals, and other requirements from the federal government, as well as obtaining funds for these productive activities.

b) Distribution of competences

The 1992 Fisheries Law was a federal statute, and hence its application corresponded to federal agencies (SAGARPA, National Commission of Fisheries and Aquaculture, Ministry of the Environment, Natural Resources and Fisheries, Attorney's Office for Environmental Protection, Ministry of Maritime Affairs, National Institute of Fisheries, etc.).⁵⁰ Any approval of the use of a fishing resource would have to be issued *originally* from the central offices, with the assistance of the federal offices in the States, which mainly act as reception centres for licence applications.

This had important implications for the conservation of fisheries resources, since this scheme failed to achieve an *effective shared responsibility* between coastal states and the federal government with regard to the use and conservation of fisheries resources.

47 <http://www.inp.sagarpa.gob.mx/Nuevos/evaluacionINP/informefinal.pdf>.

48 SEMARNAT creation decree.

49 Ibid.

50 González-Oropeza, supra, note 37.

There is abundant information in international publications and grey literature on efficient mechanisms (e.g., Regional Fishing Councils) for carrying out assessments, fisheries analyses, and for decision making explicitly involving the participation of producers, authorities, academia and the general public interested in the subject. This favours adaptive management, co-management, and cooperative or community management, all concepts which have proved to have a very positive impact on fishing resource conservation in other countries such as the USA, Australia, Canada and Spain.⁵¹ However, in Mexico, the direct responsibility for fishing resource conservation has resided with the federal government, involving countless operational and functional limitations.

Mexico has actively pursued the United Nations aim to achieve a better and more efficient sustainable fishing development. Mexico co-organized the International Conference on Responsible Fishing held in Cancún in 1992. This conference resulted in the FAO Code of Conduct for Responsible Fishing that established principles and standards for the conservation, planning and development of fisheries, so to guarantee an environmentally sound sustainable exploitation of living aquatic resources.⁵²

Although this Code is non-binding soft law, Mexico is fully committed to its implementation. One of the Code's most important chapters, Fishing Management, stipulates that, in areas under its jurisdiction, each country should attempt to identify the domestic stakeholders with a legitimate interest in fishing resource use and planning, and establish measures for consultation, in order to ensure their collaboration to attain responsible fishing.⁵³

Yet, implementation of the concepts of co-management, community management and shared responsibility in the administration of fishery resources

in Mexico has been fairly limited. The most important bodies, the State Fisheries Councils, have largely failed to function properly. They do not meet the operational requirements of a technical organization. Rather than carrying out concrete activities based on long-term and systematic work programmes, they have a very bureaucratic structure and hold only sporadic meetings. Having been created by a federal government's administrative agreement rather than through a parliamentary law, they have not attained a high legal status.⁵⁴

The Decree that created CONAPESCA⁵⁵ also stipulated the creation of participatory Consulting Committees on Fishing Matters in Article 6 Section IV. However, these have not been convened yet and it is unlikely that they will have any significant effect on the policies for use, management and conservation of marine resources.

As regards transparency, the new 2007 Fishing Law⁵⁶ (Article 122) sets forth that the authorities are responsible for maintaining a public and free National Fisheries Record.⁵⁷ Individual persons (fishermen) and businesses dedicated to fishing activities and possessing a concession, permit or licence are legally obliged to register themselves in the Record. Likewise, since 2002, all federal offices (including those related to fishing activities) must provide information generated with public resources, according to the Federal Law of Transparency and Public Access to Government Information.⁵⁸

As regards access and management instruments, however, the 2007 Law of Fishing maintains the basic structure already established by the previous law. But the new law acknowledges the sustainable use of fishing and aquaculture resources as a cornerstone to promoting economic activities from a perspective that enables better living standards and quality of life for future generations.

51 Pinkerton, E. (Ed.). (1989). *Cooperative management of local fisheries. New directions for improved management and community development*. Vancouver, BC: University of British Columbia Press.

52 <http://www.fao.org/DOCREP/005/v9878s/v9878s00.htm>.

53 Ibid.

54 Coordination agreement between SAGARPA and the State of Baja California Sur. Official Gazette of the Federation. October 29, 2002.

55 CONAPESCA creation agreement.

56 http://www.diputados.gob.mx/LeyesBiblio/ref/lgpas/LGPAS_orig_24jul07.pdf.

57 Ibid.

58 *Ley Federal de Transparencia y Acceso a la Información Pública Gubernamental* (Federal Law of Transparency and Access to Public Government Information). Available at: <http://www.diputados.gob.mx/LeyesBiblio/pdf/244.pdf>.

4. Instruments promoting fisheries

a) Subsidies

Support for fishing activities in the Federation's expenditure budget⁵⁹ (PEF in Spanish) for 2007 amounted to US\$ 103,097,345 and was mostly oriented towards the promotion of aquaculture and adding value to seafood through processing and commercialization rather than through expanding fishing fleets. The federal government has set up several support programmes such as: technical training and advice; development and strengthening of value networks; National Program of Support to Rural Aquaculture; National Program of Aquaculture Sanity and the Network of Diagnosis Laboratories; Alliance for food producers (Aquaculture and Fishing).⁶⁰

In addition, the government has introduced subsidies for energy sources, oil and diesel used in small and large vessels, as well as for the electricity used in aquaculture farms. Economic resources dedicated to marine diesel⁶¹ amounted to US\$ 66 million in 2005. In 2006-2007 the subsidy was Mex\$ 2.00 pesos/litre of marine diesel.⁶²

Shrimp-fleet buy-back programmes have been implemented recently, aimed at increasing the efficiency of this important fishery, both in economic and biological terms. The fleet buy-back programme consisted of buying each vessel at US\$ 88,495.

In general, inshore fisheries appear to be in a worse

financial situation and their beneficiaries are more scattered compared to the large tuna companies receiving government support for fleet operations.

b) Market organization

With the liberalization of Mexico's economy, only a few products are still subject to price controls (e.g., gasoline, electricity). In the 1970s, sardine was considered a popular high-protein food product, so a price-control policy was set up (i.e., a maximum price to the public). Today, this control no longer exists and, for example, the most widely consumed tuna product is canned tuna, and its price is based on supply and demand, as with all other fish products.

The domestic market shows a considerable concentration of fish products in major population centres such as Mexico City, Guadalajara and Monterrey, along with a significant seasonal element, with high consumption rates during religious festivities like Easter and Christmas.

On the other hand, most trading of fish products is done through a long chain with too many middlemen,⁶³ where dealers in landing areas impose the price upon producers,⁶⁴ as in a monopsonistic market structure. There is therefore the potential for increasing fishing sector efficiency through vertical integration of companies (harvesting, processing and commercialization).

5. Instruments of fisheries management

a) Access and catch restrictions

To engage in marine fishing, a licence is required according to both the 1992 and the new 2007 fishing laws. This licensing system is supplemented by other

management measures, like setting maximum catches when the MSY is reached for the Yellowfin tuna (total quota),⁶⁵ applying restrictions to fishing gear like those aimed at reducing tuna-related dolphin deaths, etc.

59 http://www.diputados.gob.mx/LeyesBiblio/pdf/PEF_2007.pdf.

60 http://www.conapesca.sagarpa.gob.mx/wb/cona/cona_organizacion_y_fomento.

61 http://www.conapesca.sagarpa.gob.mx/work/sites/cona/dgppe/dieselmarino2003_2005.pdf.

62 http://www.conapesca.sagarpa.gob.mx/work/sites/cona/resources/LocalContent/3297/2/DOF_30NOV06.pdf.

63 Instituto Tecnológico Autónomo de México ITAM – SAGARPA. (2003). *Estudio de Competitividad del Sector Pesquero Mexicano*. Centro de Estudios de Competitividad.

64 Dr Luis Felipe Beltrán Morales, CIBNOR, S.C. Personal communication.

65 National Fisheries Chart, supra, note 8.

Although Total Allowable Catch (TAC) schemes are not systematically employed in Mexico, there are several fisheries such as the tuna, abalone and clam fisheries which are subject to a kind of TAC regime. The quota is based on technical criteria (e.g., population assessment, setting of a baseline, determination of reproduction rates, etc.) more than on economic criteria.⁶⁶ For some fisheries such as clams, harvest quotas are supplemented with other management measures like minimum catch size, closed seasons, and effort control, among others. In Mexico, the individual transferable quota (ITQ) has not been formally introduced.

As regards licence duration, the new law sets forth that these be granted for up to 20 years, according to the assessment derived from technical and economic studies, as well as to the magnitude and recovery of the investment. A shorter-term licence (2-4 years) is granted when the magnitude of the investment does not warrant technical and economic studies.

The fishing law sets out the basic legal terms of permits, licences and concessions. A permit bestows the right to catch just for the specific action permitted, for instance for the oneoff catch of postlarvae for hatcheries. A licence gives the right to catch or harvest for a period of 2-4 years, for instance for scale fish, clam fish, shark or squid. A concession bestows the right to catch for up to 20 years, for instance for tuna fishing carried out by industrial vessels, for abalone, and in some areas for lobster. The time period granted depends on the level of investment and the time needed to recover it. In conjunction with the fishing law, a legal ordinance has been issued by the Federal Executive Power that contains detailed provisions to enact the general terms of the law. Lastly, the Mexican Official Standards are even more explicit for each fishery in terms of fishing administration and management.

As regards decision making, participative processes are being used with increasing frequency to set

management measures and analyze the state of fishery resources from relevant data like technical and scientific information.⁶⁷ Likewise, agreements have been established to achieve greater participation of fishermen groups and coastal state governments (e.g., Baja California Sur).⁶⁸ Abalone and lobster fisheries on the Baja California peninsula's western coast are examples where participative fishing management is being practised.^{69, 70}

Costs of licences and permits vary from year to year according to the Federal Law of Rights⁷¹ in accordance with Article 191-A Section I and 191-C in force at the time of issue. Based on this law, the following fees apply after May 2007:

- a) *US\$ 653 for a 20-year licence (concession), plus an annual fee for the right to use the licensed fishing resource (i.e., abalone: US\$ 47.75).*
- b) *A clam fishing licence – the most expensive – costs US\$ 40.18/year/vessel, whereas a shark licence – the cheapest – costs US\$ 1.06/year/vessel. In both cases, an additional US\$ 59.56 must be paid to the federal government.*
- c) *In the case of sport fishing (for Mexicans or foreigners), the costs of individual non-transferable licences are: US\$ 7.84/day; US\$ 19.65/week; US\$ 29.52/month; and US\$ 39.38/year.*
- d) *For foreign fleets that are granted a fishing licence through an exemption permit, this will cost US\$ 199.12 for fishing rights per vessel and per trip of up to 60 days, as per Article 191-C of the above mentioned law.*

The Mexican government could clearly earn significantly higher levels of income from authorizing access to the country's fisheries resources.

66 Ibid.

67 Hernández and Kempton, *supra*, note 39.

68 Coordination agreement between SAGARPA and the State of Baja California Sur, *supra*, note 54.

69 SAGARPA, *supra*, note 25. Electronic version.

70 SAGARPA, Instituto Nacional de la Pesca. *Sustentabilidad y pesca responsable en México. Evaluación y manejo. 2006. La Pesquería de Langosta en la Península de Baja California*, pp.155-210. Electronic version.

71 <http://www.diputados.gob.mx/LeyesBiblio/pdf/107.pdf>.

A number of protected natural areas have been established in Mexico, involving legal provisions (e.g., management plans) aimed at protecting marine ecosystems and including regulations to exploit fish resources, like approval and monitoring of these activities by several government offices in addition to the fishing authorities.

b) Enforcement and compliance issues

The main penalties included in the new Fishing Law (2007) encompass 31 infringements in article 132 of this law. These include fishing and farming activities without the corresponding concession, licence, permit or authorization; exploiting a species or group of species at volumes outside the technical and economic standards set forth in the corresponding title; issuing invoices for seafood outside the terms set forth in the licence, permit or authorization; transferring the rights derived from licences or permits without the Ministry's (CONAPESCA) approval; extracting, harvesting, possessing, transporting or trading species during the closed season; extracting, harvesting, possessing, transporting or trading species of sizes/weights below the minimum size set forth by the Ministry (CONAPESCA); catching any species from sanctuaries or population recovery areas or locations; intentionally catching sea turtles or marine mammals or species in danger of extinction or without complying with the technical standards in force, and without the Ministry's (CONAPESCA) approval, among others.

Just as in many countries around the world, illegal fishing in Mexico is a matter of great concern, mostly as regards high-value inshore resources like shrimp, lobster and abalone.⁷²

Although there is a reasonably sound set of regulations and sanctions for the use of fisheries resources and the conditions for use in terms of minimum sizes, closed seasons, quotas, fishing gear, and other harvesting conditions, often compliance with

these ordinances is either limited or nil. The main reasons underlying this are: a shortage of surveillance staff relative to the coastline (11,500 km), a lack of equipment for surveillance authorities, the poverty of the coastal communities that leads them to fish without a licence, and corruption.

c) Coherence with relevant international agreements

Mexican legislation is consistent with international laws including the UN Convention on the Law of the Sea (UNCLOS – CONVEMAR in Spanish),⁷³ which addresses access to surplus production.

As regards the EEZ, the new Fishing Law (Article 62)⁷⁴ states that: “The Ministry of Fisheries (particularly CONAPESCA), in line with the national interest and the international treaties and agreements that Mexico has signed, will determine and, if applicable, rule whether there is a surplus by species; under such situation, it will grant an exemption for foreign vessels to participate in the harvest of such surplus in the exclusive economic zone, provided there is compliance with the requirements and conditions set forth by this agency. In any case, this will be governed by strict reciprocity in all cases.”

For example, Cuban vessels have been allowed to fish in the Gulf of Mexico based on this concept and the Mexico-Cuba bilateral agreement.⁷⁵

Mexico has participated in the FAO's Fishing Committee since 1978, and actively participates in the works currently ongoing aimed at ensuring compliance with the provisions set forth in the Code of Conduct for Responsible Fishing, as well as with international action plans. Likewise, Mexico is engaged in activities promoting the development of aquaculture, freeing the fishing trade from restrictive tariff barriers and technical obstacles, and agreeing on quality control systems for fish products.⁷⁶

72 Ponce-Díaz, G., Sánchez-Hernández, S., Moctezuma-Cano, T., Olguín-Espinoza, I., Serviere-Zaragoza, E., Pérez-Enríquez, R., Hernández-Llamas, A., Ramade-Villanueva, M., Lluch-Cota, D., Lluch-Cota, S., Hernández-Vázquez, S., de Anda-Montañez, A., González-Angulo, M., Soria-Martínez, G., García-Domínguez, G., Beltrán-Morales, L.F., Flores-Quintana, E. and González-Becerril, A. (2003). *Estudio de la Cadena Productiva de Abulón*. CONAPESCA, CIBNOR, BANCOMEXT.

73 *Convención de Naciones Unidas sobre Derecho del Mar*.

74 General Law on Sustainable Fishing and Aquaculture. Official Gazette of the Federation. June 24, 2007.

75 SAGARPA. (2005). *Asuntos Internacionales. Acuerdo bilateral México-Cuba en materia pesquera* (Foreign Affairs. Mexico-Cuba bilateral agreement on fishing matters). Available at: http://www.conapesca.sagarpa.gob.mx/work/sites/cona/dgppe/informe_de_actividades_2005.pdf.

76 Ibid.

In Mexico, open-sea fishing, particularly tuna fishing, has expanded in recent years following criteria proposed by multilateral bodies such as the Inter

American Commission of Tropical Tuna (CIAT in Spanish), as well as other guidelines issued by international organizations such as FAO.

6. Foreign fishing activities and the purchase of fish

The fisheries management schemes that are starting to be applied in Mexico are in line with global trends and agreements set between multilateral bodies.

a) Foreign activities in Mexico

Foreign investment

Bilateral cooperation with various countries in issues of fishing and aquaculture is focused on environmental, technical-scientific and economic-commercial problems rather than on investment in technology and equipment. Actions taken by Mexico are oriented towards supporting other countries in the region for their own fishing development and promoting foreign capital investments and co-investments in Mexico's fisheries for capitalization, access to new technologies, and up-to-date production processes.⁷⁷ Foreign investments in fisheries are restricted to 49% maximum of capital with 51% Mexican investment, whereas foreign capital investment in aquaculture and marine product processing may be as high as 100%.

During 2005, cooperative fishing projects were carried out with the USA, Cuba, Honduras and Guatemala, among others; additionally, licence programmes for foreign researchers and grants for overseas training were supported.⁷⁸

Fishing by foreign vessels

A licence or permit issued by the Ministry of Fisheries is required to fish in waters under Mexican jurisdiction. Only Mexicans and Mexican companies working in vessels flying the Mexican flag may be granted such licences or permits. In exceptional circumstances, permits may be issued to persons operating vessels

flying a foreign flag which provide a number of places for Mexican workers for fishing in the EEZ.⁷⁹

In 1976, Mexico and Cuba signed a Fisheries Agreement relating to fishing for groupers and snappers, among others, within Mexico's EEZ. Mexico's naval authorities have the right to stop and board any vessel flying the Cuban flag that is fishing in the area, in order to inspect it. The Mexican government can impose measures and sanctions, under the terms set forth in its law, on Cuban ships that infringe Mexican legislation. Measures and sanctions may include seizure of catch and fishing gear, fines, vessel detention and application of sureties.⁸⁰

No information is currently available that the Mexican government has granted fishing licences to foreign fleets other than the Cuban fleet.

b) Purchase of fish by foreign food companies

National laws regulating sales of fish to other countries Regarding trade with the European Union, CONAPESCA carries out activities to support Mexican fishing exports in coordination with the Ministry of Health. Mexican fishing companies, in close communication with officials from the Comisión Federal para la Protección contra Riesgos Sanitarios (COFEPRIS – Federal Commission against Sanitary Risks), took the necessary actions and measures to allow for the certification of vessels and seafood-processing plants, and their inclusion in the EU Register of Approved Facilities for Exports. Today, 24 octopus, lobster, tuna, crab, shrimp and squid plants have been certified.⁸¹

77 Ibid.

78 Ibid.

79 NAFTA. Official Gazette of the Federation. December 20, 1993.

80 Organisation for Economic Co-operation and Development (OECD). (2005). *Why Fish Piracy Persists. The Economics of Illegal, Unreported and Unregulated Fishing*. Paris: OECD.

81 SAGARPA, supra, note 75.

The main seafood product exported from Mexico is shrimp. This is exported mainly to the USA. However, access to this market is restricted as a result of a series of conditions set forth by US legislation aimed at protecting sea turtles. The Mexican government maintains a permanent protection policy for sea turtles, which has allowed them to maintain continuity in shrimp exports. The National Program for Sea Turtle Protection contains a number of provisions to protect sea turtle species coming to Mexican coasts to breed, and to assist in the recovery of their populations.⁸²

The Mexican fleet has been able to maintain shrimp exports to the USA due to its satisfactory performance in implementation of sea turtle-protection involving excluders in trawls – these exports amount to US\$ 250-300 million each year.

Voluntary quality-control schemes

The demand for seafood in Mexico, particularly outside Mexico City, can occasionally be high, at specific times of the year (e.g., Easter and Christmas). The rest of the year is characterized by low consumption due to ignorance of fish products and their properties. The seafood consumer is not yet ready to influence, from the demand end, fishing methods, the types of gear used, fishing during closed seasons, etc. However, this is not specific to the seafood market alone, but applies to many other products. Promotion of smart consumption is needed, to encourage consumers to be more aware of price and quality, and of their potential

impact on markets and production through demand. To date, only a few small steps have been made to alert the consumer to more conscious consumption practices.

In 2004, the Baja California Regional Federation of Fishing Cooperatives (FEDECOOP in Spanish) obtained Marine Stewardship Council (MSC) certification for their Red lobster fishery. This was the first eco-certified fishery awarded to a developing country, for passing the strict and independent inspection following international criteria for sustainable and well-administered fisheries. FEDECOOP registers about 1,200 members operating in zones concessioned for lobster, abalone and other marine resources, stretching from Isla de Cedros to Punta Abreojos along the Baja California peninsula's western coast.

The MSC eco-label offers consumers the certainty that the seafood was harvested from a sustainable and well managed fishery, thus helping to improve the condition of oceans and solve the crisis that fisheries are facing throughout the world. More than 100 seafood dealers worldwide have committed to purchasing MSC-certified products, including large supermarket chains in France, Germany, Switzerland, United Kingdom and the USA. Certification empowers the consumer to express his/her desire to stop overfishing and creates market incentives aimed at achieving healthier fisheries and hence healthier seas when sea products are mass consumed.⁸³

III. Case study: the Gulf of California

The Gulf of California is an ecosystem of global importance where multiple productive and economic activities are conducted along the coastline (e.g., agriculture, aquaculture, tourism) and adjacent waters (industrial fisheries, sport fishing) of this basin.

This large marine ecosystem (LME) is bordered by five states: Baja California, Baja California Sur, Sonora, Sinaloa and Nayarit.

In the year 2000, the total population of these five states was 8,585,406 inhabitants.⁸⁴ The population working in primary activities like agriculture, raising livestock, forestry and fishing, relative to the total labour force was: Baja California, 6%; Baja California Sur, 12%; Sonora, 16%; Sinaloa, 28%; and Nayarit, 28%, on average,⁸⁵ showing the economic importance of resource extraction activities in this region, including fisheries. Their contribution to GDP by State in 2004,

82 Ibid.

83 http://www.wwf.org.mx/wwfmex/archivos/gc/040428_certifPesqueria.php.

84 INEGI. (2001). *Censo General de Población y Vivienda, 2000* (2000 General Census on Population and Housing). Aguascalientes, Ags.

85 Ibid.

relative to the national figures, was: Baja California, 3.23%; Baja California Sur, 0.58%; Sonora, 2.66%; Sinaloa, 2.05%; and Nayarit, 0.54%, amounting to a total of 9.07%.⁸⁶

There are four major fisheries in the Gulf of California, namely shrimp, sardine, squid and tuna. Of these, shrimp represents the main source of income in the fishing sector, in terms of economic value. In 2002, shrimp production in the five states was 63,521 tons (coastal lagoons and estuaries, open seas and farming), representing approximately US\$ 319,198,402, using ex-vessel prices in all cases. Sardine production in these five states was 499,978 tons and reported an income of US\$ 7,266,361. Squid production was 86,143 tons with an income of US\$ 16,966,932. Lastly, tuna with an ex-vessel production of 107,292 tons in these five states corresponds to an income of US\$ 70,267,455.⁸⁷

There is a Marine Ecological Management Program for the Gulf of California, an environmental policy instrument through which the government and society jointly contribute to a regional management process. This process was formally initiated on June 5, 2004, through the signing of the Coordination Agreement between the federal government (represented by six federal agencies: SEMARNAT – environment; SAGARPA – agriculture and fisheries; SEGOB – interior; SEMAR – maritime affairs; SECTUR – tourism; and SCT – communications) and five coastal state governments (Baja California, Baja California Sur, Nayarit, Sinaloa and Sonora).⁸⁸

This management process for the Gulf of California involved the participation of various stakeholder sectors: government, industrial fisheries, inshore fisheries, conservation organizations, tourism, aquaculture, indigenous groups and academia.

As a first step, all available environmental and social data for the Gulf of California at a regional level were collected. The study area was regionalized into marine

environmental units, defined as areas sharing similar features. Likewise, since activities conducted on land can have a major impact on the sea, terrestrial influence units were also identified and defined, based on hydrological basins and State borders. As a result, 123 marine environmental units and 32 terrestrial influence units were determined.⁸⁹

This management process aimed to identify the suitability of different areas for fostering or allowing the development of sectorial activities (e.g., tourism, fishing, conservation) and to identify when a given area displayed high suitability values for two or more such sectors, and therefore risked a potential conflict in terms of competing resource uses.

In order to facilitate actions in the study area, 22 Environmental Management Units (UGA in Spanish) were created which share homogeneous characteristics in terms of regional stress, fragility and vulnerability patterns. Of these, 15 are coastal and are designated inshore management units (UGC in Spanish), and seven are located in oceanic areas, and are hence designated oceanic management units (UGO in Spanish) (see Figure 2).⁹⁰

The integral management of marine resources involves acknowledging all uses and the economic, environmental, social and cultural values associated with activities conducted in the marine environment. As a holistic approach, it enables the establishment of policies and schemes to guarantee the maintenance of the ecosystem's structure and functioning, as well as to improve the living standards of the populations dependent on these resources. The inter-sectorial approach involves raising the need to articulate the generation and implementation of different public policy instruments leading to sustainable use and protection of marine and inshore environments, their resources, and the environmental services they provide. It must be ensured that coordinated actions are taken by government agencies and that the economic,

86 Banamex/Citigroup. Division of Economic Studies. GNP Estimates. 2004.

87 SAGARPA. (2004) *Anuario Estadístico de Pesca*. Estimaciones de ingreso elaboración propia en este trabajo.

88 AGREEMENT that issues the Gulf of California's Marine Ecological Management Program. Official Gazette of the Federation. December 15, 2006.

89 Ibid.

90 Ibid.

Figure 2. Environmental management units in the Gulf of California



Source: Agreement that issues the Gulf of California's Marine Ecological Management Program. Official Gazette of the Federation. December 15, 2006.

environmental, social and cultural values associated with the various sectorial activities within a region are incorporated.⁹¹

The Marine Ecological Management Program for the Gulf of California is a good example of this. It specifically aims to implement a number of actions to be applied at a regional level by sector, oriented towards developing sustainable productive activities in the Gulf of California, and brings together the relevant federal agencies (Ministry of the Environment and Natural Resources; Ministry of Tourism; Ministry of Agriculture, Livestock, Rural Development, Fisheries and

Food; Ministry of Communications and Transportation; Ministry of Energy; Ministry of the Interior; National Council of Science and Technology), as well as the state authorities of Baja California, Baja California Sur, Sonora, Sinaloa and Nayarit.

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91 Ibid.

6 Promotion and Management of Marine Fisheries in the European Community

Till Markus

Summary

The Community's Common Fisheries Policy (CFP) was established to ensure that the exploitation of living aquatic resources in Community waters and by Community fisheries is carried out at sustainable levels. However, since its inception in 1970, the CFP has pursued conflicting objectives. On the one hand, it has tried to manage fisheries by establishing and implementing a complex system of conservation, control and enforcement measures. On the other hand, it has heavily subsidized its fisheries sector to secure food supplies, increase employment and the sector's competitiveness as well as to further economic development in coastal regions.

Given that many fish stocks exploited by Community fisheries are overfished and catches continue to decline, it could be argued that Community management and promotion measures have generally failed. Conservation measures, such as total

allowable catches, effort restrictions, and technical measures often encourage fishing at unsustainable levels; and control and enforcement measures have lacked effectiveness. Subsidies have, in many cases, increased the fishing and processing capacities of the Community's fisheries industry. However, high capacity in the sector demands high catch rates, putting pressure on marine capture resources. It has only been recently that the CFP has really begun to adjust its support practices to correspond to the situational and legal management requirements. Nevertheless, such subsidies continue even under the new European Fisheries Fund.

It is the purpose of this report to: (a) explain the CFP's complex management and promotional regimes; (b) identify problems and failures in both systems, and (c) find out how consistency between promotion and management can be increased.

I. Environmental, socio-economic and political background of the European Common Fisheries Policy

Different influences shape the Community fisheries regime and its implementation. In general, the environmental condition of Europe's marine territories and coastal zones forms the overall basis for policy decisions. To illustrate the forces directing the CFP, the ensuing

section will present a brief overview of the multiple demands and pressures on the Community's coasts, marine waters and fish stocks. Following this description will be an explanation of the political and public discourse on fisheries.

1. Overview of multiple demands and pressures on the EC coastal zones and marine ecosystem

The Community has a coastline of approximately 68.000 km¹ and its EEZ is the world's largest,

covering over 25 million km².²

1 European Commission. (2006). *Maritime Facts and Figures*, p.3. Luxembourg: Office for Official Publications of the European Communities.
2 See EUROPA Glossary, available online at <http://europa.eu/scadplus>.

1.1 Overview of human activities affecting Europe's coasts and marine waters

The European Environmental Agency (EEA) states that urban settlements on Europe's coasts are comprised of about 280 cities with more than 50,000 inhabitants in each.³ About 70 million EU citizens live in coastal regions, with approximately 16 % of the population living on about 11 % of the total land mass.⁴

Furthermore, the tourist industry in coastal areas and acquisitions of second homes for urban residents have increased sharply over the last decades. Since many tourists visit the coasts, this industry has been one of the prime commercial activities contributing to coastal development. For example, France, Spain and Italy together received about 174 million tourists in 2004, many of them visiting the Mediterranean.⁵

About 20% of the Community's industry is located on the coasts, with one-third on the North Sea. Many of these enterprises depend on seaways or ocean resources, such as oil, gas and fish, or water and wind power. During the 1990s the marine transport of passengers and goods within Europe rose steadily, an increase of about one-third to about 1,270 billion tonne-kilometres.⁶

All these activities put pressure on Community fish habitats, contributing to, for example, oil spills, the introduction of alien species through marine transports, chemical pollution and eutrophication.⁷

1.2 Overview of the nature and socio-economic significance of the Community fisheries sector

According to Eurostat, the *per capita* consumption of fish varies greatly throughout the Community's 27 Member States. While the average consumption of an EC citizen is 20.3 kg per year, each Spaniard, Portuguese and Lithuanian consumes about 43.3, 54.5 and 36.7 kg per year, respectively, while Slovenians, Bulgarians and Romanians only eat about 6.5, 3.1 and 2.6 kg per year.⁸

Currently, marine catching and aquaculture production amounts to approximately 4% of the world's total. Since 1993, total EU-27 production declined by about 17%. The Community accounts for 6% of the world total catch (5.6 million tonnes), a decline over the period 1993-2005 of about 22%. The Community share of the world's aquaculture production was only 2% or 1.27 million tonnes.⁹

The Community has a negative trade balance in fishery products, both in terms of volume and value. France, Germany, Italy, Spain and the United Kingdom are the Community's major importers. Imports have risen to 6.23 million tonnes in 2006, equalling €17.2 billion.¹⁰

In 2006, the EU-25 fleet comprised 87,004 fishing vessels. However, the mere number of vessels is not an accurate indicator of overall fishing power. Tonnage and engine power are considered to be more reliable factors in this regard. In 2005, these two accounted for 1,955,879 gross registered tonnes (GRT) and 7,068,471 kW for the then 25 Member states. It is necessary to mention that the fleet is structured differently throughout the Community. The fleets of Greece, Portugal, Italy and Finland tend to maintain a

3 European Environment Agency (EEA). (2007). *Europe's environment – The fourth assessment*, pp.210-250. Luxembourg: Office for Official Publications of the European Communities; see also European Environment Agency. (2005). *The European environment – State and outlook 2005*, pp.132-167, 380-391. Luxembourg: Office for Official Publications of the European Communities.

4 EEA, 2007, *supra*, note 3, p.240.

5 EEA, 2005, *supra*, note 3, p.149.

6 *Ibid.*, pp.150-151.

7 *Ibid.*, pp.152-153; EEA, 2007, *supra*, note 3, pp.215-217.

8 The average annual *per capita* consumption for Iceland is 91.5 kg, and 48.7 kg for Norway. In contrast, the average *per capita* fish consumption on the African continent in 2002 was 7.8 kg; Eurostat. (2007). *Fishery Statistics – Data 1990-2006*, pp.8-61, at 58. Luxembourg: Office for Official Publications of the European Communities; FAO. (2004). *The State of World Fisheries and Aquaculture*, pp.39-43. Rome: FAO.

9 Eurostat, *supra*, note 8, pp.18-19, 22-23.

10 *Ibid.*, pp.44-45.

large number of small-scale fishing vessels. Countries like Belgium and the Netherlands have a few large ships in terms of engine power and tonnage.¹¹ The fleets belonging to France, Spain and the UK maintain many small-scale vessels, as well as a few high-powered vessels.¹²

Due to variances in assessment methods across the Member States, employment rates in the fisheries sector are somewhat imprecise.¹³ Nevertheless, in 2006 the Commission published a comprehensive study¹⁴ which found that the total number of people employed in the fisheries sector in 2002/2003 was estimated to be about 421,000 persons, of whom 405,000 were involved in the marine fisheries sector. Approximately 209,000 people had actually worked as fishermen on board fishing vessels (approximately 99,000 on small-scale coastal vessels and 110,000 on off-shore vessels). The number of fishermen has declined by 4% since 1996 to 5%. Aquaculture provided for about 65,400

of these jobs and the processing industry for about 147,000.¹⁵

Aquaculture production in the Community rose from 642,000 tonnes in 1980 to 1,374,000 tonnes in 2006, now accounting for 19% of overall volume and 30% of total fishery production.¹⁶ The aquaculture sector basically consists of three groups: freshwater fish farming, marine mollusc farming, and marine fish farming.

In 1998, the value of the whole production chain (i.e., fishing, aquaculture, processing and marketing) was estimated at € 20 billion, approximately 0.28% of the Community's gross domestic product.¹⁷ Despite this relatively small share, many coastal communities rely heavily on fishing as a source of jobs and income. In some areas in Scotland and Spain, the fishery sector provides for more than 10% of the overall employment.¹⁸

2. State of the marine environment and fish stocks throughout the Community

The European Environmental Agency (EEA) report on Europe's environment draws the following conclusions for 2007:

Of those stocks that had been assessed, 14% in the Arctic were outside safe biological limits, whilst for the North-East Atlantic and Baltic Seas this was 26%. Within the North-East Atlantic, the North Sea was the most severely affected with 44% of the assessed commercial stocks outside safe biological limits, followed by the Celtic Sea with 30% outside them [...]. In the Mediterranean Sea, the percentage

of assessed commercial stocks outside safe biological limits in 2005 ranged from 10-20% with Aegean and Cretan being in the worst condition. [...] Bluefin tuna stocks both in the eastern Atlantic and Mediterranean Seas have been identified as being near collapse.¹⁹

A further problem is that many of the exploited stocks are insufficiently monitored. For example, the EEA states that, in 2006, 81% of Arctic, 67% of Baltic Sea and 54% of North-Eastern Atlantic commercial fish stocks remained unassessed.²⁰

11 European Commission. Communication Green Paper on the Future of the Common Fisheries Policy, vol. II b, p.5. Com(2001) 135 final.
 12 Ibid. pp.25-40.
 13 Eurostat, supra, note 8, p.57.
 14 Salz, P., Buisman, E., Smit, J. and de Vos, B. (2006). *Employment in the Fisheries Sector*. Brussels: EC; for older data, see European Commission. (2000). *Regional Socio-economic Studies on Employment and the Level of Dependency on Fishing*. Brussels: EC.
 15 Salz et al., supra, note 14, p.17; European Commission, supra, note 14, pp.30-31.
 16 European Commission. Strategy Paper for the Sustainable Development of European Aquaculture, pp.3-4. Com(2002) 511 final; European Commission. (2006). *Facts and Figures on the CFP 2006*, p.16. Luxembourg: Office for Official Publications of the European Communities.
 17 European Commission, supra, note 11, vol. II b, p.4. In 2005, GDP at current prices stood at • 10,817,000 million for EU-25, see Eurostat. (2007). *Eurostat Yearbook*, pp.50, 151. Luxembourg: Office for Official Publications of the European Communities.
 18 EEA, 2005, supra, note 3, p.147.
 19 EEA, 2007, supra, note 3, p.223; more numbers are provided in European Commission. Communication from the Commission to the Council on Fishing Opportunities for 2008 – Policy Statement from the European Commission, p.5, Com(2007) 295 final; ICES. (2003). *Environmental Status of the European Seas*, pp.37-42. Copenhagen: ICES.
 20 EEA, ibid., p.223; European Commission, ibid., p.5.

Overfishing has been widely identified as one of the most important factors causing the depletion of fish stocks. However, as mentioned above, other factors also influence the state of fisheries resources, both

directly and indirectly. It is also important to note that overfishing decreases the resilience of stocks against such influences.²¹

3. Formation of the Common Fisheries Policy

Various political actors and interest groups contributed to the development of the CFP. One must particularly note that the Community is a compound of nations and not a sovereign state. Member States' fisheries ministers and the Commission negotiate the CFP and adopt pertinent legislation within the Community's central legislative organ, i.e., the Council.²² They decide on all important matters concerning fisheries management, structural policy, market organization

and other external concerns, to the extent that these duties have not been delegated to the Commission.²³ Thereby, they are influenced and supported by various scientific bodies, as well as non-governmental interest groups. To gain a full picture of the CFP, it is important to understand the different perspectives that these different actors hold on fisheries issues. Before briefly describing these actors, an overview of the elements of the CFP will be given.

3.1 The central elements of the Common Fisheries Policy

The CFP is concerned with the sustainable exploitation of living aquatic resources and Member States' fisheries sectors. This requires a broad range of political and legislative actions in a range of policy areas.

To guarantee that Community fishermen do not fish at unsustainable levels, the Community limits fishing opportunities. Currently, it does so by adopting total allowable catches (TACs), effort limitations, technical and control measures. It also apportions the available resources among its Member States, which then allocate their share to their own fishers. When imposing catch limitations, the Community increasingly takes environmental concerns into consideration, for example, requiring the use of environmentally friendly fishing gear or prohibiting fishing in environmentally sensitive areas.

Rules adopted under the CFP also relate to the structure of the Community's fisheries sector.

'Structure' basically refers to the equipment required for the production of fisheries products and the organization of the production process.²⁴ The primary aim of such structural policies is to support the sector in adapting its production capacities to correspond to available resources, thereby guaranteeing efficient and sustainable production. It also aims at increasing the competitiveness of the sector, and working towards socio-economic stability and social cohesion within different fishing regions.²⁵ Just like catch limitations, structural measures increasingly consider environmental aspects.²⁶ Public financial transfers under the structural policy are considerable. From 2000-2006, over € 4.1 billion had been allocated to the Community's fisheries sector.²⁷ Financial transfers from 2007-2013 lie at approximately € 3.8 billion.²⁸

Another area of the CFP is the common organization of the market for fisheries products. Different objectives are pursued in this regard. Given

21 Pauly, D., Christensen, V., Dalsgaard, J., Froese, R. and Torres, F. (1998). 'Fishing down the marine food webs'. *Science* 279: 860-863; EEA, *ibid.*, pp.237-239.

22 Article 202, Article 37(2), paragraph 3 of the Treaty and Article 29 Regulation (EC) 2371/02.

23 Articles 203, paragraph 2 and 202, paragraph 3 of the Treaty, Article 211, paragraph 4, Article 37(2), paragraph 2 of the Treaty.

24 Churchill, R.R. (1987). *EEC Fisheries Law*, p.203. Dordrecht: Martinus Nijhoff.

25 Council Regulation (EC) 1198/06 on the European Fisheries Fund, OJ 2006 No. L223/1.

26 *Ibid.*, Article 25 (6)(c),(d), (7),(8); Articles 30 (2)(a)-(c) and 35 (1)(d); Articles 37 and 38; Articles 40 (3)(d),(f); Articles 43 (2)(c), 44 (1)(b),(f); Articles 30 (2)(d), (4)(d) and 38 (2)(c).

27 European Commission, *supra*, note 16, p.25.

28 European Commission. (2006). *The European Fisheries Fund 2007-2013*, p.10. Luxembourg: Office for Official Publications of the European Communities.

the unstable supply of fisheries resources, the Community takes measures to stabilize markets.²⁹ It also aims to match supply with demand. To this end, the Community intervenes in the market by establishing common marketing standards, producer organizations, and a system of trade with third countries. The system was introduced in 1970 and has, to this day, not been modified substantially.³⁰

To effectively limit fishing activities, structure the sector and stabilize markets, the Community is also

3.2 The structure of the political debate

The political debate on the CFP is largely determined by the legal framework that supports the adoption of legislation under the CFP. Article 37(2), paragraph 3 of the Treaty establishing the European Community (Treaty) provides that '[...] the Council shall, on a proposal from the Commission and after consulting the European Parliament, acting by a qualified majority, make regulations, issue directives, or take decisions [...]'].

In fact, most political initiatives connected with the CFP find their origin in the Community's executive

3.3 The interests of the Member States and negotiations in the Council

The Council is the central body within which Member States negotiate the CFP and adopt pertinent legislation.³⁵ It is comprised of the Ministers responsible for fisheries policy within their respective Member State. It decides on all important matters concerning fisheries management, structural policy, market organization and other external concerns, to the extent that these duties have not been delegated to the Commission.³⁶ Even though the CFP only constitutes

responsible for the external promotion of its fisheries policies (i.e., with non-Member States).³¹ It has concluded several international agreements, which allow Community vessels to fish in the waters of third countries.³² Furthermore, the Community is currently a member of 11 international fisheries organizations (IFOs), which are concerned with the management of fisheries resources on the high seas.³³ Finally, the Community controls the implementation of CFP measures by Member States.³⁴

branch, the Commission. The latter relies heavily on scientific advice from external institutions (e.g., the International Council for the Exploration of the Seas (ICES)) and its internal Scientific, Technical and Economic Committee for Fisheries (STEFEC) for legislative purposes. In addition, stakeholder committees, other Commission departments, as well as the European Parliament are consulted. When these consultations are over, the Commission draws up a final proposal and forwards it to the Council.

a minor portion of the Community's gross domestic income, it has often proven to be a cumbersome and difficult policy area to manage. In the Council, Member States particularly divide up the available fish stocks. In this distributive bargaining situation, Member States tend to promote their respective national economic interests rather than the common Community interest. This frequently leads to the adoption of exploitation rates that are unsustainable.

29 Regarding market stability see Reasons (4), (11) and (27); regarding increasing profitability see Reason (6) and Articles 2 and 3; regarding increasing the variety of supply, see Reason (8) of Regulation 104/2000 on the common organization of the markets in fishery and aquaculture products, OJ 2000 No. L017/22.

30 See Articles 7-16 of Regulation 2142/70 on the common organization of the market in fishery (and aquaculture) products, OJ 1970, No. L236/5; Articles 8-17 of Regulation 100/76, OJ, 1976, No. L020/1; Articles 9-18 of Regulation 3796/81, OJ 1981, No. L379/1; Articles 9-21 Regulation 3687/91, OJ 1991, No. L354/1; Articles 8-18 of Regulation 3759/92, OJ 1999, No. L388/1.

31 Cases 3, 4 and 6/76, Kramer and others [1976] ECR 1279, paras 30-33.

32 Rijn, T. van. (2004). 'Fischereipolitik – Kommentar nach Article 38 EG'. In: von der Groeben, H. and Schwarze, J. (Eds). *Kommentar zum Vertrag über die Europäische Union und zur Gründung der Europäischen Gemeinschaft*, pp.1251 *et seq.* Baden-Baden: Nomos.

33 See European Commission. Communication from the Commission to the Council and the European Parliament – Community Participation in Regional Fisheries Organizations (RFOs), Com(1999) 613 final.

34 See Articles 16(1), 23(4), 26(3), 27 of Regulation 2371/02. See also Council Regulation (EEC) 2847/93 establishing a control system applicable to the Common Fisheries Policy, OJ 1993, No. L261/1 as amended.

35 Article 202, Article 37(2), paragraph 3 of the Treaty and Article 29 Regulation (EC) 2371/02.

3.4 The Commission's role in the CFP

Under the Community's institutional framework, the Commission has been assigned three basic tasks, which help to shape its own political agenda regarding the CFP. According to the Treaty, the Commission initiates Community policies, takes decisions delegated to it and supervises the implementation of EC legal acts by Member States.³⁷ Its primary political motivation is to further the European integration process, to act as a mediator for Member States in the Council, and to stabilize its own powers.³⁸

The Commission's strong legislative power, *inter alia*, derives from its right to initiate proposals, from the fact that the Council may only overturn the Commission's proposals by unanimous vote as well as its right to adopt provisional measure in case

Member States cannot agree in the Council.³⁹ It has been observed in a range of policy areas that the Commission often anticipates Council preferences, mirroring them in its own proposals.⁴⁰ Under the CFP, for example, the Commission regularly proposes higher TACs than recommended by ICES, which are then once more increased by the Council.⁴¹

Nevertheless, the Commission's approach to the CFP tends to be more integrated, comprehensive and conservation-oriented, than the legislation that is finally adopted. The Commission often tries to integrate other important aspects into its fisheries policy such as, for example, Integrated Coastal Zone Management,⁴² biodiversity,⁴³ environmental policies⁴⁴ and good governance.⁴⁵

3.5 The political dialogue with the European Parliament

Article 37(2), paragraph 3 of the Treaty only requires that Parliament be *consulted* during the legislative process. Moreover, it does not have the right to initiate legislative procedures itself, but may only request that the Commission submit a proposal on matters on which it considers a Community act is legally necessary for the implementation of the Treaty.⁴⁶

Parliament's assent is required, however, whenever the Community enters into an agreement with foreign

states or international organizations to 'establish an association involving reciprocal rights and obligations, common actions and special procedure'.⁴⁷ The Parliament also substantially influences the CFP through its powers regarding the yearly adoption of the Community budget.⁴⁸ Compared to the number of regulations adopted under the CFP such cases are few and thus both opinions and requests for proposals are also important instruments for Parliament's participation in the CFP.

36 Articles 203, paragraph 2 and 202, paragraph 3 of the Treaty, Article 211, paragraph 4, Article 37(2), paragraph 2 of the Treaty.

37 Ibid., Article 211. In principle, the Commission is the sole organ of the EC that initiates legislative proposals. However, the Council and Parliament can request that the Commission submit proposals to the Council, pursuant with Article 211, Article 208 and Article 192, paragraph 2 of the Treaty.

38 Smyrl, M.E. (1998). 'When (and how) Do the Commission's Preferences Matter?' *Journal of Common Market Studies* 36: 79-99; Conceição-Heldt, E. da (2004). *The Common Fisheries Policy in the European Union: A Study in Integrative and Distributive Bargaining*, pp.46-47. New York/London: Routledge.

39 See Articles 10, 211 and 250(1) of the Treaty; Garret, G. (1992). 'International Co-operation and Institutional Choice: The European Community's Internal Market'. *International Organization* 46: 533-60. An exception intervenes in cases of co-decision of the European Parliament. But as fisheries legislation is no matter of co-decision the exception does not apply.

40 Pollack, M.A. (1997). 'Delegation, agency, agenda setting in the European Community'. *International Organization* 51: 99-134.

41 See Chapter on Fisheries Management under the CFP in this report.

42 European Commission. Communication from the Commission to the Council and the European Parliament on integrated coastal zone management, pp.5-7, 14, 15-16, Com(2000) 547 final.

43 European Commission. Communication from the Commission to the Council and the European Parliament – Biodiversity Action Plan for Fisheries, pp.4-32, Com(2001) 162 final.

44 European Commission. Communication from the Commission to the Council and the European Parliament – Elements of a Strategy for the Integration of Environmental Protection Requirements into the Common Fisheries Policy, pp.3-22, Com(2001) 143.

45 Since the reform in 2002, the CFP is supposed to be guided by four principles of good governance laid down in Article 2(2) of Regulation 2371/2002.

46 Article 192, paragraph 2 of the Treaty.

47 Ibid., Article 300(3), paragraph 2 and Article 310.

48 Ibid., Article 272(3)-(8). The powers of the Parliament are laid down in Section 38, Annexes, IV, VI of the Interinstitutional Agreement of 6 May 1999 between the European Parliament, the Council and the Commission on budgetary discipline and improvement of the budgetary procedure, OJ 1999 No. C172/1-22.

Parliament's Committee on Fisheries, which is composed of parliamentarians from different European parties from different Member States, is the forum that deals with the opinions, reports and requests for proposals. These Parliamentarians are mainly perceived to be 'intermediaries for the fishing industry's territorialized interests in the Community sphere'.⁴⁹ Nevertheless, environmental NGOs try to exert their

influence by lobbying 'green' parliamentarians.⁵⁰ Parliament also organizes informal 'Intergroups' consisting of members from different political parties and factions with an interest in particular issues. Some Intergroups are concerned with fisheries issues, such as the Intergroups on Fisheries, on Animal Welfare, on Sustainable Development and on Maritime Affairs.⁵¹

3.6 Public perception and its integration in the CFP

There are no empirical studies specifically dedicated to the topic of public awareness of fisheries issues. Thus, the following section will attempt to describe how affected non-governmental actors perceive fisheries issues and how their perceptions and interests influence political discourse.

In general, the European fishing industry tends to regard the CFP as hierarchical ('top-down'), and out of touch with the realities of the business.⁵² They often complain that the Commission proposals overstate overfishing, and that their own knowledge about the state of fisheries resources is not given enough weight by the Commission's scientific advisors.⁵³ In many cases, their views may be characterized as being one-sided, and determined by their own (often short-term) economic interests. In pursuit of these interests, industry members often lobby government at the regional and national, but increasingly also European levels.⁵⁴ However, interest representation activities in the commercial fisheries sector (unlike the agricultural sector) are rather disassociated. Due to the range of institutional structures and manifold interests at

national and regional levels, a strong and united European lobby has not yet developed.

Environmental, development and consumer NGOs pay much attention to overfishing and other threats to marine living resources.⁵⁵ NGOs are often very critical of the CFP. They conduct research, review Community legislation, issue reports and opinions to the Community institutions and organize public campaigns and educational programmes, in order to draw attention to problems in the industry. Formal communication with the Commission mainly takes place through the Consultative Committee for Fisheries and Aquaculture (ACFA) and the Regional Advisory Councils. In the reform of the ACFA in 1999, environmental, development and consumer groups were given three of the 21 seats in the assembly. In the Regional Advisory Councils they are allotted not more than one-third of the seats.⁵⁶ Communication with the Parliament is informal, often through individual parliamentarians, especially members of the Green Parties as well as through Intergroups.⁵⁷

49 Lequesne, C. (2004). *The politics of fisheries in the European Union*, p.40. Manchester: Manchester University Press.

50 Ibid.

51 See for example www.ebcd.org/EPISD.html. Article 2 (b) Annex 1 of Parliament's Rules of Procedure requires the chairmen of such groups to declare any support they receive.

52 Holden, M. (Ed.). (1994). *The Common Fisheries Policy*, pp.1-2. Oxford: Fishing News Books.

53 Garrod, D. (1994). 'The Common Fisheries Policy – Now'. In: Holden, supra, note 52, pp.270-271.

54 Examples for Germany, Scotland and the Netherlands are Bundesverband der Deutschen Fischindustrie und des Fischgroßhandels, see online at www.fischverband.de; The Scottish Fishermen's Association, see online at www.sff.co.uk; and the Productschap Vis, see online at www.pvis.nl. See also www.europêche.org.

55 Friends of the Earth Europe online at www.foeeurope.org; Greenpeace Europe Unit online, available at <http://eu.greenpeace.org/issues/oceans.html>; WWF, available online at www.panda.org; Oceana, available online at www.oceana.org. A network of smaller, more locally oriented NGOs is Seas at Risk, see online at www.seas-at-risk.org.

56 Article 31(2) Council Regulation 2002/2371/EC; Article 5(3) Council Decision 2004/585/EC; Articles 2, 3(1)(2), 7 Commission Decision 1999/478/EC and Article 1 Commission Decision 1999/478/EC.

57 Lequesne, supra, note 49.

II. Institutional and organizational structures

The following chapter will outline the institutional and legal structure of fisheries governance in the European Community. It will describe the substantial and territorial powers claimed by the Community in

secondary legislation and outline the division of competences between Member States and the Community.

1. Community competences under the Treaty

The Treaty Establishing the European Community provides the legal foundation on which the Community builds its fisheries policy. It regulates the distribution of competences between the Community and the Member States, and allocates competences to the Community organs. In accordance with its rules,

the Community has adopted legislation in the area of fisheries management, structural policies, market organisation and external relations, i.e., international fisheries access agreements or fisheries management agreements.

1.1 Legal base

According to the fundamental ‘principle of conferred powers’, the Community may act only where it has been authorized to do so under the Treaty.⁵⁸ Thus, each legislative act of the Community must be based on a Treaty provision that confers upon it legislative powers.⁵⁹ Different policy areas are supported by different legal bases under the Treaty (horizontal competence order). In its early days, there was concern about finding the right legal base to support a Community fisheries policy. However, today the Community bases its fisheries policy on the provisions on agriculture in Articles 32-38 of the Treaty – particularly Article 37(2), third paragraph.

The Community is entitled by Article 6 of the Treaty to include environmental conservation aspects in fisheries legislation. Article 6 provides that ‘environmental protection requirements must be integrated into the definition and implementation of other Community policies and activities,⁶⁰ ‘particularly with a view to promoting sustainable development’. The principle is based on the assumption that environmental policies cannot be viewed as separate from other policies.⁶¹

1.2 Territorial scope

According to Article 299(1) and (2), the Treaty, in principle, applies in all Member States as well as the Azores, Canary Islands, Madeira and the French overseas departments. Some overseas territories, in particular, Greenland, listed in Annex II of the Treaty, are excluded.⁶² Article 299(1) refers to the Member

States as legal entities, but does not explicitly mention their territories. Nevertheless, the use of the term *Member States* implies that the Treaty applies to all territories under their sovereign control, including their inland waters, ports and territorial seas,⁶³ the latter being determined by Article 2 of 1982 UNCLOS.

58 Articles 5(1) and 249(1) of the Treaty.

59 Bogdandy, A. von and Bast, J. (2005). ‘Article 5 EGV’, para. 7. In: Grabitz, E. and Hilf, M. (Eds). *Das Recht der Europäischen Union – Kommentar*. München: Beck.

60 Those mentioned in Article 3 of the Treaty.

61 Krämer, *EC Environmental Law*, p.19.

62 Van Rijn, *supra*, note 32, pp.1251-1252.

63 Case C-286/90, *Anklagemydigheden v Poulsen and Diva Navigation Corp.* [1992] ECR I-6019, para. 24; see also Schröder, M. (2004). ‘Article 299 EG’. In: von der Groeben, H. and Schwarze, J. (Eds). *Kommentar zum Vertrag über die Europäische Union und zur Gründung der Europäischen Gemeinschaft*, p.1554. Baden-Baden: Nomos; and Van Rijn, *supra*, note 32, pp.1251-1253; and Fischer, R.C. (1996). ‘Die gemeinsame Fischereipolitik’. In: Grabitz, E. and Hilf, M. (Eds). *Kommentar zur Europäischen Union*, pp.5-6. München: Beck; and Proelß,

Since sovereignty does not extend to the marine areas beyond the territorial sea, neither the EEZ nor the high seas would be included here. Thus, Article 299(1) of the Treaty does not justify the application of the Treaty beyond the territorial sea. However, the European Court of Justice (ECJ) has made clear that whenever rule-making competences are conferred on the Community by the Treaty, these competences extend to maritime areas insofar as Member States have similar powers under public international law.⁶⁴ Given the fact that Member States are empowered by public international law to exploit fisheries resources on the high seas as well as to exploit fisheries resources exclusively within their own EEZ, the Community's

competence to regulate their use and their conservation applies to these areas accordingly. Thus, fisheries governance in the EEZ and the high seas is not based on Article 299, but on Article 37(2), third paragraph of the Treaty.

Based on this decision, Churchill and others have correctly concluded that the CFP rules apply to: (a) all vessels engaged in fishing activities in the territorial sea or the EEZ of the Member States, (b) all vessels registered in the Member States fishing on the high seas (as well as those fishing on the continental shelf for sedentary species),⁶⁵ and (c) all vessels registered in the Member States fishing in third country waters.⁶⁶

1.3 Exclusive and shared competences

It has been explained above that the CFP consists of different policy areas, i.e., fisheries management, structural policies, market organization, control policies, external relations. Only with fisheries management does the Community hold an exclusive competence. In the other areas, legislative powers are *shared* between the Community and its Member States. In such areas Member States are generally not excluded from lawmaking by the Community's exercise of legislative powers. However, the principle of primacy of Community law⁶⁷ provides that Community law outranks Member States' law. Thus, Member States' competences in areas in which no exclusive competence

exist, are thus determined by the existing secondary legislation.⁶⁸ In some cases secondary legislation has, in fact, become so comprehensive that there is very little or no room for Member States to legislate. This effect is often referred to as '*terrain occupé*' or '*pre-emption*'.⁶⁹ This is particularly true for legislation on structural policy and market organization. However, Member States are still competent to implement and enforce Community law.⁷⁰ Only in very few cases does the Commission hold direct implementation powers. Finally, to effectively implement the policies assigned to it, the Community's external competences mirror its internal powers.

A. (2004). *Meeresschutz im Völker- und Europarecht*, p.278. Berlin. Czybulka questions the Community's competence to exclusively regulate fisheries within their territorial sea. He argues that Member States have not yet conferred their 'aquitorial' powers of the territorial sea to the Community, see Czybulka, D. (2006). 'Forschungsbedarf im marine Fischereirecht'. In: Bauer, H., Czybulka, D., Kahl, W. and Vosskuhle, A. (Eds). *Wirtschaft im offenen Verfassungsstaat*, pp.808, 811 and 824. München.

64 Kramer and others, supra, note 31. The decision says that it 'nonetheless follows from Article 102 of the Act of Accession, from Article 1 of the said regulation (i.e., Regulation 2141/70 – brackets inserted by the author) and moreover from the very nature of things that the rule-making authority of the Community *ratione materiae* also extends, insofar as the Member States have similar authority under public international law – to fishing on the high seas'.

65 See Article 77 (1) and (4) of 1982 UNCLOS.

66 Churchill, supra, note 24, p.68. Regarding situation (c), Churchill notices that CFP rules are concurrent with the third country's fisheries rules. The third country, of course, has the sole right to enforce rules within its waters; see also van Rijn, supra, note 32, p.1253 Fn. 50; and also Vitzthum, W.G. Graf von. (2006). 'Begriff, Geschichte und Rechtsquellen des Seerechts'. In: Vitzthum, W.G. Graf von. (Ed.). *Handbuch des Seerechts*, p.57. München: Beck.

67 Búrca, C. and Witte, D. (2002). 'The Delimitation of Powers between the EU and its Member States'. In: Arnall, A. and Wincott, D. (Eds). *Accountability and Legitimacy in the European Union*, p.210. Oxford: Oxford University Press.

68 Jarass, H.D. (1996). 'Die Kompetenzverteilung zwischen der Europäischen Gemeinschaft und den Mitgliedstaaten'. *Archiv des öffentlichen Recht* 121(2): 173-199, pp.185-189.

69 Regarding the CFP's common market organization, some authors put forward three reasons which suggest the existence of an exclusive competence in this area: firstly, Article 34(2) of the Treaty obliges the Community to coordinate the various national market organizations. Secondly, only the Community may effectively achieve this goal. Thirdly, secondary legislation pre-empts Member States from adopting legislation within the entire political field; see Boß, 'Article 32 EGV', p. 15; and Fischer, supra, note 63, p.4; and Kopp, 'Article 37 EGV', p.552.

70 Pühs, W. (1997). *Der Vollzug von Gemeinschaftsrecht*, p.74. Berlin: Duncker & Humblot.

An exceptional case is the Community's trade policy in fisheries products. Trade policy has traditionally not been grouped into the CFP. It is concerned with (a) trade between Member States and

(b) trade between Member States and third countries.⁷¹ In this area, the Community also holds exclusive competences.

2. Substantive and territorial scope of CFP secondary legislation

Article 1 of the current CFP Regulation 2371/02 sets out the substantial scope of the CFP, and presents a good overview of the areas in which the Community has made use of its above described powers under the Treaty. According to Article 1, the CFP should achieve the following:

1. It shall cover the conservation, management and exploitation of living aquatic resources, aquaculture, and the processing and marketing of fishery and aquaculture products where such activities are practised on the territory of the Member States or in Community waters or by Community fishing vessels or, without prejudice of the primary responsibility of the flag state, nationals of the Member States.
2. It shall provide for coherent measures concerning:
 - (a) conservation management,

- (b) limitation of the environmental impact of fishing,
- (c) conditions of access to waters and resources,
- (d) structural policy and the management of fleet capacity,
- (e) control and enforcement,
- (f) aquaculture,
- (g) common organization of the markets, and
- (h) international relations.

According to Article 32(1), the CFP shall extend to the *trade* in fisheries products as well as to products of first-stage processing directly related to these products.

In principle, CFP measures of secondary law have the same territorial scope as the Treaty.⁷² However, the Community has adopted several regulations, providing management measures for different marine areas, as, for instance, specific technical measures for the Baltic Sea and the Mediterranean.⁷³

3. Distribution of tasks – centralization v. decentralization

Even though the Community has an exclusive competence with regards to the conservation of marine resources and comprehensive powers regarding the

governance of the fisheries sector, Member States retain certain administrative and legislative powers.

3.1 Re-delegated powers⁷⁴

Member States are allowed to take so-called 'emergency measures' in waters falling under their sovereignty or jurisdiction.⁷⁵ They may do so where there is evidence of a serious and unforeseen threat to the conservation of living aquatic resources, or the marine ecosystem as a result of fishing activities.

Within 12 nautical miles of their baseline, Member States can go beyond Community measures aimed at the conservation and management of fisheries resources and the conservation of marine ecosystems.⁷⁶

⁷¹ Churchill, *supra*, note 24, pp.255 *et seq.*

⁷² Schröder, *supra*, note 65, p.1565.

⁷³ See below.

⁷⁴ Where the Community within its legislative competences assigns tasks to Member States, this is regarded as a re-delegation of powers. See Jarass, *supra*, note 68, p.186; Churchill, *supra*, note 24, p.92; and Long, R. and Curran, P.A. (2000). *Enforcing the Common Fisheries Policy*, p.59. Oxford: Blackwell Science.

⁷⁵ Article 8 of Regulation 2371/02.

⁷⁶ *Ibid.*, Article 9(1); see also Reason (11). See also: Article 45(2) of Council Regulation (EC) 850/1998 for the conservation of fishery resources through technical measures for the protection of juveniles of marine organisms, OJ 1998, No. L125/1.

Member States have the same powers in their EEZ provided that the measures apply solely to fishing vessels flying the flag of the particular Member State and registered with the Community.⁷⁷

While according to Article 17(1) of Regulation 2371/02 the vessels of all Member States have *equal access* to resources within all Community waters, this right can be restricted by Member States within waters up to 12 nm from their baselines under their sovereign control or jurisdiction.⁷⁸ Thus, Member States can restrict fishing to fishing vessels that 'traditionally fish in those waters from ports on the adjacent coasts'.⁷⁹

While the Council sets TACs and allocates quotas annually, Member States themselves determine the method of distributing the assigned fishing opportunities to vessels being registered within their territory and flying their flags.⁸⁰ Insofar, they are free to pursue their own political and regulatory aims.⁸¹ The Commission must be notified of the proposed allocation method.

The activities of Member State in the area of market organization are basically limited to the financial and administrative support of producer organizations and the ability to ensure they fulfil their tasks. Producer organizations form the backbone of the common market organization.⁸² They have the

competence to implement catch plans, promote the concentration of supply, and stabilize prices.⁸³ Within this area of competence, the Member States are only allowed to require producers which are not members of the producer organizations to apply those rules they adopt.⁸⁴ Member States may also grant financial support to the organizations to offset the costs arising from their formation and of their production and marketing planning.⁸⁵

Member States have some discretionary powers regarding the implementation of the Community structural measures. Such powers concern the allocation of available Community funds to the different segments of their sectors. However, thereby they have to strictly abide by the framework provisions adopted at Community level. The system will be described in more detail below. The ability of Member States to grant additional state aid is also limited. According to Article 88(3) of the Treaty, Member States must notify the Commission of their intention to hand out state aid. To reduce the administrative workload, the Commission has established a Regulation that exempts aid granted to small- and medium-sized enterprises from the notification obligations under certain conditions. It also lays down guidelines outlining the criteria it applies when evaluating Member States' state aid proposals.⁸⁶

3.2 Unregulated fisheries issues

The Community has deliberately refrained from regulating in specific areas in order to leave particular competences to the Member States.

The Community has, for example, refrained from

adopting measures on non-commercial fishing. Only in the Mediterranean Member States are required to ensure that non-commercial fishing activities do not jeopardize CFP conservation and management efforts.⁸⁷

⁷⁷ Article 10 of Regulation 2371/02.

⁷⁸ The principle of free access is also limited by Community measures listed in Articles 4-10 of Regulation 2371/02. Particularly important in this respect are the annual allocations of stock-specific TAC quotas. Quotas are assigned to specific areas that subdivide Community waters, i.e., the so-called ICES areas. Quotas can only be fished in these specific areas. ICES areas can be viewed online at www.ices.dk.

⁷⁹ Article 17(2) of Regulation 2371/02.

⁸⁰ *Ibid.*, Articles 20(3) and 3(d).

⁸¹ Fischer, *supra*, note 63, p.14.

⁸² Reason (9) of Regulation 104/2000.

⁸³ *Ibid.*, Article 5(1).

⁸⁴ See Article 7(1) of Regulation 104/2000; Case 207/84, *de Boer v. Produktschap voor Vis en Visprodukten* [1985] ECR 3203, paras 32-33.

⁸⁵ See Article 15(1) of Regulation 2792/1999 and Article 10 of Regulation 104/2000.

⁸⁶ Commission Regulation (EC) 1595/2002 on the application of Articles 87 and 88 of the EC Treaty to State aid to small and medium-sized enterprises active in the production, processing and marketing of fisheries products, OJ 2004 No. L291/3. The Commission has also published *Guidelines for the Examination of State Aid to Fisheries and Aquaculture*, OJ 2004 No. C229/5.

⁸⁷ Article 17 of Regulation 1967/2006 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, amending Regulation (EEC) 2847/93 and repealing Regulation (EC) 1626/94, OJ 2006 No L409/11

Another area of Community responsibility, which remains largely unregulated at the Community level, is the management of freshwater fisheries in inland

waters,⁸⁸ where only a few market rules and structural measures currently exist.⁸⁹

3.3 Participation rights of stakeholders within the CFP legislative process

The Community has established two different kinds of political committees: the Advisory Committee on Fisheries and Aquaculture (ACFA)⁹⁰ and the Regional Advisory Councils (RACs)⁹¹ (the latter having been established in the course of the 2002 Reforms). These committees grant stakeholders participation rights within the CFP legislative process. RACs in particular have provoked criticism. Firstly, they are only *consulted*

by the Commission.⁹² Secondly, given that the current state of fish stocks mainly results from the activities of the fishing industry (including lobbying), it has proved controversial that industry representatives clearly dominate both ACFA and RACs. Thirdly, scientists are not granted any voting rights.⁹³ Fourthly, they are not granted access to Community courts to have the Council's fisheries legislation reviewed.⁹⁴

III. Fisheries management under the CFP

1. Fisheries management instruments

The Community fisheries management regime, which includes control and enforcement measures, aims at

guaranteeing sustainable fishing.

1.1 Quantitative catch and effort limitations

Articles 20(1) and 4(2)(d) and (f) of Regulation 2371/2002 provide that the Council, acting by qualified majority, will decide on 'catch and/or fishing effort limits', the conditions associated with those limits, as well as the allocation of fishing opportunities among Member States. Setting maximum catch limits for specific stocks (total allowable catches or 'TACs') is the main management tool established in Community law. In addition, since 2002, effort limitations have played a growing role.

1.1.1. Total allowable catch and quotas

According to Article 3 (m) of Regulation 2371/02, 'catch limit' means a quantitative limit on landings of a stock or group of stocks over a given period.

a. *The annual setting of TACs*

The Council sets maximum catch limits annually for specific stocks based on the Commission's proposals.⁹⁵ TACs are fixed for stocks located in Community waters

88 Fischer, *supra*, note 63, p.8; Article 2 of Regulation 3760/1992 and Articles 1 and 30 of Regulation 2371/2002. Regulation 2371/2002 does not explicitly reiterate this limitation. There is no indication that the existing practice will be changed, see van Rijn, *supra*, note 32, pp.1252-1253 at cc) and footnote 46.

89 See Article 1 of Regulation 104/00 and Article 13 of Regulation 2792/99.

90 Legislation establishing and modifying the ACFA Committee: Commission Decision (EC) 864/2004 amending Commission Decision 1999/478/EC of renewing the Advisory Committee on Fisheries and Aquaculture, OJ 2004 No. L370/91.

91 Article 31 of Regulation 2371/02; Council Decision (EC) 585/04 establishing Regional Advisory Councils under the Common Fisheries Policy, OJ 2004, No. L256/17.

92 Article 31(4) of Regulation 2371/02, Article 2 Commission Decision 478/99, Article 3(3) of Council Decision 585/04; Hatchard, J. and Gray, T. (2003). 'The 2002 Reform of the Common Fisheries Policy's System of Governance – Rhetoric or Reality?' *Marine Policy* 27: 545-554, pp.546-550.

93 Ingerowski, J.B. and Salomon, M. (2006). 'Ein kritischer Blick auf die aktuellen Entwicklungen in der Gemeinsamen Fischereipolitik unter Einbeziehung der neu geschaffenen regionalen Fischereibeiräte'. *Natur und Recht*: 540-541.

94 Markus, T. (2009). *European Fisheries Law – From Promotion to Management*, Chapter 6. Groningen: Europa Law Publishing.

95 See, for example, Council Regulation (EC) 40/08 fixing for 2008 the fishing opportunities and associated conditions for certain fish stocks and groups of fish stocks, applicable in Community waters and, for Community vessels, in waters where catch limitations are required, OJ 2008 No. L19/1.

as well as for stocks exploited by Community vessels on the high seas and in third country waters (where catch limits are required). Around June of each year, the Commission starts to draw up its proposals. The first step of this process involves informal consultations with stakeholders through meetings with regional committees, workshops, and internet communications, as well as formal deliberations in RACs. At the end of October, the Scientific, Technical and Economic Committee for Fisheries (STECF) receives data from different institutions, such as the ICES, international fisheries organizations (IFOs), Member States and third countries.⁹⁶ Based on the STECF recommendations and the information compiled from informal and formal consultations, the Commission prepares a proposal for a regulation. Before sending the proposal to the Council, the Commission sometimes consults its own environmental, social or regional departments. Following this, Council working groups, composed of national officials and experts as well as at least one member of the Commission, examine the proposal and send it to the European Parliament's Committee on Fisheries, Committee for the Regions, and Economic and Social Committee for consultation. After receiving Parliament's comment,⁹⁷ the Council, generally at the end of each year, decides on the TACs for the forthcoming year.⁹⁸ If the Council is not able to agree with the Commission's suggested course of action, it can institute provisional TACs which are applicable only until the Council is able to decide on new TACs.⁹⁹ TAC regulations are sometimes modified over the course of the year.

With regards to the exploitation of fisheries resources on the high seas, TACs are established with reference to the relevant IFOs such as, for example, NEAFC, NAFO or ICCAT, etc.¹⁰⁰ Many IFOs adopt binding TACs and other management measures; however, the Community (as well as the other members of the IFOs) maintain(s) the right to opt out of these decisions within a certain time period.

b. Quotas and quota flexibility

The resources listed in each TAC regulation are divided according to the *principle of relative stability*, according to which each Member State receives a given percentage of the stock in the TAC. A set amount of quota is assigned to specific marine areas in Community waters ('ICES areas'). Fishing up to the quota may only take place in the ICES areas listed in the TAC regulations. Quota is also referred to as 'fishing opportunities', meaning 'a quantified legal entitlement to fish, expressed in terms of catches and/or effort'.¹⁰¹

After having received the annual quota, Member States allocate it to individual fishers. Member States can apply their own methods for distributing TAC quota,¹⁰² deciding, for example, to allocate it to producer organizations or directly to individual fishers.¹⁰³ The grant of quota may be contingent upon the fisher meeting certain licensing requirements. The Netherlands has devised a system of individual tradeable quotas (ITQs), which gives fishermen the choice of either exploiting or trading their specific quotas.¹⁰⁴ Whatever system is adopted, Member States must notify the Commission of their choice.

96 Arrangement in the form of an exchange of letters between the European Economic Community and the International Council for the Exploration of the Sea, OJ 1987 No. L149/14.
 97 See Article 37(2), paragraph 3 of the Treaty.
 98 See Article 3(m) of Regulation 2371/02; see Council of the European Union, Press Release 15479/05 (Presse 349), regarding 2702nd Council Meeting, Brussels, 20-22 December 2005.
 99 Booß, 'Article 37 EGV', in Grabitz and Hilf (ed.), *Das Recht der Europäischen Union*, (München: 2003), pp.19-23; Fischer, *supra*, note 64, pp.4-5; since the CFP has become an exclusive Community competence, disagreements between the Commission and the Council have only arisen on two occasions; see Becker, C. and Spurzem, K.J. (2005). 'Brüsseler Rituale'. *Mare* 51. Available online at: <http://www.mare.de>.
 100 North East Atlantic Fisheries Commission, Northwest Atlantic Fisheries Organization, International Commission for the Conservation of Atlantic Tunas.
 101 Articles 3(q) and 20(1) of Regulation 2371/02. The term quota has been defined in Article 3(b) of Council Regulation (EC) 40/08: 'Quota means a proportion of the TAC allocated to the Community, Member States or third countries'.
 102 Article 20(3) of Regulation 2371/02.
 103 Churchill, *supra*, note 24, p.118.
 104 Smit, W. (1997). 'Common Fishery Policy and National Fisheries Management'. *Marine Resource Economics* 12: 355-359. Transferability of and market in fishing rights exist *de facto* in other Member States, too; see Laxe, F.G. (2006). 'Transferability of fishing rights: The Spanish case'. *Marine Policy* 30: 379-388. On the United Kingdom, see OECD. (2006). *Using Market Mechanisms to Manage Fisheries*, pp.279-287. Paris: OECD. See European Commission. Communication from the Commission on rights-based management tools in fisheries, pp.3-4, Com(2007) 73 final.

Greater flexibility in the quota system is built into the system by providing for a quota exchange among Member States.¹⁰⁵ The term *exchange* implies that Member States do not buy and sell quota.¹⁰⁶ Furthermore, under certain circumstances, Member States can carry over unused quota to the forthcoming year.¹⁰⁷

c. Legal commitment to sustainability, precaution and ecosystems

When setting TACs (and other management measures),¹⁰⁸ the Council has to balance conservation and socio-economic considerations. In doing so it must respect the material standard set by Article 2(1) of Regulation 2371/02 which states that the CFP ‘shall ensure exploitation of living aquatic resources that provides sustainable economic, environmental and social conditions’. One interpretation of this article is that economic and social priorities can override environmental ones; and in practice the Council regularly downgrades environmental concerns when adopting TACs. However, it must be noted that the economic and social state of the fishing industry is contingent on the health of fish stocks. Therefore, ‘sustainable economic, social and environmental conditions’ can only be guaranteed where stocks are not exploited at levels which ultimately lead to their collapse.¹⁰⁹ This interpretation of Article 2(1) is supported by Article 3(e) of Regulation 2371/02, which defines ‘sustainable exploitation’ as ‘exploitation of a stock in such a way that the *future exploitation of the stock will not be prejudiced* and that it does not have a negative impact on the marine ecosystem’.¹¹⁰ ‘Sustainable’ in this case means that the exploitation

of stocks at any given time cannot render future takes impossible and cannot negatively impact the marine ecosystem. From this perspective, the Council’s discretion to balance economic, environmental and social objectives must be regarded as limited, preventing it from adopting one-dimensional measures which favour economic interests over conservation objectives and threaten the long-term survival of fish stocks. Fisheries scientists agree that in order to *not prejudice the future exploitation of stocks*, TACs must be set at levels that are within safe biological limits (i.e., catch rates must not exceed the critical point at which stocks are threatened by a substantial decline or collapse, the so-called F_{lim} reference level).¹¹¹ Scientists also agree that exploiting fish stocks *continuously* beyond the MSY (Maximum Sustainable Yield) level will eventually put stocks at this critical reference point.¹¹² As a result, the sustainability criteria in Article 2 of Regulation 2371/02 should be interpreted as requiring the Council to abide by the following minimum management requirements: in principle, catch rates adopted by the Council, and in some cases the Commission, shall not exceed the MSY level. However, where there are compelling socio-economic grounds, Community organs are granted discretion to weigh economic and social objectives higher than environmental factors. In such exceptional cases, the Council or the Commission may set catch rates above MSY levels. Ultimately, however, it must be regarded as a clear violation of Article 2 of Regulation 2371/02 if Council and the Commission grant fishing opportunities which cause stocks to fall below safe biological limits (F_{lim}) or which maintain stocks within these limits.¹¹³

105 Article 20(5) of Regulation 2371/02.

106 Churchill, *supra*, note 24, pp.117-118. These numbers are not published by the Commission, see Proelß, *supra*, note 63, p.382.

107 Article 4 of Council Regulation (EC) No. 847/96 introducing additional conditions for year-to-year management of TACs and quotas, OJ 1996 No. L115/3.

108 The objectives of Article 2 of Regulation 2371/023 apply to all management actions taken under CFP.

109 See Winter, G. (2008). ‘A Fundament and Two Pillars’. In: Bugge, H.C. and Voigt, C. (Eds). *Sustainable Development in International and National Law*, pp.24-45. Groningen: Europa Law Publishing; and also Winter, G. *Towards a legal clinic for fisheries management*, p.38. [Forthcoming]. See also arguments of Markowski, M. *Allocation and management of fisheries resources: an in-depth analysis of instruments in comparative perspective*, p.11. [Forthcoming].

110 Italics have been inserted by the author.

111 Hubold, G. (2003). ‘Wege zu einer Nachhaltigen Fischerei’. *Zeitschrift für Umweltrecht* 14(5): 338-342, pp.338-339; European Commission. Communication from the Commission to the Council and the European Parliament – Application of the precautionary principle and the multi-annual arrangements for setting TACs, pp.4-5, Com(2000) 803 final; see also ICES. (2007). *Report of the ICES Advisory Committee on Fishery Management, Advisory Committee on the Marine Environment and Advisory Committee on Ecosystems – Book 1*. Copenhagen: ICES, available online at www.ices.dk. Note that the term ‘safe biological limit’ is defined differently in Article 3(l) of Regulation 2371/02.

112 Kura, Y., Revenga, C., Hoshino, E. and Mock, G. (2004). *Fishing for Answers – Making Sense of the Global Fish Crisis*, p.91. Washington, DC: World Resources Institute; Ludicello, S., Weber, M. and Wieland, R. (1999). *Fish, Markets, and Fishermen – The Economics of Overfishing*, pp.45-47. London: Earthscan.

113 This would be in accordance with the UNCLOS requirements as interpreted by: Rat von Sachverständigen für Umweltfragen (SRU). (2004). *Meeresschutz für Nord- und Ostsee – Sondergutachten*, p.126. Baden-Baden: Nomos.

The meaning of the phrase 'exploitation under sustainable economic, environmental and social conditions' found in Article 2(1), para. 1 is, again, qualified by Article 2(1), para. 2, which states that 'the Community shall apply the precautionary approach in taking measures designed to protect and conserve living aquatic resources [...]'. Article 3(i) of Regulation 2371/02 states:

[The] precautionary approach to fisheries management means that the absence of adequate scientific information should not be used as a reason for postponing or failing to take management measures to conserve target species, associated or dependant species and non-target species and their environment.

As a start, sustainable exploitation requires that fish stocks be maintained *at minimum* within safe biological limits. The precautionary approach should be taken where reliable information on stocks is lacking (i.e., the safe biological limits of stocks are unknown). Therefore, in general, a *safety margin* or *precautionary buffer* that takes into account the unpredictable nature of stock levels and uncertainties in the assessment must be factored into the exploitation rate.¹¹⁴ This applies in particular to underassessed stocks.¹¹⁵ Under the CFP, TACs for such species are based on 'intelligent and educated guesswork'.¹¹⁶ In these cases, safety margins must be particularly large, meaning that exploitation rates may not exceed the limit that scientists consider to be *clearly sufficient* to protect stocks from falling below the F_{lim} level.

Finally, Regulation 2371/02 requires the Community to aim at a progressive implementation of an ecosystem-based approach to fisheries.¹¹⁷ The wording of its provisions, however, do not establish a clear legal obligation. The most important features of ecosystem-based management are listed in several Commission Communications on fisheries management and nature conservation in the marine environment, as well as in the Biodiversity Action Plan.¹¹⁸ In these documents, the Commission lists a number of important measures and objectives such as, *inter alia*, protecting habitats, other species (particularly by reducing bycatch and discards), animals and coastal areas particularly by space-time limitations, etc.¹¹⁹ With regards to quantitative catch limitations, the Commission has recognized the importance of reducing fishing pressure and the need for improved scientific research. Where information is lacking, efforts must be made to improve on current levels of understanding.¹²⁰ The implementation process must be monitored and revised based on a system of indicators.¹²¹

d. Critique and perspectives

There has been much criticism of the use of TACs as the central management instrument in the CFP. In general, using TACs and quotas as management tools is problematic, particularly with respect to the CFP.

Firstly, setting TACs at proper levels is difficult and cost-intensive. Given the general unpredictability of the development of fish populations in combination with uncertainties in scientific data, TACs are based

114 Arguing similarly: Wolff, N. (2002). *Fisheries and the Environment*, p.152. Baden-Baden: Nomos; ICES, supra, note 111, p.2. See also Winter, supra, note 109, pp.38-39.

115 European Commission, supra, note 19, p.5.

116 Karagiannakos, A. (1996) 'Total Allowable Catch (TAC) and quota management system in the European Union'. *Marine Policy* 20: 235-248, p.244.

117 The protection of ecosystems is considered in Articles 2(1), second paragraph, 4(1) and (2)(g)(iv), 5(2), 6(2), 7(1), 8(1) of Regulation 2371/02.

118 European Commission. Communication Com (1999) 363 final on Fisheries Management and Nature Conservation in the Marine Environment; European Commission, supra, note 43, pp.11-29; see also European Commission, supra, note 44, pp.9 and 22; European Commission. Communication from the Commission to the Council and the European Parliament – final Action Plan to Integrate Environmental Protection Requirements into the Common Fisheries Policy for Fisheries, Com(2002) 186 final.

119 Other measures mentioned are the improvement of the selectivity of gear, developing new technical conservation measures to reduce fishing impact, vocational training, information initiatives and consultation activities, and improving the level of coherence between CFP and environmental measures, European Commission, supra, note 44, pp.13-14.

120 Ibid.

121 Ibid., pp.20-21.

on broad assumptions.¹²² According to the Commission,¹²³ in 2007 only 29 of 126 Community TACs were based on ‘full assessment and forecast’. In contrast, 62 TACs were based on ‘relevant quantitative advice’; and 35 TACs were not based on scientific advice at all.

Secondly, TACs are often considered as unsuitable for application to multi-species fisheries. However, many of the commercially important stocks harvested in Community fisheries are multi-species fisheries.¹²⁴ If fishers exhaust one of their quotas, they are often inclined to continue fishing until all of their quotas are exhausted. Given that Community law still requires catches of excess of quotas (or juvenile undersized fish) to be discarded, the species which is part of quota that has been exhausted first is often wasted.¹²⁵ Ultimately, this creates a major problem with regards to the implementation of an ecosystem approach.¹²⁶

Thirdly, as explained above, setting TACs and national quotas does not by itself eliminate the incentive for fisheries to ‘race for fish’. Well defined and enforced individual (or collective) quotas are necessary to accomplish this. However, under the CFP, the implementation and enforcement of individual quotas is primarily the responsibility of Member States,¹²⁷ which do not enforce individual fishing quotas in a uniform and strict manner. Against this background, fishers may get the impression that exploiting the quota before the Commission declares it to be exhausted is the right strategy.¹²⁸ Where the race to fish continues, it is likely to cause the oversupply

of fish markets early in the fishing season, with a resulting undersupply later on in the year. Another danger associated with the ‘race to fish’ is that fishers are driven to fish under all conditions, leading to an increase in accidents.¹²⁹

Another critique of the CFP management system is that despite the sustainability criteria laid down in the basic Regulation, the Council often favours short-term economic gain over long-term conservation (and economic) interests. Council decisions are often politically motivated, as no fisheries minister wants to tell its national electorate that there will be losses due to quota reductions. This is the main reason why the Council regularly sets catch limits at levels higher than recommended by scientists.¹³⁰

The Community should consider ways to reduce the negative factors at work under a TAC and quota system. It will need to improve scientific assessment and strengthen its control and enforcement system. However, a better course of action would be to modify the TAC system itself. To this end, it should *continue* to move away from the setting of annual TACs towards a multi-annual approach with incremental reductions of TACs allowing fishers to plan ahead and adapt their effort.¹³¹ TACs must also consider the multi-species nature of many Community fisheries, for example, by adopting multi-species TACs and banning discards.¹³² The Community may also try to increase the economic efficiency and transparency of the TAC system by allocating clearly defined individual tradable fishing rights to fishers, communities or cooperatives, etc.¹³³

122 Karagiannakos, *supra*, note 116, p.244.

123 European Commission, *supra*, note 19, p.5.

124 Symes, D. (1997). ‘The European Community’s Fisheries Policy’. *Ocean & Coastal Management* 35: 137-155, p.147.

125 European Commission. Communication from the Commission to the Council – A policy to reduce unwanted bycatches and eliminate discards in European fisheries, Com(2007) 136 final.

126 WWF. (2007). *WWF Mid-term Review of the EU Common Fisheries Policy*, pp.39-41. Brussels: WWF.

127 European Commission. Communication, Report from the Commission to the Council and the European Parliament on the monitoring of the Member States’ implementation of the Common Fisheries Policy 2003-2005, Com(2007) 167 final of 10 April 2007.

128 A similar argument was put forward in the following paper: European Commission. (2003). ‘A level playing field for better enforcement of CFP rules’. *Fishing in Europe* 19: 3-6.

129 Kura et al., *supra*, note 112, p.91.

130 See, for example, European Commission, *supra*, note 19, p.5; ICES, *supra*, note 19, pp.37-42; European Commission, *supra*, note 11, Vol. 1, pp.6-8; Holden, *supra*, note 52, p.57-60; Karagiannakos, *supra*, note 116, p.244.

131 See critiques on the current practice of the Council with regards to the multi-annual approach paragraph on recovery and management plans below. See also European Commission, *supra*, note 11, Vol. 2, pp.6-8.

132 European Commission. Communication from the Commission to the Council and the European Parliament – On a Community Action Plan to reduce discards of fish, pp.9-10, Com(2002) 656 final.

133 The Commission started an initiative in 2007 on rights-based management, see European Commission, *supra*, note 104, pp.3-4.

Another suggestion would be to shift the power of setting TACs to the Commission or an independent expert agency to depoliticize the process (diagonal competence shift).¹³⁴

1.1.2. Effort limitations

Generally speaking, regulating fishing effort could involve limiting all factors that enable fishing vessels to exploit fisheries resources (input-regulations). Such measures may include the limitation or reduction of the number of fishing vessels, together with decreases in size and engine power, a change of fishing gear, and reduced catching times or areas.¹³⁵ In 2001 the Commission declared that the Community's fleet was much too large with respect to the available resources. Overcapacity had led to overfishing, and neither TACs, fleet reductions nor technical measures were regarded as sufficient to guarantee effective conservation.¹³⁶ To supplement TACs, fleet reduction schemes and technical regulations, the Community adopted a special regime aimed at reducing overall fishing effort.¹³⁷

With the adoption of Basic Regulation 2371/02, the Council opted for a Community-specific definition of fishing effort. Article 3(h) of Regulation 2371/02 and Article 2(b) of Regulation 1954/03 refer to fishing effort as the 'product of the capacity and the activity of a fishing vessel; for a group of vessels it is the sum of the fishing effort of all vessels in the group'. While capacity is expressed in tonnage or engine power, fishing activity is expressed in days spent at sea. This definition does not include input factors like gear, the volume of fish-holds, freezing capacity of vessels or catching areas.¹³⁸

Regulation 1954/03 provided a general system for the management of fishing effort in the Western Waters and Irish Box (ICES areas V, VI, VII, VIII, IX and X, and CECAF division 34.1.1, 34.1.2. and 34.2.0). It required Member States to assess different fisheries in each of these areas between 1998 and 2002.¹³⁹ Then, Member States were called on to ensure that fishing effort – for all vessels 15 m or less in length – was kept at the average fishing effort level which existed during this period.¹⁴⁰ With regards to the catching of demersal species, certain molluscs and crustaceans as well as fishing in the areas around Ireland, the Council has fixed the maximum annual fishing effort for each Member State based on the information provided by Member States.¹⁴¹ The Council sets maximum levels of fishing effort (total allowable effort – TAE) for groups of species, fishing areas and fishery, and by Member State. For example, demersal fisheries carried out by German vessels in ICES area VII are limited to 233,560 (i.e., the product of kw (x) fishing days).¹⁴² Fishing-effort levels may be modified by the Commission upon the request of a Member State where such an adaptation enables them to use up their TACs or continue fishing where there is no TAC.¹⁴³ Further amendments are to be adopted, where the Council adopts recovery plans.¹⁴⁴

For the waters up to 100 nm from the baselines of the Azores, Madeira and the Canary Islands, the Member States in this area may reserve fishing to vessels registered in the ports of these islands.¹⁴⁵

Article 7 requires Member States to establish a list of vessels flying their flag which participate in fisheries

134 Rat von Sachverständigen für Umweltfragen (SRU), supra, note 113, p.127; more general, see Winter, supra, note 109, pp.39-40.

135 Holden, supra, note 52, p.196; Kura et al., supra, note 112, pp.90-91.

136 European Commission, supra, note 11, vol. I, pp.8-11; vol. II, pp.5-9 and 18-19.

137 The fleet reduction schemes are described in the chapter on promotion.

138 See European Commission. Communication from the Commission to the Council and the European Parliament on improving fishing capacity and effort indicators under the Common Fisheries Policy, Com(2007) 39 final.

139 Articles 3, 4 and 6 of Regulation 1954/03.

140 Ibid., Articles 3(4) and 4(1)-(3); these provisions include detailed exceptions.

141 Ibid., Articles 10 and 11; see Council Regulation (EC) 1415/04 fixing the maximum annual fishing effort for certain fishing areas and fisheries, OJ 2004 No L258/1.

142 Annex I of Council Regulation (EC) 1415/04.

143 Article 12 of Regulation 1954/03.

144 Ibid., Article 3(3).

145 Ibid., Article 5.

mentioned in the effort regulation. They must take the necessary measures to regulate a fishery's effort where it exceeds the total effort allocated to it. This requires that Member States monitor fishing effort.¹⁴⁶ They are also obliged to issue special fishing permits to vessels which engage fisheries mentioned in the effort regulation.¹⁴⁷

However, difficulties with regard to the application of TAEs exist. In general, it is very difficult to establish precisely the fishing effort of a fishing vessel and to convert it to a specific rate of fishing mortality.¹⁴⁸ Moreover, just like TACs, effort limitations rely on expensive biological information on stocks which is difficult and costly to provide. In particular, effort limitations do not solve all problems that arise when the Council limits fishing for individual stocks in mixed fisheries (particularly for demersal).¹⁴⁹ Another problem is that it is difficult to measure engine power,

1.2 Licensing system

Licences have different functions in fisheries management. Firstly, states use them as a regulatory tool, imposing certain legal requirements such as, for example, the payment of royalties or the professional qualification of fishers, etc. By linking these conditions to licences, states can implement different political objectives. Secondly, licences are a useful tool when fishing has to be restricted. For instance, by limiting the number of licences issued, overall fishing effort can be reduced.¹⁵⁴ Thirdly, licences can serve as vehicles for implementing TACs, effort limitations or gear restrictions by requiring their application when handed out to fishermen. Fourthly, licences assist with

particularly where engines are already installed; and these figures are easy to manipulate.¹⁵⁰ Moreover, effort limitations (like TACs) are devised using the same deficient political process in the Council. The best thing one may say about the limiting of fishing effort as a management instrument is that, even though effort regulation is susceptible to manipulation, compared to TACs, they are generally perceived to be easier to control and enforce, particularly through the use of satellite monitoring systems.¹⁵¹ However, the Commission stated in 2007 that the control of fishing effort was being implemented only reluctantly by Member States. They do not use their satellite monitoring systems effectively to monitor fishing effort.¹⁵² The Commission concludes that 'there is no evidence that the reduction in fishing effort has compensated for over-capacity in the fleet, even taking into account the effect of decommissioning schemes'.¹⁵³

monitoring when imposing certain informational requirements on fishers.¹⁵⁵

A comprehensive Community-wide licensing system has never been adopted. Instead, the Community has only required that Member States meet certain minimum requirements.¹⁵⁶

To legally gain access to Community waters, every fishing vessel must hold a licence.¹⁵⁷ Fishing licences must contain certain information about the vessel, the licence holder and other particulars related to fishing capacity such as engine power, tonnage, length and

146 Ibid., Article 8.

147 Article 8(3) refers to Council Regulation Article 2(1)(a) of Regulation 1627/94, see OJ 1994, No. L171/7.

148 Holden, *supra*, note 52, p.196.

149 *Ibid*, p. 197.

150 Long and Curran, *supra*, note 74, p.178.

151 Holden, *supra*, note 52, p. 198, see also European Commission, *supra*, note 19, p.6.

152 European Commission, *supra*, note 127, pp.9-10; see also European Court of Auditors, Special Report 7/2007 on the control, inspection and sanction system relating to the rules on conservation of Community fisheries resources, OJ 2007 No. C317/1.

153 *Ibid*.

154 Kura et al., *supra*, note 112, p.90.

155 Berg, A. (1999). *Implementing and Enforcing European Fisheries Law*, pp.49–50. The Hague: Kluwer Law International.

156 Council Regulation (EC) 700/06 repealing Regulation (EC) 3690/93 establishing a Community system laying down rules for the minimum information to be contained in fishing licences, OJ 2006 No L122/1; this regulation gives effect to Commission Regulation (EC) 1281/05 on the management of fishing licences and minimal information to be contained therein, OJ 2005 No L203/3; Council Regulation (EC) No 700/2006 of 25 April 2006 repealing Regulation (EC) No 3690/93 establishing a Community system laying down rules for the minimum information to be contained in fishing licences.

157 Article 22(1)(a) of Regulation 2371/02.

gear.¹⁵⁸ Member States are required to update this information on a regular basis and ensure that the information is consistent with what is stated in the Community fishing fleet register.¹⁵⁹ Member States must temporarily suspend the licence of vessels which are subject to temporary immobilization decided by that Member State.¹⁶⁰ Licences must be withdrawn permanently where a vessel is affected by capacity adjustment measures under Article 11 (3) of Regulation 2371/02, i.e., when capacity withdrawals have been

supported by public aid.¹⁶¹

The general licensing system is supplemented by a special licence system. Fishers who want to fish in waters where the effort regimes apply or in third country waters are required to obtain these special licences. For instance, fishing in the Western Waters, the Irish Box or third-country waters requires a special permit.¹⁶²

1.3 Technical measures

Under Community law, technical measures supplement TACs and effort limitations. Technical measures aim at protecting juvenile fish, non-target species, and the marine environment.¹⁶³

Article 4 (2)(g) of Regulation 2371/2002 lists technical measures adopted under the CFP:

- (i) measures regarding the structure of fishing gear, the number and size of fishing gear on board, their methods of use and the composition of catches that may be retained when fishing with such gear;¹⁶⁴
- (ii) zones and/or periods in which fishing activities are prohibited or restricted including for the protection of spawning and nursery areas;
- (iii) minimum size of individuals that may be retained on board and/or landed;

- (iv) specific measures to reduce the impact of fishing activities on marine ecosystems and non-target species.

The Community has adopted different technical measures for different marine areas, e.g., the North Sea and Atlantic,¹⁶⁵ the Mediterranean,¹⁶⁶ the Baltic Sea,¹⁶⁷ and Antarctic waters.¹⁶⁸ General provisions on driftnets are laid down in Regulation (EC) 894/97;¹⁶⁹ and measures adopted under NAFO are included in the annual regulations establishing fishing opportunities. All of these regulations, to a certain extent, make use of the above-mentioned technical measures. Given the fast pace of developments in fisheries management, technical regulations are regularly amended.

The Community's technical measures have been criticized on various grounds. The Commission, for example, indicated in 2001 that technical regulations have become increasingly complex and difficult to

158 Article 5(1) and Annex of Regulation 1281/05.

159 Ibid., Article 5(2)(a) and (3); the Community's fleet register is accessible at: <http://ec.europa.eu/fisheries/fleet/index.cfm>.

160 Ibid., Article 6(1).

161 Ibid., Article 6(2).

162 Council Regulation (EC) 1627/94 laying down general provisions concerning special fishing permits OJ 1994, No. L171/7; Council Regulation (EC) 3317/94 laying down general provisions concerning the authorization of fishing in the waters of a third country under a fisheries agreement, OJ 1994 No L350/13.

163 See, for example, European Commission. Communication from the Commission to the Council and the European Parliament on Implementation of Technical Measures in the Common Fisheries Policy, pp.1-2, Com(95) 669 final.

164 See also Commission Regulation (EC) 129/03 laying down detailed rules for determining the mesh size and thickness of twine of fishing nets, OJ 2003 No. L22/5.

165 Council Regulation (EC) 850/1998 for the conservation of fishery resources through technical measures for the protection of juveniles of marine organisms, OJ 1998, No. L125/1.

166 Council Regulation (EC) 1967/06 concerning management measures for the sustainable exploitation of fishery resources in the Mediterranean Sea, amending Regulation (EEC) 2847/93 and repealing Regulation (EC) 1626/94, OJ 2006 No L409/11.

167 Council Regulation (EC) 2187/05 for the conservation of fishery resources through technical measures in the Baltic Sea, the Belts and the Sound, amending Regulation (EC) 1434/98 and repealing Regulation (EC) 88/1998, OJ 2005 No L349/1.

168 Council Regulation (EC) 60/04 laying down certain technical measures applicable to fishing activities in the area covered by the Convention on the conservation of Antarctic marine living resources, OJ 2004 No L97/1.

169 Council Regulation (EC) 894/97 laying down certain technical measures for the conservation of fisheries resources, OJ 1997 No L132/1.

apply,¹⁷⁰ and that they do not sufficiently address environmental concerns.¹⁷¹ The obligation to return undersized species to the sea in Article 19 of Regulation 850/1998 is particularly problematic.¹⁷² There is also extensive criticism of the rules on mesh sizes which are regarded as not ambitious enough to protect juvenile fish.¹⁷³ Some Member States have also been reluctant to properly implement mesh size regulations.¹⁷⁴ Furthermore, in practice it is difficult for fisheries inspectors to measure the exact size of the mesh. This is due to the fact that the gauges used for measurement of mesh sizes are not very precise control instruments.¹⁷⁵ Fishers may also easily undermine mesh size regulation

by intentionally placing heavy objects in the nets to diminish mesh sizes.¹⁷⁶ Another problem is that, in some cases, fishers are allowed to carry gear on board which they are not allowed to use. According to the conditions set out in the control regulation,¹⁷⁷ this gear must be lashed and stowed.¹⁷⁸ However, given the problems with enforcing the CFP, fishers may be tempted to use that gear.¹⁷⁹ Finally, scientists argue that more no-take zones should be established to protect nursery grounds and sensitive marine areas against fishing activities. Froese and Pauly, for example, have proposed that almost 40% of the North Sea area be closed for fishing.¹⁸⁰

1.4 Recovery and management plans

To improve and accelerate the cumbersome decision-making process within the CFP management system, CFP measures provide for different procedural instruments. Articles 5 and 6 of Regulation 2371/2002 lay down the legal structures for the so-called multi-annual recovery and management plans.¹⁸¹ In addition, according to Articles 7 and 8 of Regulation 2371/2002, under specific conditions the Commission and Member States may adopt emergency measures.

The Commission has promoted the adoption of a multi-annual approach to fisheries management to (a) foster the use of objective criteria in the Council's political processes, (b) improve long-term planning in the commercial sector, and (c) to make it easier to link fleet policies to management schemes.¹⁸²

Recovery plans are adopted if stocks are found to be outside safe biological limits and face collapse. The overall objective of the recovery plans is to ensure the return of fish stocks back to safe biological limits.¹⁸³ The plans are multi-annual and should indicate the expected time frame for reaching the established targets.¹⁸⁴ They must also include *conservation reference points*,¹⁸⁵ defined in Article 3(k) as 'values of fish stock population parameters (such as biomass or fishing mortality rate) used in fisheries management, for example with respect to an acceptable level of biological risk or a desired level of yield'. These reference points serve as the basis for assessing the recovery process. Reference points can relate to targets such as population size, long-term yields, fishing mortality rates, and stability of catches. Recovery plans are to be drawn up

170 European Commission, *supra*, note 11, Vol. 2, p.10.

171 *Ibid.*, Vol. 1, p.23.

172 Ingerowski and Salomon, *supra*, note 93, p.539.

173 Sissiwine, M. (2007). 'Part 1 – Challenges, Performance and the Future'. In: Sissiwine, M. and Symes, D. (Eds). *Reflection on the Common Fisheries Policy – Report to the General Directorate for Fisheries and Maritime Affairs of the European Community*, pp.26-27. Available online at: <http://www.seas-at-risk.org/Images/Midterm%20review%20Sissiwine%20and%20Symes%202007.pdf>; on the history of the setting of mesh sizes and gear measures, see Holden, *supra*, note 53, pp.72–84.

174 Case C-64/88, *Commission v French Republic*, [1991] ECR I2727.

175 Long and Curran, *supra*, note 74, p.170. This has given rise to disputes before the ECJ, see Case C-348/88, *Criminal proceedings against Hakvoort* [1990] ECR I-1647.

176 Long and Curran, *supra*, note 74, pp.165-166.

177 Article 20 of Regulation 2847/93.

178 Article 4(2)(d) of Regulation 850/98.

179 This used to be a serious problem throughout the 1980s and early 1990s, see Holden, *supra*, note 53, pp.72-73; Long and Curran, *supra*, note 74, pp.165-166.

180 Froese, R. and Pauly, D. (2003). 'Dynamik der Überfischung'. In: Lozán, J.L., Rachor, E., Reise, K., Sündermann, J. and von Westernhagen, H. (Eds). *Warnsignale aus Nordsee & Wattenmeer – Eine Aktuelle Umweltbilanz*, pp.288, 294. Hamburg: Parey.

181 Reason (7) of Regulation 2371/2002.

182 European Commission, *supra*, note 112, pp.3, 8-17.

183 Article 5(1) and (2) of Regulation 2371/02.

184 *Ibid.*, Article 5(3), third paragraph.

185 Articles 3 and 5 of Council Regulation (EC) 423/04 refer to conservation reference points as target and minimum levels.

in accordance with the precautionary approach, taking into account the so-called *limit reference points* recommended by the pertinent scientific bodies. Limit reference points are defined in Article 3(j) as 'values of fish stock population parameters (such as biomass or fishing mortality rate), which should be avoided because they are associated with unknown population dynamics, stocks collapse or impaired recruitment'. Targets *may* relate to other living aquatic resources and the maintenance or improvement of the conservation status of marine ecosystems. The plans should emphasize the use of fishing effort as a management tool.¹⁸⁶

Management plans are adopted in cases where the Council considers it *necessary* to maintain stocks within safe biological limits.¹⁸⁷ Accordingly, the main objective of the management plans is to 'maintain stocks within safe biological limits for fisheries exploiting stocks at/ or within safe biological limits'.¹⁸⁸ From a technical point of view, the difference between recovery and management plans is that management plans do not primarily refer to effort limitations as the central instrument to limit fishing activities.

2. Community control and enforcement measures

To be effective, fisheries laws must be properly applied, controlled and enforced.¹⁹¹ The competence in this regard generally lies with the Member States,¹⁹² although the Community is also involved in control and enforcement. In particular, the Community has adopted a comprehensive control regime which requires Member States to undertake certain control actions. In addition, the Community itself controls the

Several points provoke criticism. First, Article 5(3) merely provides that 'recovery plans shall be drawn up on the basis of the precautionary approach to fisheries management and *take account* of the limit reference points recommended by relevant scientific bodies'.¹⁸⁹ Thus, the Council is left with a wide margin of discretion and every recovery plan is still adopted against the background of a struggle in which Member States push for high exploitation rates. Secondly, the Council can increase exploitation rates under recovery plans.¹⁹⁰ Doing that, it must take into account the target levels established in the multi-annual plans. However, whenever the Council decides to change exploitation rates, this can erode the (potential) benefits of using a multi-annual approach. Thirdly, the Council has inserted a loophole into Article 5(4), paragraph 2, which gives it the discretion to reject any effort restrictions which are 'not necessary to achieve the objectives of the plan'. Article 5(4) thus leaves open the possibility that some Member States in the Council will reopen negotiations on effort limitations even if stocks are not within safe biological limits.

application and control and enforcement of CFP rules by Member States. If Member States do not properly apply control and enforce CFP rules, the Commission may initiate infringement procedures before the ECJ, as well as take preventive measures, cut financial aid or, in case of quota-overfishing, reduce Member States' quotas.

186 Article 5(4) of Regulation 2371/02.

187 Currently, management plans for 10 stocks have been adopted or proposed, see WWF, *supra*, note 127, p.25.

188 Article 6(1) of Regulation 2371/02.

189 Italics have been inserted by the author.

190 See, for example Articles 5-7 of Council Regulation (EC) 423/04. According to Article 6(1), the Council is to decide each year the total allowable catches for each cod stock under the recovery plan.

191 See objectives set out in Article 21 of Regulation 2371/02; see also European Commission. Communication from the Commission to the Council and the European Parliament – Towards uniform and effective implementation of the Common Fisheries Policy, Com(2003) 130 final.

192 This Community law principle is reiterated in Article 23(1) of Regulation 2371/02.

2.1 The Community control regime

The first control regulation was adopted in 1982 and consolidated and repealed in 1987.¹⁹³ A new and more comprehensive control regime was adopted in 1993,¹⁹⁴ i.e., Regulation 2847/93 establishing a control system applicable to the Common Fisheries Policy.¹⁹⁵ This Regulation is still in force, and applies to ‘all fishing activities and associated activities’, including the control of management, structural and market measures under the CFP. The regulation applies to Community vessels fishing in the territorial seas and EEZ of all Member States, the high seas and third country waters. With regards to third country waters, the Regulation applies ‘subject to the special provisions contained in fisheries agreements [...] or in international conventions’.¹⁹⁶ It also covers third country vessels fishing in Community waters.

A satellite-based vessel monitoring system (VMS) was introduced in 1998 for a limited number of vessels.¹⁹⁷ Since 2005, all Community fishing vessels exceeding 15 m in overall length, except those used exclusively for aquaculture or inland fisheries, must have a VMS on board when leaving a port.¹⁹⁸

To properly implement the TAC system, the Community has adopted several measures on the monitoring of catches, referred to as Catch Registration System.¹⁹⁹ These measures require detailed documentation of the ‘history’ of catches by

participants of the production process. Masters of vessels are required to keep a logbook,²⁰⁰ landings have to be registered at the place of landing,²⁰¹ buyers and sellers must issue and submit sales notes, transport documents or take over declaration.²⁰² There are also rules on transshipment.²⁰³

Just like the TAC system, the effort regime must be monitored. Effort control requirements vary according to the areas and species of fish targeted. When Community vessels, for example, fish for demersal species in areas in which effort limitations apply (Western Waters, Irish Box),²⁰⁴ the masters of these vessels must compile an ‘effort report’. This report must include information, for example, on the vessel, its location, and on catches. Member States are required to collect and record data on fishing effort deployed by vessels flying its flag.²⁰⁵ To enable the Commission to tell Member States when their quotas are exhausted, Member States provide this information to the Commission regularly and in a timely manner.²⁰⁶

The control regime also provides that Member States are to monitor the fishing activities of their vessels where they fish outside Community waters.²⁰⁷ This provision applies without prejudice to fisheries agreements and international treaties.²⁰⁸

193 Council Regulation (EEC) 2057/82 establishing certain control measures for fishing by vessels of the Member States, OJ 1982 No. No L220/1; Council Regulation (EEC) 2241/87 establishing certain control measures for fishing activities, OJ 1987 No L207/1.

194 Long and Curran, *supra*, note 74, p.79.

195 OJ 1993, No. L261/1.

196 Article 1(3) of Regulation 2847/93.

197 By Council Regulation (EC) 686/97 amending Regulation 2847/93 establishing a control system applicable to the Common Fisheries Policy, OJ 1997 No. L 102/1.

198 Article 22(1)(b) of Regulations 2371/02 and Articles 2 and 4 of Commission Regulation (EC) 2244/03 laying down detailed provisions regarding satellite-based Vessel Monitoring Systems, OJ 2003 No. L230/17.

199 Long and Curran, *supra*, note 74, p.117.

200 See also Commission Regulation (EEC) 2807/83 laying down detailed rules for recording on Member States’ catches of fish, OJ 1983 No L276/1 as amended by Commission Regulation (EC) 1804/2005, OJ 2005 No. L290/10.

201 Article 8 of Regulation 2847/93; Long and Curran, *supra*, note 75, p.122.

202 *Ibid.*, Articles 9 and 13.

203 *Ibid.*, Article 11.

204 Special effort control provisions for the Baltic can be found in Council Regulation (EC) 1098/07 establishing a multi-annual plan for the cod stocks in the Baltic Sea and the fisheries exploiting those stocks, amending Regulation (EEC) 2847/93 and repealing Regulation (EC) 779/97, OJ 2007 No 248/1.

205 Articles 19f,g,h of Regulation 2847/93.

206 *Ibid.*, Article 19i.

207 *Ibid.*, Article 17(1).

208 *Ibid.*, Article 17(3).

Member States are also authorized to control vessels flying their flags in all Community waters.²⁰⁹ They are entitled to inspect fishing vessels flying the flag of other Member States in international waters.²¹⁰ Finally, Member States can be authorized by other Member States or the Community to carry out inspections in their waters.²¹¹

The regime also provides monitoring requirements for third country vessels fishing in Community waters. They in particular must obtain a fishing licence and a special fishing permit and abide by specific identification and reporting obligations.²¹² The Commission, in cooperation with the Member States, is responsible for controlling the activities of vessels from third countries fishing in Community waters.²¹³

The control regime also lays down control requirements relating to technical measures. For example, catches that are retained on board must comply with the species compositions set out in the technical regulations.²¹⁴ Nets on board must be stowed in accordance with the specific conditions. Net changes and species compositions at the moment of that change must be entered into the logbooks and landing declarations.²¹⁵

The implementation of structural measures is also subject to monitoring rules. Control measures primarily

aim at providing a clear picture of the status and the development of the fleet and the aquaculture sector, particularly with a view to sector adjustments. In order to ensure compliance with the Community fleet adjustment objectives, each Member State must organize regular checks of all persons concerned by the implementation of structural measures.²¹⁶ In practice, control measures carried out by Member States may involve paper checks or actual physical control (e.g., the assessment of tonnage, length and engine power measurements, etc.).

Just like structural measures, the monitoring of market-related provisions is also provided under the control regulation. Each Member State is required to organize on its own territory regular checks of all persons involved in the application of the measures.²¹⁷ Member States are to carry out comparisons between the documents relating to the first placing on the market of the quantities referred to in sales notes and landing declarations, particularly as regards their weight.²¹⁸ Where minimum sizes have been fixed for a certain species, operators responsible for the selling, stocking or transporting of batches of products of that species smaller than the minimum size must be able to prove their geographical area of origin or the provenance from aquaculture of the products at all time.²¹⁹

2.2 Community control over Member States

A uniform and coherent application of the Community fisheries regime is a prerequisite for effective fisheries management. Management rules must be applied and enforced in all Member States to ensure that no

European fisher has an advantage over another. However, *the power to implement, control and enforce Community fisheries law lies primarily with the Member States.*²²⁰ *Throughout the history of the CFP, Member*

209 Article 28(3), para.1 of Regulation 2371/02.

210 Ibid., Article 28(3), para. 3; Commission Regulation (EC) 1042/06 laying down detailed rules for the implementation of Article 28(3) and (4) of Council Regulation 2371/02 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy, OJ 2006 No. L187/14.

211 Article 28(3), para. 2 of Regulation 2371/02.

212 Article 28b and 28c of Regulation 2847/93. See also Article 9 of Regulation 1627/94.

213 Article 26(5) of Regulation 2371/02.

214 See Article 20(1) of Regulation 2847/93 still referring to Council Regulation (EEC) 3094/86. The latter has been replaced by Regulation (EC) 894/97 and provisions in Council Regulation (EC) 850/1998; Council Regulation (EC) 1967/06; Council Regulation (EC) 60/04.

215 Article 20(2) of Regulation 2847/93.

216 Ibid., Article 24 still refers to the objectives set out under Article 11 of Regulation 3760/92 (the former basic regulation).

217 See Article 28(1) of Regulation 2847/93, still referring to Regulation 3759/92 which has been replaced by Regulation 104/00 on the common organization of the markets in fishery and aquaculture products, OJ 2000 No. L17/2.

218 Article 28(2) of Regulation 2847/93.

219 Ibid., Article 28(2a).

220 See also Article 23(1) of Regulation 2371/2002.

States have often shown themselves to be unable or unwilling to fulfil these obligations.²²¹ Against this background, the Community has developed a particular interest in monitoring Member States' control and enforcement practices. Thus, while it is the role of the Member States to apply, control and enforce fisheries rules, the Community monitors the effectiveness of the Member States in carrying out its duties ('dual vigilance').²²² The Community's competent organ in this respect is the Commission.²²³

The Commission's control competences include, *inter alia*, the power to initiate and carry out audits, inquiries, verifications and inspections concerning the application of the rules. Besides, Member States also have to fulfil reporting duties. The Commission particularly gathers information to evaluate the 'national quota uptake'.²²⁴ There is also a group of Community inspectors nominated by the Member States.²²⁵ In April 2005, the Council established the Community Fisheries Control Agency by Regulation 768/05 which operates out of Spain.²²⁶ The main objective of the Agency is to 'organize operational coordination of fisheries control and inspection activities by Member States and to assist them to cooperate so as to comply with the rules of the Common Fisheries Policy in order to ensure its effective uniform application'.²²⁷

The Community has also adopted rules on enforcement. Where CFP rules have been infringed,

Member States are required to take appropriate measures to effectively deprive the violators of the economic benefits gained from the infringement and discourage further offences.²²⁸ However, Member States are basically free to choose their own means to accomplish this objective. They may, for example, choose to impose administrative or criminal laws, and also determine how stringent sanctions should be.²²⁹

Finally, the Community may also impose sanctions. Articles 16(1), 23(4) and 26(3) of Regulation 2371/02 allow the Commission to penalize certain types of bad conduct, laying down the conditions under which the Commission can reduce the future fishing opportunities of a Member State, take preventive action, and suspend financial assistance. It may also choose to formally initiate infringement procedures before the ECJ under the conditions provided in Article 226 and 228 of the Treaty.²³⁰ In 2005, the ECJ decided a groundbreaking case. The Court found in 1991 that France had failed to enforce Community technical measures for the conservation of fish resources.²³¹ Subsequently, the Commission claimed that France had not complied with this judgment and referred this matter, again, to ECJ.²³² As a result, the Court ordered France to pay the Commission a lump sum of € 20,000,000, as well as an additional penalty payment of €57,761,250 for each six-month period from the delivery of the 2005 judgement on, at the end of which France has failed to comply.

221 European Commission. Report 1991 from the Commission to the Council and the European Parliament on the Common Fisheries Policy. SEC(1991) 2288 final, 18 December 1991; European Commission, *supra*, note 128.

222 Long and Curran, *supra*, note 74, p.62.

223 Article 26(1) of Regulation 2371/02.

224 See Article 15 of Regulation 2847/93.

225 Article 5(2) of Regulation 1042/06.

226 Council Regulation (EC) No. 768/2005 establishing a Community Fisheries Control agency and amending Regulation (EEC) No. 2847/93 establishing a control system applicable to the Common Fisheries Policy, OJ 2005 No. L128/1.

227 Article 1 of Regulation 768/05.

228 Article 25(1) of Regulation 2371/02. In general, see also Case 68/88, *Commission v. Greece* [1989] ECR 2965, paras. 24 and 25.

229 Article 25(1) of Regulation 2371/02.

230 Articles 226 and 228 of the Treaty. The action under Article 226 is 'objective in nature' as well as for the purpose of 'obtaining a declaration that a specific conduct of a Member State infringes Community law as well as to terminate that infringement', see Case 7/68, *Commission v. Italy* [1968] ECR 423, at 428; Cases 15 and 16/76, *France v. Commission* [1979] ECR 321, para. 27.

231 Case 64/88, *Commission v. France* [1991] REC I-2727.

232 Case 304/02 *Commission v. French Republic* [2005] ECR I-6263.

2.3 Implementation deficits

Despite the Community's continued efforts to overhaul and tighten its control and enforcement regime, implementation deficits have continued to exist throughout the entire history of the CFP. Non-compliances result both from fishermen's infringements of quantitative or technical conservation measures and Member States ineffective application of control and enforcement measures.²³³ Current evaluations of the implementation of CFP rules basically highlight the same implementation deficits that were targeted twenty years ago.²³⁴ Criticisms mainly concern the following issues: firstly, in many cases, Member States do not interpret and apply CFP rules in a uniform manner. One of the many examples: currently the concepts of

what is to be regarded as an 'inspection' vary throughout the Community.²³⁵ Secondly, Member States application of control and enforcement measures is often of poor quality. Thirdly, national sanctions may differ enormously from each other and in many cases are not a strong enough deterrent. Finally, in spite of some positive developments, coordination between Member States is generally regarded to be weak. Overall, the will of Member States to consistently and fully implement CFP conservation measures in many cases appears to be missing. Against this background, the Commission currently revises the entire CFP control system.²³⁶

IV. Community instruments promoting fisheries

The following chapter will describe the promotion of fisheries under the CFP. The promotional regime will

be explained by giving an overview of historical and current measures and sources of subsidies.

1. Sources of subsidies to the Community's fisheries sector

Financial aid to the Community's fisheries sector flows from two main sources: the Community and the Member States. Community support is granted primarily under the CFP's structural policy. Major contributions are also provided through fisheries access agreements. Comparatively small amounts have been allocated under the CFP's market organization, the European Regional Fund, the European Agriculture Guidance and Guarantee Fund, and the European

Social Fund. The Member States also provide large amounts of subsidies, mainly by co-financing Community measures, providing expensive general services (which they mostly do not recover from the fisheries sector), and through the grant of additional state aid. The author will focus here on subsidies granted under the Community's structural policy and its common market organization in fisheries products.²³⁷

2. Promotional measures within the Community's structural policies

Structural policies concern the production side. This includes all equipment required to catch and process fisheries goods.²³⁸ In the past, promotion in this sector has aimed at building up or modernizing the catching

and the processing industries. Today, management, environmental and social objectives increasingly play an important role.

233 See also Case 290/87, *Commission v. Netherlands* [1989] ECR 3083; Case 64/88, *Commission v. France* [1991] ECR I-2727; 244/89, *Commission v. France* [1991] I-163; Case 258/89, *Commission v. Spain* [1991] ECR I-3977; *Commission v France*; Case 52/95 *Commission v. France*, para. 38.

234 European Commission, *supra*, note 127; Court of Auditors, *supra* note 152.

235 *Ibid.*, p.8.

236 See Commission Communication COM(2008) 721 final, Proposal for an Council Regulation establishing a Community system for ensuring compliance with rules of the Common Fisheries Policy.

237 Other sources are explained by the author in Markus, T. (2009). *European Fisheries Law: From Promotion to Management*. Groningen: Europa Law Publishing.

238 Churchill refers to the object of the structural policies simply as the 'catching side of the industry'; see Churchill, *supra*, note 24, p.203.

2.1 Administrative aspect of the CFP's structural policy

To understand how the CFP's structural policy works, it is important to understand two pertinent features of the system: co-financing and the administration of the Community aid.

2.1.1. The co-financing system

In principle, the CFP's structural policy aims at providing a uniform and centralized allocation of financial aid to the fisheries sector. Structural measures set down the conditions under which aid can be requested by the fisheries sector for specific purposes. This does not imply that the Community provides all the funding. Since the early days of the CFP's structural policy, the availability of Community subsidies has been dependent on contributions of Member States and beneficiaries ('principle of joint funding/co-financing').²³⁹ The following example will help to illustrate this point:

Under the former structural measure, the Financial Instrument for Fisheries Guidance (FIFG), fishers were eligible for public aid for the construction of vessels.²⁴⁰ If a fisher intended to build a vessel in the fleet segment '0-10 GT', support was granted under the following conditions: firstly, an overall investment sum was determined. For example, for values between 0 and 10 GT, the investment sum was € 22,000 per GT + € 4,000.²⁴¹ This means that if a fisher wanted to build a vessel of 10 GT, the overall investment sum was € 260,000. The FIFG regulation required that the Community contribute 15% of this amount if at least 5% was provided by the Member State, and at least 60% by the beneficiary.²⁴²

This approach has two important consequences. Firstly, any public aid granted by the Community is,

in most cases, increased substantially by the contributions of the Member States. Secondly, participation rates determine significantly the attractiveness of private investments. While large contributions from the Community and Member States make investments attractive, high beneficiary participation rates have the opposite effect. Altering the participation rates is an important instrument for steering investments to specific parts of the sector and the fleet.

2.1.2. The administration of CFP structural aid

Throughout the history of the CFP, the competence to decide on the amount and the available forms of assistance has increasingly shifted towards the Community. In 1993, however, it was made clear that Member States were primarily responsible for implementing Community structural measures and determining how aid was actually to be used.²⁴³ From this point onward, Community law referred to the principle of 'shared responsibility'.

Under the current European Fisheries Fund (EFF) system, Member States submit to the Commission a *national strategic* plan for their fisheries industry. These plans have served as the basis for dialogue between the Commission and Member States with regard to structural support schemes for the period 2007-2013.²⁴⁴ Member States are to consult with relevant stakeholders when drawing up their plans. The plans should set out national priorities, objectives, estimates of financial resources required, and timelines for putting measures into effect.²⁴⁵ Member States are required to draw up an *operational programme* for implementing the policies that will be co-financed by the EFF. The programme has to be in line with the

239 European Court of Auditors. Special Report No. 3/93 concerning the implementation of the measures for the restructuring, modernization and adaptation of the capacities of fishing fleets in the Community together with Commission's replies ('Court of Auditors Report – 1993'), OJ 1994 No C2/1, para. 1.29.

240 See Article 9 of Regulation 2792/99.

241 Ibid., see Article 9(4) in combination with Annex IV; note that Article 9(4)(a) says that aid for the construction of vessels may not exceed *twice the scales in Table 1 of Annex IV*.

242 Ibid., see Table 3 of Annex IV.

243 Reason 6 of Regulation 2082/93. Prior to 1993, in many cases, the Commission itself decided on individual aid applications, see, for example, Case 514/93, *Cobrefac and other v. Commission*, [1995] ECR, II-621.

244 Article 15(1) of Regulation 1198/06.

245 Ibid., Article 15(2).

national strategic plan objectives and include, *inter alia*, tables which detail the financial contributions of the EFF and the Member States and where they will be allocated.

The Commission then evaluates, e.g., whether the programmes contribute to EFF objectives²⁴⁶ and the guiding principles for the operational programmes laid down in Article 19 of Regulation 1198/06, and whether they take into account the national strategic plans. If, in its opinion, the programme is incongruent with CFP and EFF rules, it will ask the Member State to amend its programme accordingly. If the proposal is approved, the Commission will adopt an approving decision.²⁴⁷

Thus, the EFF leaves Member States a substantial margin of discretion as to how funds are actually allocated. For example, Germany's current (approved)

operational programme states that about € 12 million of EFF and national contributions will be set aside for the adaptation of its fleet.²⁴⁸ This money is designated for modernizing approximately 300 vessels.²⁴⁹ When granting aid, Germany must follow the strict conditions (e.g., participation rates and the capacity ceilings) laid down in the EFF regulation.

In the aid distribution process, Member States designate a managing and a certifying authority.²⁵⁰ Aid applicants turn to the managing authority, which decides whether the aid is granted or not and monitors the use of the funds. The certifying authority then draws up and submits applications for payment to the Commission. When the Commission accepts the application, the certifying authority receives the EFF funds from the Commission and hands them over to the applicant.²⁵¹

2.2 Promotion from 1970–2007

The following section will describe the promotional activities under the CFP from 1970-2007.

From 1970-1982,²⁵² the CFP's prevailing goal was to increase production to guarantee Europe's food supplies. This motivation arose from an acute awareness of the suffering experienced by Europeans as a result of starvation during and after World War II.²⁵³ Public funding, basically aimed at expanding the capture fisheries and aquaculture sectors. From 1980, due to a largely overcapitalized long-distance water fleet, the Community also began to 'externalize' its overcapacity problem by financing the conclusion of third-country access agreements with the Faeroe Islands, Norway, Senegal and Guinea Bissau.²⁵⁴

From 1983-1986, the Community continued existing promotional schemes and also introduced new types of subsidies. It promoted access to the fishing grounds of Guinea, Equatorial Guinea, Sao Tomé and Principe, and Madagascar,²⁵⁵ the exploitation of under- or unexploited fish species, and the temporary lay-up of vessels. It introduced support for marketing fisheries products and assistance for exploratory expeditions and joint ventures. Special financial grants were made available to poorer regions on the Mediterranean coasts for building up production capacities. Some financial assistance was granted for the protection of coastal areas and for the biological protection of marine areas and the creation of marine parks.²⁵⁶

246 Ibid., Article 4.

247 Ibid., Article 17(6).

248 See German Operational Programme, available online at the homepage of the DG Fisheries, pp.72, 80 and 120.

249 Ibid., p.81.

250 Articles 59 and 60 of Regulation 1198/06. Member States also install an audit authority reviewing the management and control of the operational programme, see Article 61 of Regulation 1198/06.

251 A different procedure applies under the market organization, see below.

252 Information for the time prior to this phase, see Song, Y.-H. (1995). 'The EC's Common Fisheries Policy in the 1990s'. *Ocean Development and International Law* 26: 31-55, pp.36-37; Holden, *supra*, note 52, pp.17-18. See also the 'first' proposal of the Commission for a CFP, i.e. 'Report on the Situation in the Fisheries Sector of the EEC Member States and the Basic Principles for a Common Policy', (67/196/EEC), OJ 1967, p.862.

253 M. Holden, *supra*, note 52, pp.21 and 39 *et seq.*

254 OJ 1980 No. L226/12; OJ 1980 No. L 226/47; OJ 1980 No. L226/16; OJ 1980 No. L226/33.

255 OJ 1983 No. L111/2; OJ 1984 No. L 188/2; OJ 1984 No. L54/2; OJ 1986 No. L73/26.

256 Regulation 2908/83, OJ 1983 No. L290/1 and OJ 1985 No. L197/1.

From 1987-1993, promotion schemes were altered to reduce the total production capacities. A capacity reduction programme, i.e., the second Multi-annual Guidance Programme (MAGP), aimed at reducing the fleet by 2% in terms of tonnage and 3% for engine power. On the other hand, the total amount of aid for the renewal and modernization of vessels was raised substantially, and included the financing of construction and modernization projects in Spain and Portugal. Furthermore, particularly to serve the Spanish and Portuguese fleets, the Community took over Spanish and Portuguese access agreements with third countries.²⁵⁷ In addition, support for processing and marketing as well as investments in fishing ports was bolstered.²⁵⁸ Overall, aid granted for purposes that negatively impacted fish stocks, still exceeded those amounts earmarked for conservation purposes.²⁵⁹

From 1994-1999, administrative structures and spending schemes were marginally improved. The Community increased its efforts to reduce fishing pressure under MAGP III and MAGP IV, setting more ambitious goals for the reduction of fishing effort. Accordingly, aid for the adjustment of the fleet was raised. Grants were provided for permanent reductions – scrapping vessels, the permanent re-assignment of vessels for other non-fishing purposes, and permanent transfer to third countries. The Community also became increasingly aware of the need to offset the social consequences of the restructuring process. Assistance was made available, for example, for early retirement schemes or compensatory payments to fishers who withdrew from fishing permanently. With regards to the construction and modernization of the fleet, the Community began channelling its financial assistance to different fleet segments, reducing support for the powerful large-scale vessels, in particular. A

special programme called the PESCA Programme was established, aimed at promoting the transformation, diversification and the redeployment of the sector's work force and also providing funds for coastal regions affected by the continuing decline of the fisheries.

From 2000-2006, substantive changes were introduced into the promotional regime. Aid was now particularly allocated to fishers affected by conservation management and structural measures, such as recovery plans and fleet reductions. There was also a push to phase out subsidies that were most harmful to natural resources. Throughout the reform process, the Community has tried to establish a system which better links investments in capacity to fishing effort limitations, i.e., the complex system of MAGPs, fleet segmentations and reduction targets were abolished in 2002, and replaced by a simpler entry-exit regime. Additionally, environmentally friendly fishing methods have been increasingly promoted. Premiums for the permanent transfer of vessels to third countries were phased out in 2004. However, not all harmful subsidies were eliminated. For example, from 2000-2006, the processing and marketing sector received € 634 million of aid, while € 248.8 million were granted to build facilities at fishing ports. In fact, even where subsidies for the modernization of vessels do not lead to an increase in fishing power, they do create incentives for fishers to remain in an overcapitalized industry, and even though aid for fleet renewal and modernization ended in 2004, the total amount paid in the fifth phase still added up to € 855.5 million.

Since the beginning of 2007, the EFF²⁶⁰ has replaced the FIGF and is attempting to implement the 2002 reforms²⁶¹ and bring about substantial changes in promotional policies.

257 USA, Seychelles, Mozambique, Gambia, Angola, Dominican Republic, Comoros, Mauritius, Sierra Leone, Cap Verde, Ivory Coast and Tanzania, see OJ 1984 No. L272/1; OJ 1987 No. L160/1; OJ 1987 No. L201/1; OJ 1987 No. L146/1; OJ 1987 No. L341/1; OJ 1993 No. L299/1; OJ 1988 No. L137/24; OJ 1989 No. L159/1; OJ 1990 No. L125/27; OJ 1990 No. 212/1; OJ 1990 No. L379/1; OJ 1990 No. L379/24.

258 Regarding the processing and marketing segments, new measures had been introduced in 1989; Regulation 355/77 had been replaced by Regulation 4042/89 on the improvement of the conditions under which fisheries and aquaculture products are processed and marketed, OJ 1989 No. L388/1.

259 See Table 3 a. See also, Report 1991, p.29.

260 Regulation 1198/2006, OJ 2006 No. L223/1.

261 See Reason (1) and Article 6 of Regulation 1198/06.

2.3 The European Fisheries Fund

In June 2006, the Council adopted a new core Regulation to govern the structural aspects of the CFP, entitled Council Regulation (EC) 1198/06 on the European Fisheries Fund (Regulation 1198/06).²⁶² The Regulation is expected to be in force from 1 January 2007-31 December 2013.²⁶³

2.3.1. Priority Axes

Projects eligible for assistance under the EFF are categorized under so-called 'priority axes'. A priority axis is 'one of the priorities in an operational programme comprising a group of measures which are related and have specific measurable goals'.²⁶⁴ Axes are listed as follows:

- Priority Axis 1: Measures for the adaptation of the Community fishing fleet
- Priority Axis 2: Aquaculture, inland fishing, processing and marketing of fishery and aquaculture products
- Priority Axis 3: Measures of common interest
- Priority Axis 4: Sustainable development of fisheries areas
- Priority Axis 5: Technical assistance

2.3.2. National Strategic Plans and National Programmes

Article 15(1) of Regulation 1198/06 requires each Member State to adopt and submit to the Commission, following an appropriate consultation with stakeholders, a national strategic plan on its national fisheries industry. As stated above, these plans serve as the basis for dialogue between the Commission and Member States with regard to structural support schemes over the period 2007-2013. They contain a

description of the national sectors, and set out national priorities, objectives, estimated financial resources required, and implementation deadlines.²⁶⁵

According to Article 17(1) and (2), each Member State must also draw up an operational programme to implement the policies and priorities to be co-financed by the EFF. The programme must be in line with national strategic plan objectives. Member States are required to involve regional, local, economic and social partners in the fisheries sector as well as all other appropriate bodies in the development of the national plan.

The Commission evaluates whether the programmes are in line with the EFF objectives laid out in Article 4, obey the guiding principles for the operational programmes in Article 19, and take into account the national strategic plans. Article 4 basically states that the EFF must support the CFP so as to ensure sustainable exploitation of marine capture, aquaculture and inland resources as well as protect the marine environment. Article 19 requires that the preparation and the implementation of the operational programme by Member States shall take into account a variety of guiding principles such as, for example, consistency with the principles of the CFP, etc.

2.3.3. Priority Axis 1: Measures for the adaptation of the Community fishing fleet

To achieve a stable and enduring balance between fishing capacities and fishing opportunities, Member States must establish a policy for adjusting fishing effort within so-called 'fishing effort adjustment plans'.²⁶⁶ These plans are integrated into the national strategic plans, and may refer to all promotional measures listed in Article 21. As a result, public aid may be provided for owners of fishing vessels and fishers affected by: recovery plans; emergency measures; the non-renewal of fisheries agreements; management plans; Member

262 OJ 2006 No. L223/1.

263 See also Commission Regulation (EC) 498/2007 laying down detailed rules for the implementation for Council Regulation (EC) 1198/06 on the European Fisheries Fund, OJ 2007 No. L120/1.

264 Article 3(i) of Regulation 1198/06.

265 Ibid., Article 15(2).

266 Ibid., Article 22.

States' measures requiring higher environmental protection standards within their 12 nm zone; national decommissioning schemes; and the temporary cessation of fishing. Member States must give priority to those industry members affected by recovery plans under Article 5 of Regulation 2371/02.²⁶⁷

The EFF contributes to financing the permanent cessation of fishing activities where this is achieved by the scrapping of vessels, reassignment of vessels for non-fishing activities, and use for the creation of artificial reefs.

The EFF will finance aid measures for the temporary cessation of fishing activities. Aid is provided for fishers who are affected by management measures that stall fishing activities.²⁶⁸ Aid may also be granted for three months to firms facing economic difficulties during the period of replacement of engines.²⁶⁹ Finally, aid may be provided for up to six months in the event of natural disasters or where fisheries are closed by Member States for reasons of public health or exceptional occurrences.²⁷⁰

According to Article 25(1), the EFF may contribute to the financing of equipment and the modernization of vessels that are five or more years old. Investments may concern the improvement of safety on board, working conditions, hygiene, product quality, energy efficiency and selectivity. Aid is granted subject to the condition that the ability of vessels to catch fish is not increased, particularly not above levels provided in Article 12 of Regulation 2371/02. No aid will be granted for the construction of new fishing vessels or for the increase of fish-holds.²⁷¹

The EFF may contribute to financing the replacement of one engine per vessel, subject to the following scheme:²⁷²

- Vessels less than 12 m in overall length which do not use towed gear²⁷³ may receive aid, provided

that the new engine has the same power as the old one or less.

- Vessels 12-24 m in overall length may receive aid, provided that the new engine has at least 20% less power than the old one.
- Trawlers of more than 24 metres in overall length may receive aid, provided that the new engine has at least 20% less power than the old one, and that the vessel is subject to a rescue and restructuring plan for firms in difficulty, and uses less fuel-intensive fishing methods.

Secondly, according to Article 26(6), the EFF may finance equipment and modernization works which allow keeping catches on board which may no longer be discarded, cover the preparation or trial of new technical measure, reduce the impact of fishing on non-commercial species, reduce the impact on ecosystems and the sea bottom, and protect catches and gear from wild predators.

Thirdly, the EFF may support investments to achieve the selectivity of fishing gear, including up to two replacements between 2007-2013, provided that the vessel concerned is affected by a fishing effort adjustment plan, changes its fishing method and is leaving the fishery concerned to go to another fishery, or the new gear meets recognized environmental criteria and practices which go beyond the existing regulatory obligations under Community law.

The EFF increasingly promotes small-scale coastal fisheries by modifying existing promotional measures of general applicability and participation rates to benefit small-scale coastal fisheries. Article 26(1) defines small-scale coastal fishing as 'fishing carried out by fishing vessels of an overall length of less than 12 metres and not using towed gear [...]'.²⁷⁴ Article 26(2) sets out special participation rates for this sector, stating that where the EFF provides financial aid for investments

267 Ibid., Article 22(1).

268 Ibid., Article 24.

269 Ibid., Article 24(1)(vi) and Article 21(f).

270 Ibid., Article 24(1)(vii).

271 Ibid., Article 25(2).

272 Ibid., Article 25(3).

273 As defined in Table 3 of Annex I of Commission Regulation 26/2004 regarding the fishing vessels register of the Community, OJ 2004 No L5/25.

on-board fishing vessels and selectivity under Article 25, private participation rates may be reduced by 20%. Article 26(3) allows the EFF to finance socio-economic measures established in Article 27 to benefit small-scale coastal fishers. According to Article 26(4), the EFF may contribute to the payment of premiums for fishers and owners of fishing vessels involved in small-scale coastal fishing in order to:

- Improve management and control of access conditions to certain areas;
- Promote the organization of the production, processing and marketing chain of fisheries products;
- Encourage voluntary steps to reduce fishing effort for the conservation of resources;
- Encourage the use of technological innovations [...] that do not increase fishing effort; [and]
- Improve professional skills and safety training.

According to Article 27, the EFF may contribute to the financing of socio-economic measures, including economic diversification, the upgrading of professional skills in particular for young fishers, retraining in occupations outside sea fishing, early departure and retirement, and non-renewable compensation to fishers who have worked on a vessel for at least 12 months which is the object of permanent cessation.

2.3.4. Priority Axis 2: Aquaculture, inland fishing, processing and marketing of fishery and aquaculture products

The EFF also intervenes in the aquaculture and inland fishing sector, providing support for aqua-environmental, public health and animal health measures as well as productive investment.²⁷⁵ Member

States are also required to avoid counterproductive effects such as surplus production capacity, which adversely affects CFP conservation policy.²⁷⁶ EFF initiatives are also linked to environmental Community measures. Projects falling under Annex II of Council Directive (EEC) 337/85 on the assessment of the effects of certain public and private projects on the environment²⁷⁷ will only be supported where the information required in Annex IV of that Directive has been provided.²⁷⁸

2.3.5. Priority Axis 3: Measures of common interest

EFF provisions allow for the support of measures of common interest, described as measures having a 'broader scope than measures normally undertaken by private enterprises and which help to meet the objectives of the CFP'.²⁷⁹ Measures of common interest concern collective actions, protection and development of aquatic fauna and flora, fishing ports, landing sites and shelters, development of new markets and promotional campaigns, pilot projects and modifications for reassignment of fishing vessels.

2.3.6. Priority Axis 4: Sustainable development of fisheries areas

Due to reduced catches, the Community has attempted to reduce the economic dependence of coastal fishing areas on catching activities. To this end, support is granted to measures which accomplish the following:

- Maintain the economic and social prosperity in these areas and add value to fisheries and aquaculture products;
- Support diversification or the economic and social restructuring of areas facing socio-economic difficulties as a result of changes in the fisheries sector;

274 Not using towed gear as listed in Table 3 of Annex I of Commission Regulation 26/2004 regarding the fishing vessels register of the Community, OJ 2004 No L5/25.

275 Article 28 of Regulation 1198/06.

276 Ibid., Article 2(5).

277 OJ 1985 No. L175/40.

278 Article 28(6) of Regulation 1198/06.

279 Ibid., Article 36.

- Promote the quality of the coastal environment; and
- Promote national and trans-national cooperation between fisheries areas.

Areas eligible for aid must have a sea or lake shore, and include ponds or river estuaries.²⁸⁰ Assistance should target regions with a low population density, fishing areas in decline, or small fishing communities.²⁸¹

An important innovation is the implementation of support measures by local entities (the groups) representing local public and private partners from the various local relevant socio-economic sectors.²⁸² A group proposes and implements an integrated local development strategy based on a bottom-up approach in agreement with the relevant management authority.²⁸³ According to Article 45(4), the group itself determines how operations under the local

development strategy are to be conducted and correspond to measures in Article 44. It also requires that the greater part of the operations be led by the private sector. Territories covered by one group should be coherent and have sufficient critical mass in terms of human, financial and economic resources to support a viable local development strategy.²⁸⁴

2.3.7. Priority Axis 5: Technical assistance

Under the EFF regime, the Commission and the Member States can propose that aid for technical assistance to further the implementation of the EFF can be provided. On the initiative of the Commission and subject to a 0.8% ceiling of its annual allocation, the EFF may finance measures such as evaluations, expert reports, measures to disseminate information, and the installation of computerized systems for management, monitoring, inspection and evaluation.

3. Instruments promoting fisheries in the market organization

As explained above, the CFP is concerned with the organization of a common market in fisheries products. Promotional interventions under the market organization, however, only constitute a minor fraction of structural interventions (see Table 1). The market policy's objectives are: stabilizing the markets, guaranteeing and widening supplies as well as increasing the profitability of production.²⁸⁵ Currently, the market organization regime is laid down in Regulation 104/00 on the common organization of the markets in fishery and aquaculture products.²⁸⁶ According to this regulation, Community market policy in fisheries builds on four basic mechanisms: common marketing standards, producer organizations,

a common price system, and a system of trade with third countries. To make clear the promotional aspects of the common market policy, the structure of the common price system as well as the producer organizations must briefly be examined.

To stabilize prices, the Community will intervene in the market. To achieve this, it does not institute price guarantees, but instead modifies the supply and demand mechanism by increasing prices and thus creating artificial scarcity.²⁸⁷ This system was established in 1970 and has not been changed substantially.²⁸⁸ In instituting such measures, the Council will first, by qualified majority, determine guide prices for different

280 European Commission. (2006). *Fisheries and Aquaculture in Europe – European Fisheries Fund: driving sustainable development*, p.8. Brussels: EC.

281 Article 44(4) of Regulation 1198/06; areas shall be limited in size, i.e., they shall be smaller than NUTS Level 3 within the meaning of Regulation (EC) 1059/2003 of the European Parliament and of the Council on the establishment of a common classification of territorial units for statistics (NUTS), OJ 2003 No. L154/1.

282 Article 45(1) of Regulation 1198/2007.

283 Ibid., Article 45(2).

284 Ibid., Article 43(3). As a general rule, areas shall be smaller than NUTS Level 3 of the common classification of territorial units for statistics within the meaning of Regulation (EC) 1059/03 on the establishment of a common classification of territorial units for statistics (NUTS), OJ 2003 No. L154/1.

285 Regarding market stability see Reasons (4), (11) and (27); regarding increasing profitability see Reason (6) and Articles 2 and 3; regarding increasing the variety of supply, see Reason (8) of Regulation 104/2000.

286 OJ 2000 No. L17/22.

287 Churchill, *supra*, note 24, p.233.

288 See Articles 7-16 of Regulation 2142/70 on the common organization of the market in fishery (and aquaculture) products, OJ 1970, No. L236/5; Articles 8-17 of Regulation 100/76, OJ, 1976, No. L020/1; Articles 9–18 of Regulation 3796/81, OJ 1981, No. L379/1; Articles 9–21 of Regulation 3687/91, OJ 1991, No. L354/1; Articles 8-18 of Regulation 3759/92, OJ 1999, No. L388/1.

species before the beginning of each year.²⁸⁹ Prices are set for products at the first stage of marketing, i.e., the sale of fish from fishers to wholesalers or retailers.²⁹⁰ Guide prices are based on the 'average of prices recorded for a significant proportion of Community output on wholesale markets or in ports during the three fishing years immediately preceding the year for which the price is fixed'.²⁹¹ Next, the Commission fixes Community 'withdrawal prices', which cannot exceed 90% of the guide prices set by the Community.²⁹² Producer organizations also have the option of fixing withdrawal prices.²⁹³ When fish prices fall below withdrawal prices, fish can be removed from the market by the producer organizations.²⁹⁴ Producer organizations receive remuneration for a certain amount of their expenditure, only where they apply Community withdrawal prices (or a price close to the Community withdrawal price).²⁹⁵ They are also required to withdraw products meeting market standards.²⁹⁶ Withdrawn products have to be 'disposed of for purposes other than human consumption or in such a way as not to interfere with normal marketing of other products' as well as with the products in question.²⁹⁷ According to Article 21(3), remuneration can reach up to 85% of the withdrawal price. When 4% of the annual quantities of the product put up for sale are withdrawn, the producer organization receives

85% of the withdrawal price. Where 5-10% are withdrawn, remuneration rates range between 55-75% depending on the species. For withdrawn products that exceed 10% of annual quantities of the product put up for sale, no aid will be granted. Thus, increasing withdrawals results in decreasing remuneration. This degressive mechanism is intended to motivate producer organizations to match supply and demand. This system was introduced in response to a European Parliament's resolution objecting the fact that in 1980 more than 100,000 tonnes of fish had been withdrawn and destroyed.²⁹⁸

To complement the degressive remuneration system, keeping waste to an absolute minimum, the Community adopted a system of so-called 'carry-over aid'. According to Article 23, processing and storing withdrawn products can be eligible for aid. Products have to meet certain quality, size and presentation requirements. In addition, they have to be supplied by a member producer. Remuneration will, in principle, only be granted for withdrawals which do not exceed 18% of the annual amount put up for sale. The amount of aid may not exceed the costs of stabilization or storage.²⁹⁹ The Member States remunerate producer organizations, and are later refunded by the Community's Agricultural Funds.³⁰⁰

Table 1. Levels of Community assistance under the organization of markets, 1973–1998.³⁰¹

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987
Total million ECU	1,19	1,19	1,18	9,43	10,61	8,09	17,21	23,04	28,02	?	25,45	14,59	18,49	17,23	17,45

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Total million Euro	46,90	23,99	23,59	26,15	32,07	30,39	33,04	28,1	25,31	21,8	10,9

289 Article 18(3) of Regulation 104/00.

290 Churchill, *supra*, note 24, p.233.

291 Article 18(2) of Regulation 104/00.

292 *Ibid.*, Article 20(3), referring to Article 38(2) which again refers to the management procedure under Articles 4 and 7 of the Comitology Decision, i.e., Council Decision 468/1999, OJ 1999 No. L184/23.

293 Article 17(3) of Regulation 104/00; Fischer, *supra*, note 64, p.28.

294 Articles 17 and 21 of Regulation 104/00.

295 *Ibid.*, Article 21(1)(a).

296 *Ibid.*, Article 21(1)(b).

297 *Ibid.*, Articles 21(2) and 17(2).

298 Churchill, *supra*, note 24, pp.235-236.

299 Article 23(3) of Regulation 104/00.

300 Since 2005, the 'European Agricultural Guidance and Guarantee Fund (EAGGF)' has been replaced by the 'European Agricultural Guarantee Fund (EAGF)' and the 'European Agricultural Fund for Rural Development (EAFRD)'. Article 35(1) of Regulation 104/00 in combination with Articles 1(2)(b), 2(2) and 5 of Regulation 1258/99, OJ 1999 No. L171/19.

301 See Holden, *supra*, note 52, p.36; and Lequesne, *supra*, note 49, p.95.

V. Integrated promotion and management

The following chapter proposes an integrative approach to promoting and managing fisheries. Subsequently, it will try to draw conclusions from the CFP experiences which complement the integrative approach provided here.

Traditionally, policy makers treat the promotion and management of fisheries as separate categories, drawing up their policy approaches in relative isolation from each other.³⁰² This has led to a lack of coherence in fisheries policy as a whole.³⁰³ In this author's opinion, in order to integrate the two policy areas, promotion should aim solely at adjusting consumption and production capacity to a level commensurate with sustainable exploitation limits. Pursuing other objectives such as increasing the relative size and competitiveness of the fleet or increasing supplies, threatens fish stocks by increasing overall production power. To guarantee the long-term economic and ecological viability of the fishing industry, both *management and promotion* policies must aim at maintaining fisheries resources at sustainable levels. *Management* policies must ensure that fish stock are not continuously exploited beyond MSY levels as qualified by ecosystem requirements. *Promotion* measures must reduce production capacity in the industry to levels commensurate with stocks available (under the sustainable management regime). Ideally, the sector should be of a size where it can produce efficiently, but where producers' demand for fish products does not contribute to overexploitation.³⁰⁴

Several components of an integrated approach to promotion and management of fisheries can be deduced from these premises. An 'ideal type integrated

approach' requires the following actions of coastal states:

First step:

- (Scientifically) assess the quantity of marine capture resources they can take from the seas (including their own as well as third-country waters) without jeopardizing the long-term existence of fish stocks and the ecosystem.
- Adopt and effectively implement sustainable exploitation limits which consider ecosystem requirements.

Second step:

- Assess the impact of the production sector on fish stocks, identifying which segment of the production sector puts pressure on which stocks.
- Restructure the sector to reduce production overcapacities to levels commensurate with the production potential of fish stocks, i.e., sustainable exploitation limits.

Third step:

- Assess whether national promotion schemes actually adjust production capacity so that it is more in line with management objectives and conservation measures.
- Change national promotion policies so that they accord with management objectives by progressively eliminating subsidies that contribute to the maintenance or build-up of unsustainable production powers.

302 See with regards to investments in fishing capacities, Greboval, D. (2000). 'The International Plan of Action for the Management of Fishing Capacity: Retrospect and Prospect'. In: Nordquist, M.H. and Moore, J.N. (Eds). *Current Fisheries Issues and the Food and Agricultural Organization of the United Nations*, pp.561-580, at p.563. The Hague: Martinus Nijhoff.

303 Song, Y.-H. (1998). 'The Common Fisheries Policy of the European Union: Restructuring of the Fishing Fleet and the Financial Instrument for Fisheries Guidance'. *The International Journal of Marine and Coastal Law* 13(4): 537-577; European Court of Auditors, supra, note 238, paras 1.18.-1.23; Schrank, W.E. (2003). *Introducing Fisheries Subsidies*, pp.32 et seq. FAO Fisheries Technical Paper 437. Rome: FAO; OECD. (2000). *Transition to Responsible Fisheries – Government Financial Transfers and Resource Sustainability: Case Studies*, pp. 6 et seq., Paris: OECD.

304 A similar argument with regards to the adjustment of the fleet size is proposed in European Court of Auditors, supra, note 238, para. 1.22; see also Greboval, supra, note 302, p.569.

Fourth step:

- Repeat steps one to three periodically.
- Adjust policies, where management and promotion do not contribute to the attainment of sustainable management objectives.

It is obvious that an effective integration of promotion and management approaches requires appropriate scientific assessment and input. Scientific input is not only necessary for establishing safe exploitation limits, but must increasingly take into focus the effects of promotional measures on production sectors and the fisheries resources. When determining which segments of the production sector should be eligible for aid, it is important to understand the pressure each segment places on each fish stock. For example, the fleet must be categorized according to the exploited species, fishery zones and methods of fishing.³⁰⁵ Furthermore, policy makers must always take into account the technological progress of catching techniques which is estimated at about 2% per year.³⁰⁶

The history of the Community's promotional policies provides a set of experiences which supplement the implementation of this four-step approach.

It is particularly important that any new programme to reduce exploitation is simple, precise and binding. Thus, having experienced systems that were costly and difficult to administer (MAGPs),³⁰⁷ the Community currently manages fleet entries and exits using precise fleet reference levels and a clear and simple reduction formula.

The experience of the CFP also teaches that the competitiveness of the production sector should not be increased by so-called 'contrary spending'. Contrary spending grew out of the desire to pursue two opposing

objectives: increase competitiveness and efficiency of the production sector, on the one hand, and reduce the fleet size, on the other. As a result, for a long time the Community was financing both production increases and decreases. Gains in efficiency and competitiveness must be achieved through other means. They may be increased, for example, by managing stocks at MSY (or even the Maximum Economic Yield) levels or through the introduction of ITQs.

An integrated approach would include grants for social and environmental purposes. The Community, for example, has provided useful financial aid to buffer the consequences of limiting fishing opportunities or unforeseen natural occurrences.³⁰⁸ It has also provided funds to reduce the overall economic dependence of coastal fishing areas on catching activities. This supports the diversification and the economic and social restructuring of regional economies.

Promotion schemes can negatively impact third-country fisheries. Community subsidies for a long time aimed at expanding the capture fisheries and aquaculture sectors. This led to huge overcapacities. In response, the Community began to 'externalize' its overcapacity problem by financing the conclusion of international agreements which allowed Community fishers access to third-country waters. This externalization process has contributed to overfishing and resource depletion particularly in West African countries' waters.³⁰⁹ The Commission has recently stated that fisheries agreements must take into account 'the various and often complex circumstances of the third countries'.³¹⁰ It has also declared that Community financial contributions made in respect of access to third-country waters should increasingly go towards covering expenses linked to management, scientific assessment and control of the third-country fisheries.³¹¹

305 See critique on MAGP I in European Commission, *supra*, note 222.

306 Lindebo, E. (2005). 'Role of Subsidies in EU Fleet Capacity Management'. *Marine Resource Economics* 20: 445-466.

307 European Commission, *supra*, note 11, vol. I, p.11.

308 However, public funding (e.g., for the temporary lay-up of vessels) should not help to maintain existing overcapitalization.

309 Mbithi Mwikya, S. (2006). *Fisheries Access Agreements: Trade and Development Issues*. ICTSD Natural Resources, International Trade and Sustainable Development Series Issue Paper No. 2. Geneva: International Centre for Trade and Sustainable Development; Gorez, B. (2005). *Policy Study: EU-ACP Fisheries Agreements*. Brussels: Coalition for Fair Fisheries Arrangements.

310 European Commission. Communication from the Commission to the Council and the European Parliament on an integrated framework for fisheries partnership agreements with third countries, p.3, Com(2002) 637 final; European Commission, *supra*, note 11, vol. I, pp.17-19.

311 European Commission, *supra*, note 310, p.8.

An effective management regime as well as efficient allocation of public funds depends on transparency and public participation. Since 2002, the Community has started to include interested non-governmental parties in the political process leading up to the adoption of CFP measures. On the management side, RACs have increased stakeholder involvement.³¹² An inclusive approach has also been taken under the EFF. To achieve the best possible results, local public and private stakeholders are included in the planning and implementation of promotional funding restructuring fishing economies.

Finally, an integrated approach must recognize that it is not only the catching segment of the fisheries industry which creates pressure on the marine

Conclusions

The purpose of this report was to: (a) explain the CFP's complex management and promotional regimes; (b) identify problems and failures in both systems, and (c) find out how consistency between promotion and management can be increased.

With regard to point (a) and (b), the report provided in-depth descriptions and explanations of the political and legal system of the CFP.

With a view to point (c), this report clearly indicates that promotion must be integrated into sustainable fisheries management, as the exploitation of marine capture resources ultimately depends on the level of available fish stocks. To guarantee the long-term economic and ecological viability of the fishing industry and the marine environment, both *management and promotion* policies must aim at maintaining fisheries resources at sustainable levels.

Based on experiences under the CFP, the report suggests an integrative approach. In a first step legislators need to identify and effectively implement the level of sustainable exploitation. Secondly, the impact of the production sectors on fish stocks should

resources. Policy makers and scientists have failed to acknowledge that *all* subsidies by reducing production costs also lower retail prices. Lower prices, in general, create demand for a product,³¹³ i.e., in the case of fisheries they increase pressure on marine resources. Thus, any evaluation of the production sector must take into consideration the relationship between *all factors* that contribute to rising exploitation. This may include the production sectors' *processing* powers as well as *consumption patterns*. Where the demand for fish is more than can be exploited on a sustainable basis, consumption and production sectors must be downsized so that it accords with the amount of exploitable resources. The adjustment process can be supported through public aid.

be assessed and production capacity adjusted to levels required to obtain sustainable exploitation. Thirdly, taking into consideration the outcome of the first two steps, the effects of existing subsidies should be assessed and adjusted to attain sustainable exploitation patterns. These three steps should be repeated regularly and adjustments made where necessary.

Where legislators aim at adopting and effectively implementing this concept, they will inevitably meet political, legal and technical challenges. It has been pointed out, for example, that currently the political system allows Member States to promote their national fishing industries' exploitation interests at the expense of the common interest in preserving fish resources. TACs, TAEs and technical restrictions are difficult to implement and problems exist regarding the control and enforcement of CFP rules.

However, one must not forget that many of the CFP's conservation and promotion instruments have been reviewed and overhauled many times and that the Community's management system has been improved substantially over the years. For example, the Fisheries Control Agency, the simple entry-exit scheme

312 Although progress with the inclusive approach can be criticized for being rather modest, see Hatchard and Gray, *supra*, note 92, pp.545-554; Ingerowski and Salomon, *supra*, note 93, pp.539-542.

313 Ludicello et al., *supra*, note 112, p.60; see also Jehle, G.A. and Reny, P.J. (2001). *Advanced Microeconomic Theory*, p.54. Boston, MA: Addison Wesley. There are, of course, exceptions to this demand pattern, e.g., luxury goods.

on fleet management, and the stakeholder approach under the new EFF rules are promising mechanisms that will hopefully contribute to sustainable fisheries

management. These and other results of the CFP's tentative learning process can hopefully be an inspiration to other fisheries regimes in the future.

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PART C:

Summary and Suggestions for Reform

Towards a Legal Clinic for Fisheries Management

Based on case studies of Indonesia, Kenya, Namibia, Brazil, Mexico, and the European Union

Gerd Winter

Summary

This contribution summarizes the previous chapters, i.e. the country reports on Indonesia, Kenya, Namibia, Brazil and Mexico as well as the report on international standards for EEZ's.

Building on this material, the study develops a

proposal on a 'legal clinic' for fisheries management, creating a methodology for diagnosing problems in existing management systems and developing proposals for reform. Twelve rules of good fisheries governance are suggested as a guide for the legal clinic exercise.

I. Legal Inquiry into Fisheries Management

Ensuring the sustainability of marine fisheries is a concern that crosses many disciplines. Fish biologists, notably, have achieved a high level of expertise in assessing stocks of many species, analyzing ecosystems supporting them, monitoring catch activities, determining reproduction limits and predicting effects on populations of management measures such as marine protected areas.¹ Fisheries economists have valued fish resources and developed models correlating instruments for subsidising and managing fisheries with actual fishing behaviour.² Sociologists have studied the social structure of fishing communities, identifying forms and effects of self-regulation and participation as compared with centralized management.³

What can lawyers contribute to this rich field of knowledge? The study of law differs from other sciences, which concentrate on correlating variables to construct their theories. Legal jurisprudence is rather an art of solving problems in view of certain rules. Much like other professions, such as medicine, lawyers can offer a diagnosis of management failures and

suggest reforms to realize the goal of sustainable fisheries. Hence, the title of this project, 'legal clinic', refers to an approach that goes beyond mere suggestions for good fisheries governance expounded in the *FAO Code of Conduct for Sustainable Fisheries*; instead, it produces more specific recommendations.⁴ In short, the methodology of a legal clinic is as follows:

- Firstly, it identifies symptoms of management failure, such as harvesting beyond reproduction levels and the use of fishing techniques that damage ecosystems. This initial analysis depends on the availability of empirical data provided by fisheries biology.
- Secondly, symptoms must be traced back to their causes, such as underdeveloped fisheries regulation and deficient fisheries management practices. Such inquiry will often rely on educated guesswork (a legal skill) to accomplish this if empirical economic and sociological studies which provide more reliable footing are not available.

1 See the reports of Incofish workpackages 2-5, 7 and 9, available at <http://www.incofish.org/Workpackages/>

2 See the reports of Incofish workpackages 6 and 8, available at <http://www.incofish.org/>

3 See e.g., the case study in Figueredo, Mauro, 'Promotion and Management of Marine Fisheries in Brazil', in this volume.

4 FAO. (1995). *Code of Conduct for Responsible Fisheries*. Rome, Italy: FAO. See for an analysis of its content Moore, G. (1999). 'The Code of Conduct for Responsible Fisheries'. In: Hey, E. (Ed.) *Development in International Fisheries Law*, pp.85-105. The Hague, Netherlands: Kluwer.

- Finally, this process will yield recommendations for better governance, an undertaking that requires practical judgement (another legal skill). It should likewise be grounded in available economic and sociological findings on the effects of different instruments.

This practical exercise in legal inquiry can also contribute to scientific analysis. While the legal clinic is based on discrete cases, a comparison of several cases (and even an in-depth study of a single case) allows for the generalization of study findings on problems of fisheries management. As with the study of institutional economics, this approach can uncover the causal relationships between management forms and fishing behaviour. There is a difference in the underlying assumptions of law and economics, however.

II. Fisheries Management in Six Countries

The states examined in our case studies border the main oceans of the earth: the Pacific (Mexico), the South Atlantic (Brazil, Namibia), the North Atlantic (EU), the West Indian Ocean (Kenya) and the East Indian Ocean (Indonesia).

While the choice of cases was made in order to cover a broad geographical range, geography plays a limited role as the *explanans* of variations in fisheries management systems. More important are institutional factors like the degree of centralization within states, the size and thus fishing pressure of fishing capacity, and the professionalism of the administration. All of these factors are also represented in our sample of cases: in terms of centralization two states are unitary (Kenya, Namibia), two are federalist (Mexico, Brazil), one is unitary but decentralized (Indonesia), and one is an international organization with state-like features. Three of the states analyzed rank highly in terms of fishing capacity (EU, Mexico, Namibia) and three states are lower (Brazil, Indonesia, Kenya). Finally, administrative professionalism is highly developed in three states (EU, Mexico, Namibia), in the mid-range in one state (Brazil), and rather low in two states (Kenya, Indonesia).

The cases are presented using a common framework of issues, including:

Economists explain the response of individuals to institutions on the basis that the individual is an economically rational *homo oeconomicus*. Legal science takes a different view, preferring to construct the individual as a *homo socialis*, an actor acting on the basis of rational and non-rational (cultural, social, moral etc.) considerations. Due to the complexity of *homo socialis*, the relationship between management instruments and behaviour can be conceived of as rules of good practice based on educated guesses and practical judgement, rather than as a hypothesis to be tested.

The following paper will present a summarized account of six country case studies (section II) and then look more closely at the legal clinic and its rules of good fisheries management (section III).

- Fish stocks and fishing activities;
- Public perception of fisheries problems, communities and organizations of fishermen and the fish industry;
- The constitutional framework for fisheries;
- The formal quality of the relevant legislation;
- The structure and functions of the competent institutions;
- Legal instruments and practices in fisheries promotion;
- Legal instruments and practices in fisheries management;
- The control of fishing by foreign fleets;
- The enforcement of the law;
- A case study highlighting characteristic aspects of the given country; and
- A list of suggestions for reform.

1. Indonesia⁵

Indonesia is an archipelago with a coastline of 81,000 km, more than 10,000 islands (of which about 6,000 are inhabited), a total landmass of 1.9 million km², 3.1 million km² of archipelagic waters and territorial sea, and 2.7 million km² of EEZ. The climate is tropical, hot and humid at lower elevations, but cooler at higher ones. The population is about 215 million, and consists of 350 recognized ethnic groups, many of whom speak their own language. The total GDP of the country is about US\$ 230 billion, the fisheries sector contributing about 2.2% (not counting the important contribution made by the subsistence economy). Indonesia has the largest mangrove forests in the world, estimated at 4-9 million ha. Due to land conversion *inter alia* for aquaculture and illegal clearing, the average loss is as high as 200,000 ha per year. Indonesia is also rich in coral reefs, which extend over more than 50,000 km². However, due to various causes, including bottom trawling, land development, tourism and climate change, only about 25% of the reefs are in good condition.

The total sustainable potential of fish catch per year is estimated to be around 5.4 million tonnes. The actual overall catch has steadily increased, reaching 4.7 million tonnes in 2003. The total count however masks regional differences. While fish are still plentiful in the EEZ, they have been heavily overexploited in many coastal areas, in particular around Java, Bali and Sumatra. Fishing activities are mainly artisanal in the inshore areas, and commercial in the EEZ. Fishing in the EEZ is mainly conducted, not by Indonesian, but by foreign fleets. Foreigners are granted 70% of the licences for fishing in the EEZ. In addition, a great deal of illegal fishing also occurs there.

The overfishing of several inshore areas has only been an issue for public debate for about five years. More acute has been the interest in developing the catch capacity of the Indonesian fleet. Another topic of public interest is how to combat illegal fishing by foreign vessels in the Indonesian EEZ. Unsustainable fishing

practices like the use of explosives and poison are also debated.

Indonesian fisheries employ small-scale artisanal fishing using small vessels, often non-powered or with outboard motors, as well as commercial fishing on vessels with in-board engines of different sizes. Artisanal fishermen mostly sell their catch immediately on the local market. Where the catch is bought by retailers, fishermen are often pressed to sell at low prices. Commercial fishermen normally have a choice of where to sell their catch and thus have negotiating power.

Fishermen and the trade and processing industries are organized in a large number of associations. Although not formally involved in decision making, they nevertheless possess significant bargaining power in political terms. However, small-scale traditional fishermen are not adequately represented by these associations. They are usually organized in informal *Kelompok Neyalan* (fishers' groups) operating at the village level.

Traditional fishing communities in some areas, such as Maluku in the Indonesian east, live according to customary law (*hukum adat*). In relation to fisheries the so-called *sasi laut* contains rules on areas, seasons and fishing gear. Its implementation is supervised by the traditional police (*kewang*). However, the influence of such rules is declining due to economic competition and the development of modern governmental structures. Modern law does not incorporate customary laws and institutions within it, nor does it integrate them into a multi-level concept of sustainable management.

Indonesia was formerly a centralist state. With the Autonomy Laws of 1999 and 2004, the competence to make and execute laws to a significant extent shifted to the local government and some competences were shared, i.e., the Provinces, Districts and Municipalities. Today, the responsibility for the management of

⁵ Summary of Laode M. Syarif, 'Promotion and Management of Marine Fisheries in Indonesia', available at <http://www.incofish.org/Workpackages/WP10/WP10ObjDelMiles.php?WP=Legal%20instruments>. See also the abbreviated version in this volume.

fisheries belongs to the coastal Districts and Municipalities in an area up to 4 nm from the baseline, the Provinces for 4-12 nm from the baseline and the central government for 12-200 nm from the baseline. The relevant administrative bodies are the Ministry of Marine Affairs and Fishery (hereinafter DKP) at the central level, the Provincial Office for Marine Affairs and Fisheries (hereinafter POMAF) at the provincial level, and the District Office for Marine Affairs and Fisheries (hereinafter DOMAF) at the district level. DKP has local branches spread throughout the country for easy on-site access.

Fish resources are considered a common good. Their exploitation generates income not only for fishers, but also for the state. The Financial Balance Law of 2004 provides that any revenue from fees to be paid by fisheries shall be shared between the central and local governments, the former receiving 20% and the latter 80%.

The main legal instrument on the promotion and management of fisheries is the Fisheries Law of 2004. It makes the DKP the central institution responsible for fisheries. The DKP is entrusted with very broad powers to promote and manage fisheries. There is no precise delimitation of responsibilities between the DKP, POMAF and DOMAF. The DKP has taken the lead, with the other agencies following suit albeit showing little of their own initiative. This is due to old attitudes from previous centralist times and a general lack of administrative resources.

The DKP has been active in promoting fisheries by providing a range of fishing training programmes, mostly directed at the commercial sector. In addition, the DKP sponsors a specific training programme for traditional fishers called *penyuluhan*. Another tool to help traditional fishers is the Integrated Economic Development Programme for Villages which, together with other governmental agencies, provides micro-credits and technical assistance. They also benefit from fuel subsidies.

In terms of fisheries management the Fisheries Law grants the responsible agencies extensive powers to regulate allowable gear, delimit fishing areas, establish fish sanctuaries, limit catches, etc. Although it was only

established in 2004, the DKP has made extensive use of these powers. The Fisheries Law further provides that to conduct fishing activities on a commercial basis a person must obtain two licences, one to operate a fishing enterprise and one for the fishing vessel. Licences are issued for three years and can be extended. The fishing licence places conditions on the catching area and fishing gear. The fish species to be caught is not specified, but can be roughly determined by the conditions placed on the type of fishing gear permitted. The licence does not fix individual catch quotas. However, if the responsible agency believes that a particular fishery is overexploited, it will reject new applications and can also revoke existing licences. The authorities do not operate systematic total allowable catch (TAC) schemes. The process of granting licences has recently been streamlined. Licences can now be obtained electronically. This should help to reduce corruption, because under this process administrative officials do not have personal contact with the applicants. Individual fishing licences are not transferable. Traditional small-scale fishers are exempt from licence requirements.

Concerning fisheries in the EEZ, a specific law on the Indonesian EEZ, which is a restatement of the requirements in UNCLOS, mandates the protection of resources against overexploitation and allocates the sovereign right of exploitation of fish resources to the state. However, as stipulated in UNCLOS, if the Indonesian EEZ is not fully exploited by its own fleet, it must allow access to foreign fleets. The DKP actively supports building up the Indonesian fleet to exploit fish resources in the EEZ. While the general Fisheries Act and its instruments are also applicable to fishing activities in the EEZ, a DKP regulation imposes more detailed requirements. This regulation delimits nine fishery zones, which can be differentiated on the basis of the number of licences issued in accordance with the state of the stocks. The regulation also has provisions on fishing gear and techniques. However, due to the lack of systematic monitoring of stocks, there is no TAC scheme in place.

Regarding the issue of whether foreign countries are allowed to fish, Indonesia strives to ensure that benefits are shared. Foreign fishing companies can only operate in the Indonesian EEZ if they invest with

Indonesian partners in a processing plant. Foreign vessels are also required to land their fish in Indonesian ports.

The management of fisheries in the EEZ is characterized by a top-down approach. In contrast to coastal fisheries, which are managed by indigenous structures, the EEZ commercial fisheries sector is less organized and therefore less involved in decision making.

A major problem with EEZ fisheries is the lack of control. Although the DKP has powers to revoke licences and instigate criminal procedures in cases of illegal fishing, it lacks the personnel and equipment to monitor activities in the EEZ. Recently, however, the DKP has taken steps to improve control, in particular, by cooperating with the water police and navy, and requiring and subsidizing larger vessels to carry vessel monitoring systems (VMS). As a result, in 2005, 268 illegal fishing boats were detained and 98 cases were tried in court.

The history of the Bali Barat National Park highlights the differences in the top-down and bottom-up approaches to fisheries management, and demonstrates the substantial contribution that national parks or other nature protection zones can make to fisheries management. In the first phase of the management of the park, the authorities established strict catch regulations through top-down administrative regulation. However, fishermen and members of the tourism industry could easily circumvent these rules. Under a new approach suggested by environmental NGOs, industry stakeholders participated in a complex process to redesign existing management plans, establish cooperative enforcement structures and jointly finance administrative costs. The new approach proved to be rather successful. Although the new regulations were the same in substance as those imposed under autocratic rule, they were better respected in practice. Nevertheless, a high level of quality and commitment in administrative supervision are essential to ensure the long-term success of the scheme.

Assessing the law and practice of Indonesian fisheries management, the following conclusions can be drawn:

- The quality of the legislation is high. There is a Fisheries Code that outlines the basic approach to fisheries management, and governs the promotional and regulatory aspects as well as fisheries in the territorial seas and EEZ. However, the code mainly allocates powers to administrative bodies at different levels of government. Rights and obligations of individuals and companies involved in fishing activities are not elaborated. Substantive criteria designed to ensure sustainable fisheries, which could specify individual rights and duties and guide administrative management, are formulated in imprecise language. Likewise, the different instruments of regulatory action are vague. The Code also fails to elaborate on questions of transparency, participation in governmental decision making and legal protection. Finally, it does not consider how to involve local customary fisheries law and management (where it exists) into a concept that integrates the traditional and modern systems.
- Combining the competences for the promotion and regulation of fisheries and allocating them to a single administrative authority (both at the central and regional levels) is practicable, but improvements could still be made. The main thrust of the policy is on fisheries promotion, rather than sustainable management. This is justifiable insofar as DKP policies aim at empowering traditional fishermen to survive in the modernized fisheries world. Also justifiable is the policy to build up an Indonesian fleet capable of exploiting the fish resources in the EEZ, rather than leaving this to foreign fleets. However, fleet capacity should be promoted within the limits of resource reproduction in order to avoid overcapacity, which would increase industry pressure to overstretch catch quotas.
- There is a lack of information on fishing capacity and stocks. Although licence holders must submit reports on their fishing activities, this alone is insufficient. Independent scientific monitoring is necessary in order to provide reliable data on stocks.
- Regulation by central and local agencies is unsystematic. While the agencies in charge,

notably the DKP, have promulgated a significant number of regulatory measures, it appears that these are still triggered by *ad hoc* events and priorities. Systematic reflection on problems and options for measures that predict the effects and side-effects of each approach is warranted.

- There are gaps in law enforcement. As is the case in numerous other countries, law enforcement in Indonesia is hindered by many factors, including unqualified personnel, substandard equipment and corruption.
- The distribution of central and local competences is unclear. The Autonomy Law and the Fisheries Code allocate competences of the same kind to

all three levels of government. Accelerated by the reform movement of the late 1990s, the nature of fisheries management has moved away from a centralized approach, and now recognizes a role for provincial and district governments. A more precise delimitation of competences, which reserves an exclusive sphere of rights to provincial and district levels is recommended.

- Top-down decision making still prevails. The example of the Bali Barat National Park shows that involving fishermen, traders, the tourist industry and other stakeholders in the management plans and their enforcement is useful for making the rules more effective in practice.

2. Kenya⁶

Kenya has a coastline of about 640 km and an EEZ of 230,000 km². There are a variety of marine and wetland habitats along the Kenyan coast, including coral reefs, sea-grass beds, mangroves and salt marshes. The coastal climate is humid and wet, with variations influenced by the south-east monsoon of April to October (cooler temperature, heavy rain, rough seas) and the north-east monsoon of November to March (warm, light rain, calm seas).

The fishing sector contributes about 5% to the national GDP. Revenues from inland fisheries make up 95% of this contribution, in particular from Lake Victoria, and marine fisheries only 5%. The marine sub-sector employs 5,000-12,000 fishers in the primary sector, 95% of whom are artisanal. Fishing is mostly carried out in nearshore areas using simple boats. These depend heavily on the monsoon wind patterns. The annual catch has fluctuated between 4,000–10,000 tonnes over the last 20 years.

Fish catch in the coastal area has declined over recent years. The reasons for this are manifold, and include increased fishing effort as a result of population increases and non-fisher tribes moving into the area, the use of damaging fishing gear (often introduced by

non-traditional fishermen), and the destruction of habitats due to coastal development, mangrove harvesting and man-made or climate-induced decline of coral reefs.

In the EEZ, almost all fishing activities are discharged by foreign fleets. As yet, Kenya does not have an industrial fishing fleet able to exploit its EEZ resources.

In 1989 Kenya adopted a comprehensive Fisheries Act applicable both to marine and inland fisheries. The Act was specified by two major sub-legal regulations, one on fisheries in general and the other on foreign fishing. The Act and regulations implicitly take the view that fish resources are a common good, which in principle are to be freely used by the population. The law and regulations establish a regulatory framework for such use. They lay down rules on the administrative structure, the registration of vessels and licensing of fishing activities, and powers to make subordinate legislation. The Act is implemented by the Ministry of Fisheries and Livestock and a parastatal called the Fisheries Department (FiD). The Director of the FiD, under the directives of the Minister, is responsible for licensing, monitoring and surveillance, and making

6 Summary of Kamau, Evanson C., Wamukota, Andrew and Muthiga, Nyawira, 'Promotion and Management of Marine Fisheries in Kenya', available at <http://www.incofish.org/Workpackages/WP10/WP10ObjDelMiles.php?WP=Legal%20instruments>. See also the abbreviated version in this volume.

rules on gear and methods, fishing effort, allowable catch, protection of breeding areas, the landing of the catch, etc.

A second law of importance for marine fisheries is the Kenyan Wildlife Act. It is implemented by the Ministry of Environment and Natural Resources (MENR) and other government agencies such as the Kenya Wildlife Service (KWS). The Minister is empowered to declare suitable areas a national park or reserve, including marine areas.

The third law relevant to fisheries is the Forest Act. It is implemented by the MENR Forest Department and empowers the Minister to declare certain areas forest reserves, including mangrove forests.

Finally, the Environmental Management and Coordination Act (EMCA) is relevant because it mandates the MENR and the National Environmental Management Agency (NEMA) to prepare an inventory of biodiversity in Kenya, designate endangered species, protect indigenous rights, set rules on protected sites (including aquatic ecosystems), prepare a survey of the coastal zone, and declare protected coastal zones.

The promotion of Kenyan fishing activities is the responsibility of the FiD. According to the Fisheries Act, promotion shall be aimed at developing both the artisanal and industrial sectors and all levels of production from the catch to processing of fish. The FiD provides training services and supports fisheries research facilities. Transportation infrastructure in Kenya is still underdeveloped. The FiD can give financial assistance to modernize vessels and equipment. However, a scheme providing such assistance was suspended due to organizational failure. No subsidies are provided for small-scale credits for artisanal fishermen, who have to seek credit in the private banking sector. Banks, however, require security which they can hardly provide. Paradoxically, licensing operates as a means of promoting fisheries because the FiD grants an excessive number of licences in order to secure its own budget through licence fees.

Fishermen must register their vessels. The only requirement for registration is that the vessel is safe at sea. A modest fee, which depends on the size of the vessel, is to be paid to the FiD. Fishermen must also

obtain a licence to fish. The Director may attach conditions to the licence, which normally place restrictions on the species of fish to be caught, fishing gear, method of fishing and area for which the licence is valid. The licence can be modified or revoked if the state of fish resources so requires. However, the licence conditions and modifications are based on *ad hoc* assessments, rather than systematic knowledge and planning determined by the state of the resource. Hence, it is understandable why Kenya does not set TAC quotas nor allocate individual catch quotas.

The Fisheries Act establishes a general prohibition on catching sea turtles and mammals as well as the use of explosives. In addition, the Director can fix gear and fishing effort restrictions, although there is no systematic approach in place for this. Bottom trawling, beach seines, spear guns and other destructive practices are not currently banned.

On the southern coast, artisanal fishing is still widely based on traditional structures and rules. Whether these structures lead to a more sustainable use of resources is difficult to say. For instance, fishermen observe certain time and area restrictions as practised in modern fisheries management, but the reasons for these restrictions relate to traditional and religious beliefs. Some areas are closed to fishing because they are believed to be sacred and haunted by spirits. However, this is no guarantee of sustainable practices. It has been reported that some traditional leaders support the use of unsustainable gear. The situation is complicated by the fact that, in addition to traditional authorities, there are state-based local authorities. This duplication loosens ties with traditional authorities. The case of the Diani-Chale area shows that local self-regulation is likely not powerful enough to oppose the use of beach seines and spear guns.

Differences and tensions between the management approaches of the state, municipalities and traditional leaders have hindered clarity and the acceptance of fishing rules. In reaction to this stalemate, Beach Management Units (BMUs) have been proposed. Adopting a participatory approach, they are designed to combine state, local and traditional elements in a common structure.

At times there is tension between the FiD and the MENR, hindering coordination between these departments. When the MENR, assisted by the KWS and its forest department, decides to establish marine protected zones and mangrove forest reserves, and restrict fishing in these areas, licences to fish are nevertheless generously granted by the FiD. Such tensions could be mitigated if BMUs were created in national parks and nature reserves.

Kenya has as yet not entered into any agreement with foreign states allowing them to fish in the Kenyan EEZ. There are, however, plans to conclude such an agreement with the EU, likely one containing requirements to set up partnerships for fishing, monitoring and processing activities. The Fisheries Act provides the possibility to grant fishing licences to foreign vessels – even without an international agreement. Foreign vessels must pay US\$ 20,000 per year plus royalties calculated on the quantity and value of the catch. Royalties are considered to be comparatively low. The licence fixes the species and amount to be caught. This presupposes that the overall quantity of sustainable catch is known, which is not the case due to lack of monitoring and surveillance capacity. Therefore, the quantity of fish assigned to foreign fleets is rather arbitrary. Often it is not even precisely fixed, nor are time limits for fishing set out. Although the Fisheries Act requires that fishing plans be set up for fisheries operating in the EEZ, no such plans currently exist.

The surveillance of fishing activities in the EEZ is a major weakness of the Kenyan fisheries administration. It is suspected that huge quantities of fish are caught illegally and go unnoticed. Paradoxically, the KWS with its foreign aid money would have the financial and logistical means to assist in this respect (and is indeed sometimes called upon by the FiD to do this), but it lacks the competence to act on its own.

In conclusion, the following suggestions may be made:

- The Fisheries Act is commendable for comprehensively codifying the instruments of promotion and management of fisheries, as well

as setting up the structure and powers of administrative rule making and adjudication. However, it lacks substantive proposals on how to orientate promotion and management, such as establishing criteria for sustainable resource use, adopting the precautionary principle, and ensuring distributional justice.

- It appears that central government and local, especially traditional self-regulating structures, are not adequately linked. The proposed BMU could be a seminal initiative in this direction.
- At the state level, better coordination is needed in order to deal with the somewhat paradoxical situation that the fisheries department has the power but not the means to control fishing activity, while the environment department has (due to generous foreign aid) the means but not the power. Regarding nature reserves and national parks, rule making and licensing should fall within the exclusive competence of the environment department.
- State income from fisheries needs to be readjusted. The fees charged to those with artisanal fishing operations should only reflect the costs of licensing and enforcement. As long as an industrial sector has not developed, any further administrative costs (such as for monitoring stocks and high tech surveillance) should be borne out of the general budget.
- A Kenyan industrial fleet to operate in the EEZ should be built up as an alternative to letting foreign fleets exploit Kenyan resources. This could increase employment and revenues to the Kenyan economy. However, such promotion must be combined with the creation of strong monitoring and surveillance capacities to exclude illegal foreign fishing, as well as the political will to impose TAC limits, effort and gear restrictions, and delimit restricted zones. Furthermore, the royalties to be paid for industrial exploitation of the common resource must be adjusted in view of the value of the resources harvested and the governmental costs of management.

3. Namibia⁷

Namibia has a coastline of 1,752 km, most of it bordered by desert. The territorial sea and EEZ cover 580,000 km². The climate, as typical of semi-desert countries, has hot days and cool nights. The coastal regions are cooler due to the cold Benguela current that causes fog and inhibits rainfall.

Due to the Benguela current system, the Namibian EEZ is one of the most productive fishing grounds in the world. The commercial fisheries target about 20 species. When it became independent in 1990, Namibia inherited heavily overfished stocks. Today most of them have recovered; but some species are still overfished, such as the pilchard and the monkfish.

The fisheries sector contributes significantly to the national GDP, i.e., US\$ 372 million (7%) to a total of US\$ 5 billion. For a population of two million it provides 5,800 jobs in the primary and 7,900 jobs in the secondary sector. While the internal market for fish products is small, exports of fish and fish products are large and steadily increasing. Paradoxically, fish products are even imported into this resource-rich country.

Almost all fishing activities are industrial. Artisanal fishing barely registers. The Topnaar, a coastal tribe that (traditionally) practises small-scale fishing based on indigenous management rules, have been prevented from continuing their fishing activities under the colonial and post-colonial regimes.⁸ Many people of this tribe are now employed in the fishing industry. Significant small-scale fishing continues in the tourism sector. The fish caught during recreational fishing can only be kept for personal consumption. However, under the umbrella of recreational fisheries an informal small-scale sector has emerged. This sector has a significant impact on the state of resources due to the long life cycle of coastal species.

The public's concern with fisheries focuses on the economic development of the sector, such as job

creation in the primary and secondary sectors and increasing revenues from the export of products. Empowerment of the disadvantaged is also a public issue. The prevention of overfishing is debated more in scientific circles than by the public at large. Climate change and its possible impact on the beneficial Benguela current is a point of growing concern.

The fishing industry is organized in associations representing different target species. These are linked through the Confederation of Fishing Associations.

Namibia is a unitary state. Its constitution requires the government to maintain the health of ecosystems and ensure the sustainable use of living natural resources. A Fisheries Act was adopted in 1992, but replaced by the more comprehensive Marine Resources Act in 2000. The Act lays down the rights and duties of the fishing sector, and establishes the institutional structure of fisheries governance.

The Minister of Fisheries and Marine Resources is the main implementing body of the Act. The ministry is responsible for the creation of subordinate legislation as well as for adjudication in individual cases. It is competent both to promote and manage fisheries and the fishing industry. It is supported by the Fisheries Observer Agency, which provides fisheries inspectors and collects information from inspections of fisheries and the fish industry. The Minister is advised by the Marine Resources Advisory Council (MRAC) composed of experts representing other Ministries, the industry, trade unions and research institutions. Environmental groups are not invited to send members. In addition, there is the Namibia Maritime Fisheries Institute (NAMFI), responsible for training, and the National Marine Information and Research Centre (NatMIRC).

Namibia does not operate fishing subsidies schemes, neither directly nor through tax exemptions. This is noteworthy in comparison to other countries.

7 Summary of Rukoro, Raywood M., 'Promotion and Management of Marine Fisheries in Namibia', available at <http://www.incofish.org/Workpackages/WP10/WP10ObjDelMiles.php?WP=Legal%20instruments>. See also the abbreviated version in this volume.

8 See Mapaire, C. (2007). 'A failed success: natural acumen and sustainable traditional fishing among the Topnaar community'. Dissertation submitted to the Faculty of Law of the University of Namibia (on file with author).

However, the government puts much effort into providing a favourable infrastructure such as harbours, training, research, etc.

Through levies and fees, the fisheries sector is a source of income for the government. The funds are allocated to covering *inter alia* the costs of the inspection services of the Fisheries Observer Agency. Thus, the sector substantially contributes to its own surveillance costs.

Regarding fisheries management, the Marine Resources Act gives the Minister comprehensive powers to take measures: he or she can impose conditions on the place and time of harvesting operations, the characteristics and quantities of harvestable resources, and fishing methods and gear. The Minister may also designate an area as a marine reserve for the protection and regeneration of living resources. Most importantly, the Minister may fix total allowable catches for specific fish species. The decision must be based on best scientific evidence and the advice of MRAC. TACs are presently set for eight species.

An individual (usually a corporation) undertaking fishing needs to obtain two licences: one for harvesting fish and one for the vessel.

The right to harvest fish is issued for specified fish species. In principle, the quantity of allowable catch is not limited. If a TAC has been set for the species in question, however, the right-holder must apply for an individual quota deducted from the TAC. The Minister can revoke fishing rights, without compensation, if the state of the stock so demands.

The vessel licence is granted on conditions which do not clarify the core sense of this instrument of control. It seems that such conditions are meant to provide some kind of capacity control. For instance, the application can be rejected, if the approval is not in the interest of the fishing industry, or if the biological sustainability of a resource is threatened.

Foreign fishermen or companies undertaking fishing in Namibian waters also require two licences to fish. The basis for granting these licences is an international agreement between Namibia and the

foreign country. Only with states that are members of the South African Development Commission are allowed to conclude such agreements. No agreements have been concluded with 'Northern' countries. This is due to the governmental policy of Namibianization (or Africanization) of fisheries and fish processing.

Vessel licences must also be obtained for Namibian flag vessels fishing beyond the Namibian EEZ. The purpose of this requirement is to exert a sort of flag-ship state control in the EEZ. However, there are no specific legal requirements which specify what conditions can be placed on the licence, nor are enforcement measures foreseen by the Act.

Over the years, Namibia has introduced a monitoring, control and surveillance system (MCS) consisting of on-board observers, sea, air and shore patrols, monitoring of landings in the two ports, and reports on movements and catch by vessels. Namibia is presently installing a satellite-based vessel monitoring system. It has a history of strict but fair prosecution of foreign vessels that are fishing illegally in the Namibian EEZ.

Taking an evaluative stance, the following can be concluded:

- The legislation is of high quality. The Marine Resources Act is a comprehensive piece of legislation, which regulates the rights and duties of fishermen as well as the structure and competences of the relevant administrative bodies. However, the legal techniques could still be improved. The power to make subordinate legislation should be qualified by establishing objective criteria such as sustainability and the precautionary principle. The conditions, content and revocability of rights and licences should be framed in more precise language.
- The combination of competences for the promotion and management of fisheries in one ministry seems to function adequately. Through the integration of these policies, Namibia has been able to build up a national fishing industry and, at the same time, ensure sustainability by using TAC schemes for endangered species. The

government has been careful to introduce the scientific monitoring of stocks, although this could still be improved. The decision making on managing resources has been detached from the direct influence of interest groups. As the case of TAC for hake in 2006 shows, while the Minister did invite industry and other stakeholders to comment via the MRAC and in open debate, he remained independent when insisting on setting limits in the long-term interest of sustainable resource use.

- There is a significant informal small-scale fisheries sector which falls under the umbrella of tourist fishing. Legitimizing this sector would make it easier to control. One possible solution is to reserve coastal fisheries for small-scale fishermen. This might improve supplies to the domestic market,

4. Brazil⁹

Brazil has a long coast of approximately 8,500 km with numerous islands, making a total of 3.5 million km² of territorial sea and exclusive economic zone (EEZ). The climate in the area is mostly tropical and subtropical.

Most of the fish species caught in the territorial sea are overfished. Fish resources in the vast EEZ are mostly not yet overexploited.

Although fishing activities do not contribute significantly to the country's gross national product, they do provide jobs for the coastal communities and are an essential food source for the nation. The total number of jobs directly related to marine fishing is estimated at 800,000.

Marine fishing can be divided into activities in the territorial sea and in the EEZ. Both artisanal fishermen and industrial companies operate fisheries in the territorial sea. Artisanal fishing is based on coastal communities which are not indigenous but were founded by European settlers. They are often illiterate and have a low average income. The vessels are small

and mitigate the fact that Namibia imports most of the fish consumed internally.

- Namibia has successfully appropriated its EEZ for exploitation by national industry. However, it appears that most of the capital shares and real influence are in Spanish hands. The only foreign fleets permitted to fish in Namibia's EEZ are neighbouring SADC states. This limitation is understandable, but it is doubtful whether it complies with the UNCLOS principle that surplus resources must be shared with other countries.
- The enforcement of laws and regulations is taken seriously. Sophisticated equipment and well-trained enforcement personnel seem to be available. However, while large ships seem to be well controlled, this is not the case with mid-sized vessels.

or medium-sized, reaching a carrying capacity of 10 tons, and are normally owned by the fisherman themselves. Industrial fishing appears in two variants: One is that the vessel and equipment is owned by a so-called outfitter. The crew – fishermen, a machinist, freezer operator, cook etc. – lease the vessel. The catch is shared among the operators and the outfitter. The other mode is that the vessel is owned by a company that employs the crew and pays a salary and often gives a share in the catch. Industrial fishing in coastal areas has been a long-standing concern for artisanal fishermen. They blame industrial fishing as the main cause of overfishing in the area.

Fishing in the EEZ is conducted by industrial vessels. The Brazilian fleet is still modest in size, and so most of them belong to foreign countries. Brazilian companies also often operate leased foreign vessels.

The organizational infrastructure of the fishermen is highly complex. Fishermen are organized in so-called *colonias*. Colonias perform a social function, for example, channelling government social benefits to the individual recipient, providing training, and promoting

⁹ Summary of Figueiredo, Mauro, 'Promotion and Management of Marine Fisheries in Brazil', available at <http://www.incofish.org/Workpackages/WP10/WP10ObjDelMiles.php?WP=Legal%20instruments>. See also the abbreviated version in this volume.

the fishermen's interests in the political arena. Some are more active in this role, while others more passive, depending on the commitment of their leading personnel. Colonias form state federations and the national federation of colonias, called National Confederation of Fishermen (CNP). Fishermen are also organized in labour unions and other groups with political or religious aims. Overall, there is a lack of coherent organization causing inadequate political representation of the interests of fishermen.

The industrial sector is organized in associations, notably the Union of Fishing Companies, and councils such as the National Council of Fishing and Aquaculture.

Brazilian fisheries law is grounded in its Constitution, which calls on the state and its members to protect natural resources. It declares the territorial sea (together with other regions) a patrimony, which establishes a particular though unspecified duty of preservation. Competences for natural resource legislation including fisheries are allocated to the federation, the states and the municipalities, according to the principle of concurring competences. This means that the lower level must respect the higher level of legislation, but in the absence of higher-level legislation the lower level is entitled to legislate. In relation to fisheries almost all of the legislative powers are federal, including also subordinate rule making.

There is no all-encompassing code on fisheries. Rather, the central law is an organizational law (Law 10.683 of 2003) that allocates competences and powers to various administrative bodies. Two of these are of major importance for fisheries: The Secretaria Especial de Aquicultura e Pesca (SEAP) is mainly responsible for developing the national fisheries industry; it is empowered to make rules on developing the sector, and it is responsible for issuing licences for fishing activities. The second administrative body, the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renovaveis (IBAMA, Brazilian Institute for the Environment and Natural Resources), is a sub-department of the Ministry of the Environment. Together they have the task of ensuring the environmental sustainability of the industry. To this

end, IBAMA can regulate the catch of species that are overexploited or threatened by overexploitation.

Both the SEAP and IBAMA have taken an active role in achieving their respective regulatory mandates. The SEAP has initiated various programmes to encourage the building up of a national fishing fleet and support fishing activities (e.g., subsidising fuel costs). It has focused on developing industrial fishing rather than artisanal fishing. By contrast, IBAMA has imposed a variety of limits on fishing activities, including non-fishing periods and areas, minimum catch size, rules for the use of gear, total allowable catch for a small number of species, etc. Most of the restrictions are aimed at fisheries with operations in the territorial sea; the policy regarding fishing in the EEZ is still to develop the sector rather than restrict its activities. A TAC scheme has only been enacted for one species.

A critical assessment of the legal and organizational structures points to the following conclusions:

- A comprehensive code on marine fisheries is lacking. Such a code could set out the over-riding principles and policies on fisheries, including the rights and duties of fishermen, competences and powers of various administrative bodies, forms of representation of the fishing sector, sanctions, etc.
- There is much overlap in the legislative competences of the federal, state and municipal governments. It appears that the lower levels remain inactive because they trust that the federal government will take action; this is true even though the states and municipalities are better positioned to deal with the special conditions and problems of their coasts. With a more clear-cut separation of competences, the states and municipalities could be encouraged to engage with the issue of caring for their coasts. Fisheries management in the EEZ, however, should become the exclusive competence of the federation.
- There is an institutionalized conflict between promoting and restricting fisheries. The conflicting competences of the SEAP and IBAMA

should be reformulated; it is unreasonable to subsidize a fleet, on the one hand, whilst restricting its ability to realize its full catch potential on the other. Therefore, any subsidies aimed at increasing capacity must be tied to the availability of resources. It might also be advisable to merge these agencies into a single administrative entity. In that case, given the vulnerability of the resource, the ministry in charge of this body should be the Ministry of the Environment, rather than the Ministry of Agriculture.

- Participation of the fishing sector and of the public in general is underdeveloped. The present approach is very top-down. This is a major reason for the *de facto* non-compliance with fisheries regulations. Those subject to the rules ought to be better involved in the decision-making process.

5. Mexico¹⁰

Mexico has an EEZ of 3.15 million km² with a coastline of 11,500 km bordering two seas: the Gulf of Mexico and Caribbean Sea in the east, and the Pacific Ocean in the west. Fisheries (including aquaculture) account for 248,000 direct jobs, and 0.8% of the total GNP of US\$ 624 billion. The fishing trade is worth about US\$ 185 million in imports and US\$ 602 million in exports.

The total national catch has ranged between 1.2 and 1.5 million tons. Ninety percent of fishing activities are based on 99 fisheries, which harvest 636 species. Seventy-one fisheries are deemed exploited to their maximum, 17 can be further expanded and 22 are declining because of overfishing.

The fishing industry is represented by the National Chamber of the Fisheries Industry, while artisanal fishermen are organized in fisheries cooperatives and the Federations of Fisheries Cooperatives such as FEDECOOP Baja California, the organization for abalone and lobster fisheries. In both cases, these organizations have gained a certain degree of influence over governmental fisheries policies. There are a few

This would ensure that the rules were respected in practice. Support for this recommendation can be found in the example of the highly successful Arvoredo Biological Marine Reserve. The first phase of its establishment was marked by a top-down approach and very restrictive rules that were ignored in practice. In a move towards participation, the rules were revised following close cooperation with the fishermen and an environmental NGO. The result was more flexible rules that supported the artisanal fisheries and excluded industrial fishing from the core area. This had ancillary benefits, since catch limitations in the core zone led to an increase in stocks in the adjacent zones thus also serving the interests of industrial fishers allowed to fish in these zones. Moreover, having participated in the rule making, fishermen were more inclined to respect the rules.

indigenous communities of fishermen, such as the Yaqui and Mayo.

The Mexican public tends to focus on issues like overfishing and fleet overcapacity, and often debates the lack of compliance and control. Governmental monitoring of fish stocks is alleged to be inaccurate. There are conflicts between tourist and artisanal fishing interests in dorado fisheries; and clashes between commercial fishing and environmental interest groups on the question of trawling and its effects on endangered species such as the sea turtle. Another public issue of concern is foreign fleets fishing in Mexican waters, which is strongly opposed by the Mexican fishing industry.

Mexico is a federal state with 31 states and a federal district. Seventeen of these states are coastal. According to the Mexican constitution, fish resources in the coastal zone and EEZ belong to the nation as represented by the government, which is empowered to allocate use rights to individuals. The constitution states that fish resources are the exclusive sovereign right of the nation,

10 Summary of Ponce-Díaz, G., Arregín-Sánchez, F., Díaz-de León, A. and Torres, Porfirio Alvarez, 'Promotion and Management of Marine Fisheries in Mexico', available at <http://www.incofish.org/Workpackages/WP10/WP10ObjDelMiles.php?WP=Legal%20instruments>. See also the abbreviated version in this volume.

making access by foreign fleets dependent on express authorization by the Mexican government.

In 1992 the first comprehensive Law on Fisheries was introduced. It gave priority to modernizing the industry through competition and improved technology. Sustainability could be ensured through the requirement of a fishing licence. The law adopted a top-down approach, making central government primarily responsible for the regulation and administration of fisheries. The Law on Metrology and Standardization is also relevant to fisheries, forming the basis for the regulation of fishing gear, minimum fishing sizes, seasonal closures, etc.

In October 2007, a new Law on Fisheries and Aquaculture was promulgated. It aims at strengthening the principles of sustainability, devolving competences to lower levels, and increasing stakeholder participation.

The core administrative body responsible for the regulation, adjudication and surveillance of fisheries is the Ministry of Agriculture, Cattle-Raising, Rural Development, Fisheries and Food. This federal institution is advised by the National Commission of Aquaculture and Fisheries (CONAPESCA), a body that includes representatives from stakeholder groups in its decision making. The Ministry and CONAPESCA are also advised by the National Institute of Fisheries (INP). The INP carries out research on all natural, economic and social aspects of fisheries. In addition, the new Fisheries Law provides for Consultative Committees involving affected stakeholders. However, as their competences are small, they will not play a significant role. The new law also puts increased emphasis on improving the empirical basis of fishing activities and fish stock development.

The states have gained importance in the area of fisheries management in relation to their federal counterparts. Together the states have founded State Fishing and Aquaculture Councils to organize their input. However, they have largely failed, mainly due to their lack of technical expertise. Moreover, their competences are limited to giving advice. Competences to decide on fisheries regulation and licensing have not been devolved to them.

Fisheries promotion in Mexico centres on providing landing and marketing infrastructure, training of fishermen and granting credits to fishermen and aquaculture farmers. These programmes are largely maintained with federal funding and organized by CONAPESCA. The states provide additional support directed at fish processing and marketing, as well as gasoline subsidies. In general, small fishermen receive less support than the more powerful industrial fishing companies. A market organization providing for price and buy-off guarantees has never existed in Mexico – not even during the two US embargoes against Mexican tuna in 1980 and 1990.

Fisheries management lacks a firm basis in catch and stock monitoring. TACs are not systematically used as a means of control. However, for some fisheries, such as tuna, abalone and clams, TACs have been set. For tuna, these are based on the limits set by the Inter-American Commission of Tropical Tuna (CIAT). Fishing activities need to be licensed. It seems that licensing is a means of monitoring fishing capacity, but not of actually managing capacity with a view to preventing overcapacity. Licences are issued for up to four years and concessions for up to 20 years, depending on the size and amortization of the investment in the vessel or industrial infrastructure. Fees have been established to offset administrative costs, and are not viewed as a royalty scheme based on the use of the resource. For instance, a 20-year licence costs about US\$ 653 plus an annual US\$ 48 for abalone, US\$ 1 for shark and US\$ 60 for clams.

Indigenous fishing communities have preferential access rights to fisheries. They do not need a licence if they use traditional gear and practices. According to the law (although not necessarily in practice) they enjoy preferential treatment for any requests they submit and must be consulted on any matter of concern to their fisheries.

In relation to foreign involvement in the fishing sector, the Mexican government encourages technical-scientific cooperation and supports foreign investment, particularly in fish processing. Mexico has not concluded any bilateral agreements on access to Mexican seas, except with Cuba. In exceptional cases,

a fishing licence can be granted to foreign vessels if they provide a certain number of jobs for Mexican workers. However, illegal fishing by vessels flying foreign flags is common because of a lack of effective surveillance.

Generally speaking, although the law provides adequate means for monitoring fishing activities, enforcement of the rules is lacking. This is partially due to a shortage of qualified personnel and equipment, but also a consequence of corruption in some cases.

An example of regionalized and participatory coastal management is the Marine Ecological Management Programme for the Gulf of California. It is based on an agreement between the federal and five coastal state governments and involves stakeholders from the industrial and artisanal fisheries sectors, environmental associations, tourism, indigenous groups and academia. The programme was established to investigate the various uses of the coast and coastal sea, with further plans to develop an integrated management scheme. The result of this study was the creation of 22 Environmental Management Units (UGAs), of which 15 border the coastline and seven are located in the ocean. Sustainable use plans have been elaborated that give guidance to the governmental agencies that are responsible for regulating and administering the units.

Based on these findings some recommendations can be made on fisheries policy in Mexico:

- The new Fisheries Law of October 2007 is comprehensive and, in parts, very precise. It establishes general principles and aims, frames an institutional structure responsible for fisheries promotion and management, allocates competences, encourages policies on promotion, provides instruments of management, emphasizes surveillance and introduces sanctions for infringements. However, the substantive criteria framing administrative action are sometimes contradictory or too general. Instruments of promotion are not specified. Powers to introduce regulatory instruments (i.e., TACs, regulation of fishing practices and instruments, effort control) are not
- expounded. Furthermore, the law does little to improve transparency and encourage participation in governmental decision making.
- The combination of competences for promotion and regulation of fisheries in the Ministry for Agriculture, Cattle Raising, Rural Development, Fisheries and Food, i.e. in one and the same administrative structure is practicable. However, it appears that the law places priority on the promotion of fisheries without ensuring that fleet capacity remains at a sustainable size. The position of the Ministry for the Environment and Natural Resources could be strengthened; whilst the Minister has some decision-making power in relation to protected areas, in the other areas the role is consultative and Ministerial consent is all that is required to take a decision.
- While the new policy makes a move towards decentralization, actual decision-making competences are not devolved to the states and municipal levels. States and municipalities are only invited to comment on and implement central government decisions.
- It is somewhat strange that standardization competences for fishing technology lie with the general standardization bodies and follow the rules set up by the Law on Metrology and Standardization. It is doubtful whether the regulations sufficiently ensure the necessary technical quality and legal rigour of standards for sustainable fisheries.
- There is still a lack in systematic monitoring of stocks, catch and landings, especially in the Mexican EEZ.
- Although some fisheries appear to be adequately controlled, in general, fisheries management tools (e.g., TACs, restrictions on fishing methods and effort) are used only haphazardly.
- Surveillance and sanctioning of infringements appear to be highly deficient. Corruption sometimes hinders appropriate control. More

importantly, although the law is adequate to control fisheries, enforcement is hindered by a lack of qualified personnel and equipment.

- It is noteworthy that the Mexican red lobster fishery is one of the first fisheries certified under the Marine Stewardship Council scheme.
- The new fisheries law moves away from the

6. European Union¹¹

The coastline of the European Union (EU) is about 68,000 km long. Its maritime area covers an EEZ of 25 million km², making it the world's largest (in part, due to its overseas territories). The jagged coastline marks a perimeter that is three times longer than that of the USA and almost twice that of Russia.

In 2005 the population of the 25 EU member states (EU-25) comprised 460 million people. The GDP at that time was about € 10,800 billion. The value of the whole production chain (i.e., fishing, aquaculture, processing and marketing) was at estimated € 20 billion, representing approximately 0.28% of the Community's gross domestic product. Total employment in the marine fisheries sector is estimated at 400,000 persons with 210,000 working as fishermen. Despite this small share, many coastal communities rely heavily on fishing as a source of employment and income. In some areas in Scotland and Spain, the fishery sector provides for more than 10% of the total jobs.

In the EU-25, total annual catch has steadily decreased from 8.1 million tonnes in 1995 to 5.3 million tonnes in 2004. According to a 2007 assessment, the percentage of fish stocks outside safe biological limits was 14% in the Arctic, 26% in the Baltic Sea, 44% in the North Sea, 30% in the Celtic Sea, and 10–20% in the Mediterranean Sea. Bluefin tuna stocks both in the Atlantic and the Mediterranean seas were identified as near to collapse. In general, overfishing hits demersal and benthic fish harder than

traditional top-down management approach, and now provides for stakeholder participation. The effects of this policy are visible in CONAPESCA, the advisory body on fisheries, which provides for the participation of fishers and the fishing industry. Despite this positive first step, currently, environmental and artisanal interests are not sufficiently represented in administrative structures.

pelagic fish. Fish stocks are also under pressure from multi-source introduction of toxic and nutrient substances, invasive species, and climate change.

High demand for fish has caused the EU fleet to target the EEZs of southern countries, and fish imports from other countries are constantly increasing.

Public opinion on fisheries issues is split in the EU. Concerns about overfishing are constantly aired in the press. The allegation that TACs set by the Council of Fisheries Ministers are unsustainable is widespread; as is the complaint that EU fleets, after having overexploited EU seas, now target the EEZs of other countries. Environmental NGOs have been successful in keeping this topic alive. However, public education has done little to change the actual consumption patterns of EU consumers. Members of the fishing industry still tend to believe that they can better judge the state of fish stocks than scientists and policy makers. In recent years, however, the food industry has shown greater interest in strengthening stock preservation strategies to guarantee long-term supply.

The total fleet size of the 25 EU member states is about 87,000 vessels. Fleet size varies across member states; the fleets in Greece, Portugal, Italy and Finland are typically small-scale, mixed in France and Spain, and large in Belgium and the Netherlands. Some coastal states, such as Germany, have largely given up offshore fisheries and substantially reduced inshore fisheries.

11 Summary of Markus, T., 'Promotion and Management of Marine Fisheries in the European Union', available <http://www.incofish.org/Workpackages/WP10/WP10ObjDelMiles.php?WP=Legal%20instruments>. See also the abbreviated version in this volume. For a general but partially outdated analysis of the EU fisheries law, see Holden, M. (1994). *The Common Fisheries Policy. Origin, Evaluation and Future*. Oxford, UK: Blackwell.

The EU is an international organization operating through the European Community (EC) and its institutions. The EC is a quasi-federation with considerable supranational powers to legislate and administer with direct effect on EU citizens.¹² Legislation on fisheries is an exclusive competence of the EC. Therefore, almost all fisheries legislation consists of EC legal acts. The same is true for most of the executive rule making.

Primary legislation on fisheries is made by the Council, which acts on a proposal of the Commission and after consultation with the European Parliament. Executive rule making and decisions on routine matters are delegated to the Commission, which is assisted by committees comprised of government representatives of the member states. The more important executive rules (such as the regulation of TACs, licensing, effort and technology) are reserved for the Council acting on a Commission proposal. Consultative bodies representing commercial, consumer, scientific and environmental stakeholders, called the Consultative Committee on Fisheries and Aquaculture (ACFA) and Regional Advisory Councils, also have influence on EC policy making. In fact, the decision-making structure of EC fisheries policy is largely determined by the Council which represents the interests of the member states; the institutions representing the genuine European interest in preserving the European common fish stock (European Commission and the European Parliament) only play a secondary role.

Matters left open by EC legislation and executive rule making, such as the breaking down of the national catch quotas into individual fishing rights, are regulated by the member states. The member states are also responsible for dealing with individual cases, such as the granting of permits and the surveillance of fisheries. The Commission, however, has supervisory powers over the member states. It can order them to take remedial action, and impose sanctions if they violate the assigned allowable catch quota by reducing future

quota and stopping subsidies. Thus, the Commission's powers in fisheries matters are considerably greater than those instituted under the regular infringement procedure, which involves complicated proceedings before the European Court of Justice.

When collecting and assessing information on the implementation of EC fisheries legislation, the Commission and member states are assisted by the Community Fisheries Control Agency.

In spite of the far-reaching EC powers over fisheries matters, the management of coastal zones was re-delegated to the member states within the framework of the existing EC legislation. Subject to existing Community measures, the member states are entitled to introduce catch restrictions in these areas, and may reserve the territorial sea for artisanal fisheries fishing from ports of the adjacent coast. However, coastal states are not allowed to favour their own nationals, as this would breach the principles of equal treatment of all EU citizens and of their free access to all Community waters.

Fish resources have no specific status under the European constitution. They nevertheless belong to the sphere of public interest. This means that legislation aimed at the protection of this resource which encroaches upon the constitutional right to property and free enterprise can be justified. Moreover, EC institutions are not only empowered, but are required, to protect fish resources and fashion fisheries legislation accordingly.

The main legal instrument on fisheries is the EC regulation of 2002 (Regulation 2371/02). It is a comprehensive codification of EC fisheries management tools and also addresses fisheries promotion. The act purports to mark a turning point in the EU's Common Fisheries Policy (CFP), moving away from catch increases to more sustainable policies.

12 The European Union is an international organization founded on the European Communities (European Community (EC) and EURATOM) giving them strategic guidance and taking joint action in the areas of foreign and security policies and police and judicial cooperation in criminal matters. The powers of the EU are intergovernmental but not supranational in nature. According to one controversial view, it does not possess international legal personality. The EC although consisting of the same members and largely having the same organs as the EU is an international organization disposing of supranational powers and having international legal personality. Regarding terminology, the acronym EU is used to characterize the whole of the integrated Europe. If legal acts and international treaties are involved the actor is the EC, not the EU, and must be named as such.

The earlier approach to fisheries promotion was to subsidize the purchase of vessels and gear to build up a larger and more efficient fleet. In addition, the market was organized to ensure that any catch surplus was bought up by states at a guaranteed “withdrawal price”. The catch withdrawn from the food market was used for feedstuff and other purposes, which helped to stabilize the price of fish for human consumption. This promotional system led to an increase in fishing capacity and actual catch, resulting in overfishing. Over the years, and particularly since 2002, promotional instruments have shifted towards reducing fishing capacity, e.g., by ending subsidies for new vessels, redirecting other subsidies for the purchase of sustainable gear, and offering fishermen assistance for early retirement, permanent withdrawal from fishing, and retraining.

The changes to the fisheries promotion regime, however, have been relatively unsuccessful. As yet, fishing capacity has not been significantly reduced. One reason for the lack of success is that the cutbacks to the number of vessels were superseded by increases in the efficiency of vessels and gear. Furthermore, some member states also insisted on maintaining national subsidy schemes (e.g., fuel subsidies). Fishermen have also developed ways to take advantage of loopholes in the law on capacity management.

The EC has instituted the full range of fisheries management measures, including TACs, individual quotas, effort limitations, technical restrictions, and capacity control. Particularly important in this regard are TACs, which are fixed annually by the Council. These limits are established for specific areas and fish species based on recommendations from ICES, a proposal from the Commission, and comments from advisory bodies and the public. The overall TAC is then allocated to member states based on a grandfathering scheme, which significantly favours traditional fishing countries like Spain and France. The member states break down their national quota into individual quotas and allocate them to fishermen. This is also often done on the basis of how quotas were allocated in the past. In some member states, individual quotas are tradable, and it is now being debated whether tradability should be introduced as an EC-wide obligatory concept.

Although the Fisheries Regulation requires that the Council consider scientific advice and take a precautionary approach when setting TACs, this has often not been respected in practice. In 2007, for instance, only 29 out of 126 TACs were based on full assessment and forecasting. The Council often gives priority to economic concerns over fish resource preservation. Another flaw of the system is that there is little incentive to reduce the catch below TAC levels. For instance, ‘quota hopping’ allows foreign fishermen to apply for individual quotas in other member states, which might otherwise not be used. While this accords with the EC principles of free movement of workers and freedom of services and establishment, it is detrimental to the survival of the resource. A third problem is that quotas tend to encourage a ‘race to fish’ and discards of under-sized fish.

Effort limitations have been introduced for specific marine areas, such as the Western Waters, the Irish Box and the Baltic Sea. ‘Effort’ is defined as the product of the capacity and activity of a vessel. Total allowable effort refers to the established overall quota that is set for a given area. This overall quota further breaks down into individual effort quotas, expressed in a particular vessel’s allowed days at sea. Like TACs, due to political pressure, effort limitations have been set at unsustainable levels. They have also been difficult to monitor because, for instance, engine power can be manipulated.

EC law requires that fishing vessels be licensed. The licence certifies that the vessel fulfils certain technical requirements, has a certain capacity and can be used for catching certain fish species. It does not specify gear, effort and catch restrictions, which are controlled by separate instruments. Special fishing licences must be obtained for fishing in non-EU countries. They are granted depending on whether a bilateral fishing agreement has been concluded between the EC and the third country.

The EC has introduced a broad array of technical measures on fishing gear, zones and periods of allowed fishing, and minimum sizes of individual fish species, which are based on the Fisheries Regulation but specified by executive rules. The regional seas are each addressed by a specific set of measures contained in an

area-specific Council regulation. The regulations are frequently amended in response to changing conditions. For instance, the regulation on the North-East Atlantic and North Sea has already been revised 95 times. This regulation sets out bans of certain nets, minimum mesh sizes for nets in specified fisheries, an allowed ratio of target and non-target species, minimum sizes of fish allowed to be caught, obligations to return undersized fish into the seas, and no-take zones and periods for certain fish species. Certain techniques are generally prohibited, such as the use of explosives and poison, and beam trawls longer than 24 m.

Technical measures are generally ineffective. For instance, mesh sizes are considered to be too small (120 mm for cod as compared to 165–179 mm in the USA) and infringements are easily concealed from controls.

In summary, EC management measures could be tightened by instituting recovery plans for overexploited stocks, and management plans for stocks in danger of surpassing safe biological limits. Such plans are meant to allow for step-wise action within a multi-annual perspective. However, as the Council has retained the responsibility for approving the plans, the decision making is still highly politicized and thus influenced by concerns other than the sustainable use of fish resources. In addition to recovery and management areas, marine protected areas for the protection of rare species and habitats, the so-called Natura 2000 network, have been established based on nature protection legislation. Although framed by EC law, the designation and management of Natura 2000 sites is largely a competence of the member states. This creates friction with the EC's exclusive fisheries competence. It is a matter of controversy whether the member states can restrict fishing in the Natura 2000 sites, or whether the EC has exclusive competence to manage fisheries even within these areas.

The Fisheries Regulation and other executive rules also address enforcement issues. Member states are to ensure compliance with the law. A vessel monitoring system (VMS) was installed to track vessels on their fishing routes. Vessels exceeding 15 m length must carry appropriate technical equipment for satellite reporting. VMS, however, cannot monitor the type and quantity

of the catch. Spot inspections are therefore essential. Compulsory reporting is an additional tool to secure compliance. Each vessel over 10 m must report effective catches in the logbook and (where applicable) effort spent. Data are collected in the Catch Registration System, which serves to control the observance of the catch quota. In order to prevent cheating with catch reporting, the landing of the catch is also monitored. Fishermen must submit landing declarations to the competent authorities at the place of landing. To prevent collusion between sellers and buyers, the buyer must record purchases in sales notes and take-over notes. Fish that is not sold in the port of landing but transported elsewhere must be recorded in a transport document. All information collected on sales, take-over and transport is to be submitted to the competent national authorities.

EU law only generally addresses the issue of the transshipment of fish in the EU's EEZ and national legislation in this area is also lacking, creating an obvious gap in the regulatory regime for catch control.

The member states exercise flag-state control over fishing by Community vessels in third-country waters through licensing schemes, as described above, and by recording requirements concerning catch, landings in EC or third-country ports, and transshipment. To a certain extent the international Regional Fisheries Commissions have adopted TACs for high-seas areas under their jurisdiction; the EC also fixes TACs for high-seas fishing vessels flying EC member state flags.

The EU grants catch quotas for non-EU countries only to Norway, Iceland and the Faeroe Islands. Vessels flying these flags must obtain a fishing licence and record their catch.

EC fisheries law is applicable both in the territorial seas and the EEZs of member states. The coastal state has retained powers to manage fisheries in its territorial sea, within the framework of EC law. However, only very little room remains for such measures. One example of this is the crab fishery. As the EC does not set TACs for crab, the member states are free to legislate in this area. The management approach taken by national governments has been to allow local fishermen to self-regulate.

Assessing the law and practice of EU fisheries promotion and management, the following conclusions can be drawn:

- The quality of EC fisheries legislation is high. The EC has an exclusive competence in fisheries matters and clearly delimits which competences remain for the member states. There is a basic fisheries code, which establishes the relevant principles, instruments, procedures and institutional structures. However, the definition of the most important principle to apply to fisheries – the sustainable use of resources – is inadequate. Rather than setting fixed limits that correspond to reproductive levels, it adopts the ‘three pillars approach’, which seeks to balance competing economic, social and resource interests.
- The EC is an example of unsustainable promotion of fisheries, but it presents a case study on how to reorient failing promotional policies. In the early years, the EC heavily subsidized the building up of its fleet. Since 2000, however, subsidies have been reduced and redirected towards the sustainable use of resources. This change of policy has been modestly successful, however much more must be done to reduce fishing capacity.
- Promotion and management responsibilities in the EU are divided amongst numerous political and administrative bodies: the EC Council of Fisheries Ministers, the General Directorate of Fisheries and Maritime Affairs of the EC Commission, the Committee on Fisheries of the European Parliament, and the national fisheries ministries. This means that there is a chance of adapting economic interests to sustainable use of resources. In practice, however, politicized bodies like the Council and the EP Committee have the ultimate authority, and they tend to favour economic interests. Therefore, the depoliticization of fisheries management is one option for reform. This could be achieved by giving the Commission or a relatively independent regulatory agency more decision-making powers. More easily available (and less liable to technocratic failure) is the option to open Council decisions to action brought by NGOs before the EC courts and thus measure the Council decisions against the substantive criteria of fisheries management.
- The fisheries management instruments that have been instituted by the EC and its member states are both comprehensive in scope and sufficiently precise. Such instruments include TAC systems, licensing schemes, effort limitations and technical measures. However, some important aspects of these measures, such as mesh sizes and bycatch, are still flawed. Even more deplorable is the practice of setting unsustainable TACs. It is suggested that the fixing of TACs should be more strictly bound to the precautionary principle and scientific criteria.
- EC law is also exemplary in its commitment to ensuring compliance. It has established a very sophisticated system of reporting on catch and landings. There are still issues with implementation and enforcement, but not at a level undermining the appropriateness of the instruments themselves.
- EC flag state control of (EC) vessels operating in the high seas and in the EEZs of southern countries is weak in many respects.

III. A Legal Clinic for Fisheries

In the case studies summarized above, the analysis and conclusions were varied. The methodology employed to develop the legal clinic shall now be systematically laid out. This will be done (1) by summarizing the key

steps to be taken and topics to be covered, and (2) by elaborating on the topics covered by developing rules of good practice in fisheries management.

1. The methodology of a legal clinic

(1) *Symptom analysis*

As a first step, the state of fisheries must be analyzed with a view to identifying potential overfishing, including:

- Development of stocks;
- Development of catch;
- Development of catch per unit;
- Development of fishing capacity; and
- Development of relevant ecosystems.

(2) *Checklist of potential managerial failure*

The ensuing legal analysis should have the following topics in mind:

- Is the law taken seriously or does it only have symbolic value?
 - Are the binding rules of international fisheries law transposed and applicable in the given country?
 - Does the constitution contain rules relevant for fisheries, such as obligations on environmental protection, sustainable use of natural resources, and precaution? How are these duties balanced by the rights of free enterprise and property protection?
 - What is the formal quality of the relevant laws?
 - Is there a specific law on fisheries?
 - Is the legal language precise and in line with general legal doctrine?
 - Does the law cover all necessary elements of fisheries management, i.e., does it set out:
 - instruments of promotion (if any);
 - instruments of management;
 - structures and competences of institutions;
 - delegation of powers for specified purposes;
 - requirements of transparency and participation;
 - powers to investigate and monitor;
 - definition of infringements and sanctions; and
 - access to courts for affected parties and NGOs?
 - Was the law properly promulgated and disseminated?
 - Is the law's relationship (hierarchy, *lex specialis*) with other laws unambiguous?
 - Is the law compatible with constitutional requirements?
 - Is the law compatible with principles of international law? If not, with what effect?
 - What is the formal quality and content of any sublegal norms?
 - Are they based on and consistent with higher-ranking law?
 - Are they compatible with other sublegal norms?
 - Are they appropriately promulgated and disseminated?
 - Do they impose sanctions for infringements?
- What material standards guide the application of fisheries management instruments?
 - Are fish resources defined as a common good?
 - How is the sustainable use of fish resources defined?
 - Are ecosystem effects to be considered?
 - Is the precautionary principle to be applied?
 - Do measures have to be based on best available scientific knowledge?

- How are the responsible institutions shaped?
 - Is the allocation of competences to legislate and administer between the different levels of government clearly defined? Are overlaps excluded?
 - Is the environment ministry involved in decision making on fisheries management?
 - Does the law provide for participation of fishermen's associations and environmental NGOs?
 - Have self-regulatory structures been established?
 - Is transparency of decision making ensured?
- Is distributional justice ensured? For instance:
 - Are inshore areas reserved for artisanal fishing?
 - Is fishing in the EEZ 'nationalized' (e.g., by imposing landing and processing requirements or reserving the EEZ to the national fleet)?
 - Are quota for individual effort and catch allocated according to fair criteria? Is tradability of quota qualified by distributional conditions?
- What informational resources are provided? What about:
 - research on stocks and ecosystems?
 - monitoring of catch in the territorial sea and EEZ, of landings, of transshipments, and of fishing by foreigners?
 - monitoring of fishing capacity (vessels, gear)?
 - data banks?
 - access of stakeholders and the public to fisheries-related information?
- What promotional measures are taken?
 - In the case of undercapacity: Are promotion policies in line with sustainable catch limits?
 - In the case of overcapacity: Are promotion policies reoriented towards reducing capacity (phasing out subsidies, early retirement, retraining)?
- What management tools are applied? What about:
 - Catch limitation: scientific basis and precaution, link to safe biological limits, criteria of allocation of catch quotas/individual quotas;
 - Effort limitation: interrelation with catch limitation, link to safe biological limits;
 - Technical measures: prohibition of destructive methods, selectivity of nets, reduction of bycatch, etc.;
 - Marine protected areas (pollution prevention, nature protection, recovery and special management zones);
 - Time and area limitations protecting spawning and nursery; and
 - Organization: bottom-up in the coastal zone, participatory top-down in the EEZ and high seas?
- How effective are the surveillance and enforcement mechanisms?
 - Does the surveillance cover the strategic topics (catch, bycatch, landing, transshipment, foreign catch)?
 - Do fishermen, buyers and port authorities have recording duties? Are they necessary, reliable and cost-effective?
 - What safeguards are in place against corruption?
 - How qualified is the inspection personnel? What technical equipment is available?
 - Are legal remedies available for:
 - affected parties?
 - public interest groups?
- Is there flag state control over fisheries in the high seas and foreign EEZs, e.g.,
 - participation in regional fisheries commissions;
 - licensing of vessels;
 - catch limitations;
 - control of landings; and
 - vessel monitoring systems?
- Is there port state control of landings from vessels flying foreign flags and fishing in high seas and foreign EEZs?

2. Rules of good practice in fisheries management

Based on the in-depth study of different cases, more general observations can be made on the relationship between different management approaches and fishing behaviours and thus the condition of fish resources in different areas. While these observations cannot claim to provide tested hypotheses that reveal the correlations between management measures and their effects, they can nonetheless be framed as rules of best practices in sustainable management. I will sketch out 12 of them, although more could easily be imagined.

(1) On the role of law: “Take the law seriously; create cultural, institutional and economic conditions for its implementation”

It is a truism but nevertheless to be stressed that effective management not only requires good laws, but also societal conditions that support implementation. The infrastructure that underpins implementation of laws is comprised of cultural, administrative and economic elements, which will be described further below.

Firstly, it is important to know if in a given country there is a culture of taking the law seriously. Where the law is not appreciated as the outcome of a legitimized democratic procedure but rather understood as a mere command of ‘the state’, people will attempt to circumvent it. Where the law is regarded as a mere symbol, it will be ignored and remain ineffectual. Even worse, it might even serve to disguise governmental mismanagement and to excuse inaction. In a bargaining culture, the law can function as a bargaining chip allowing, for instance, the purchase of catch quota for a bribe but will ultimately lead to the collapse of the resource.

Secondly, as fisheries management heavily relies on implementation by administrative bodies, adequate administrative capacity must be available. Where there is insufficient political will to provide qualified and adequately remunerated personnel as well as state-of-the-art equipment, the law will be a paper tiger and become obsolete.

Finally, and probably most importantly, much of the law’s application in practice depends on the economic circumstances of its addressees. If there is overcapacity of vessels and employment, the fisheries sector will use all of its means to secure or even expand catch activities. Industry members will make covert or open attempts to influence scientists when they assess stocks, politicians when they take restrictive decisions, and administrators when they enforce the law. As overcapacity is often a result of incoherent promotional policies, the answer lies in the adjustment of promotional policies – a question to be addressed later on.

In addition to overcapacity, high fishing pressure also results from an overdemand for fish. High demand, especially from industrialized countries, is a powerful incentive for unsustainable fishing. The crucial question is how to alter the use of fish. As a first step, fish must be considered a high-level product reserved for food; the use as a low-level product for animal feed must be phased out. This would reduce market demand, and discourage overfishing. Moreover, we need to recast the popular notion of the egocentric consumer as an ‘enlightened consumer’, i.e., one who buys fish not only because of taste and price but also according to ecological criteria.

Information on legal culture, administrative infrastructure, and fishing pressure allow for a preliminary assessment of whether a given country ought to focus on reforming the law itself, or instead work on strategies to improve the conditions of its implementation.

(2) On adherence to international law: “Ensure national respect for the rules of international law”

International law provides a wealth of rules relevant to fisheries management.¹³ On one hand, these rules delineate the areas and scope of exclusive rights of coastal states (i.e., the territorial sea, exclusive economic zone and continental shelf) as well as areas of free access

13 For an innovative elaboration of the international law requirements for fisheries see Markowski, M., ‘Allocation and management of fisheries resources: an in-depth legal analysis of instruments in comparative perspective’, available at <http://www.incofish.org/Workpackages/WP10/WP10ObjDelMiles.php?WP=Legal%20instruments>. See also the abbreviated version of the study (‘The international legal standard

(i.e., the high seas). On the other hand, for fisheries located in the EEZs and high seas they require that states take measures, 'taking account of the best scientific evidence available', 'to maintain or restore populations of harvested species at levels which can produce the maximum sustainable yield, as qualified by relevant environmental and economic factors'.¹⁴ In doing so, states must apply the precautionary approach, which, if not yet a rule of international customary law, has force as a general principle of international law¹⁵ within the meaning of Art. 38(1)(c) of the ICJ Statute.¹⁶ In addition, international commissions set up by regional agreements on the basis of Articles 63, 64 and 118 of UNCLOS may agree on total allowable catch and fishing techniques for the high seas or EEZ and develop regulatory regimes for migratory and straddling species.

The relationship between national law and international law is important to fisheries management.¹⁷ International provisions have more national impact in countries that adopt the 'monist' concept, which makes international law directly applicable by national authorities where national law leaves a matter unregulated. Under the monist view, international law might even rank higher than national law, setting aside any national law that is incompatible with international requirements.¹⁸ For instance, if under national law the Fisheries Act does not regulate the inspection of vessels flying foreign flags, inspectors' powers can be based on the relevant provisions of the Straddling Stocks Agreement.¹⁹ The master of the ship could not oppose the boarding of an inspector on the ground that there is no legal basis for an inspection, and inspectors could not use this argument as an excuse for inaction.

By contrast, states adopting the 'dualist' concept require that international law is incorporated into national law by an express national legal act before it

comes into force. This is a rejection of the direct application of international law by national authorities. However, even under this 'dualist' approach, the so-called self-executing norms of international law are directly applicable as national law. A rule of international law is self-executing when it is unconditional, precise and addressed at individuals rather than states. These same criteria are often also required as preconditions of direct application by court jurisprudence in monist states. Therefore, there is a convergence in the approach of monist and dualist states regarding the direct applicability of international rules.

In conclusion, there is an important body of directly applicable general as well as specific international standards of sustainable use. As yet, national authorities in charge of managing fisheries have barely explored this potential. This is particularly relevant to states with gaps in their national fisheries law. For instance, if the law does not provide criteria for licensing the catch of tuna, such criteria can be derived from the principles contained in the Straddling Stocks Agreement. An application for a fishing licence ought to be rejected on this ground if the stock is already overfished.

In more practical terms, the simplest way to circumvent the problem of the direct applicability of international law is to regulate the issue in the relevant national fisheries law. For instance, in relation to TACs concluded by International Fisheries Commissions for high-seas areas, a state that is party to the relevant convention may provide in its fisheries code that the TACs are directly binding on national authorities issuing individual quotas to fishing vessels. In doctrinal terms, this reference incorporates an international decision into national law.

for sustainable EEZ fisheries management') in this volume. For a historical account of international fisheries law, see Yturriaga, J.A. (1997). *The International Regime of Fisheries. From UNCLOS 1982 to the Presential Sea*. The Hague, Netherlands: Martinus Nijhoff.

14 UNCLOS Articles 61 para 2 and 119 para 1a.

15 Markowski, *supra*, note 13. In the 1995 Convention on Straddling and Highly Migratory Fish Stocks the precautionary approach was established as a provision of conventional law binding only (1) between contracting parties and (2) on straddling and migratory stocks, see Art. 5 lit. c), Art. 6 of the Fish Stocks Agreement. However, as a general principle of law, the precautionary principle goes beyond these treaty provisions, addressing all states and extending to all species. More reticent regarding the binding character of precaution, Proelß, A. (2004). *Meeresschutz im Völker- und Europarecht. Das Beispiel des Nordostatlantiks*, pp.81-84. Berlin, Germany: Duncker & Humblot.

16 On the three sources see Art. 38(1)(a)-(c) of the Statute on the International Court of Justice.

17 For a rigorous study of testing national fisheries law in relation to international standards, see Markowski, *supra*, note 13.

18 The question of rank is differently answered by different national constitutions.

19 See Art. 22 para 2: 'The duly authorized inspectors of an inspecting State shall have the authority to inspect the vessel, its licence, gear,

More difficult is the situation where national law regulates a matter but contradicts (possibly more ambitious) international standards. In this case, the direct applicability of international law (and the consequent setting aside of national law) depends on whether the national constitution assigns higher rank to international law. EC law, for instance, does so.²⁰

In general, it must be kept in mind that international law normally establishes minimum requirements, allowing states ample room to be more restrictive. Unfortunately, states often take an opposite view, regarding international law as a yardstick for maximum resource protection.

(3) *On the constitutional status of fish resources: 'Explore if the protection of resources is a constitutional obligation of the state and of citizens'*

Some national constitutions – in our case study, Brazil and Mexico – consider marine fish resources (or the seas hosting them) a patrimony, the preservation of which is a duty of the state. The constitutions of other countries, in our sample Indonesia, Namibia and the EC, regard fish resources as a common good – a different approach with a similar outcome. The legal obligation of the state to protect the patrimony or common good as set out in the constitution is so vague that it is of little practical significance. Nonetheless, such provisions may serve to guide the courts and administrative bodies in interpreting and applying the law.

Constitutions formulated at a time when environmental protection was high on the political agenda often contain the principle of sustainability. For instance, the Namibian constitution states that the sustainable use of resources should guide governmental action. The true impact of such a provision depends on how it is defined. A robust interpretation of sustainability would place a greater priority on the survival of stocks over economic and social concerns;

a weaker definition however allows for a more open balancing of the three pillars. A survey of the opinions of national courts and scholars would be necessary to determine the content of this constitutional duty.²¹

Constitutions often contain guarantees of private property and freedom of enterprise, which countervail the duty to protect resources. The status of fish resources as a common good means there is no *per se* right of individuals to claim property rights to them. The meaning of the right of free enterprise can also not be interpreted to extend to the exploitation of fish resources. This can be different if a fisherman or fishing company has established a business. To restrict fishing where rights have been vested does infringe basic rights of property and business. Nonetheless, restrictions imposed for reasons of resource protection could still be justified as long as they are proportional.

Another constitutional principle is that of the equality of persons. It requires governments to treat equal conditions equally and unequal conditions differently, provided there are not reasonable grounds for acting otherwise. For instance, in principle the equal treatment principle would be breached if a subsidies scheme was only aimed at industrial and not at artisanal fisheries as well. Inversely, it would be *prima facie* unequal treatment if the inshore areas were reserved for artisanal fishers. Such action could however be justified, for example, on the basis of the greater poverty of small fishers, or the more detrimental fishing gear of large vessels.²²

Finally, some national constitutions (e.g., Namibia and Indonesia) require the state to respect indigenous customary law. This means that a regulation that overrules customary law without justification may be unconstitutional.

In conclusion, it appears that fisheries management is still out of sync with constitutional principles. This is particularly true if national legislation contains unsustainable or discriminatory rules.

equipment, records, facilities, fish and fish products and any relevant documents necessary to verify compliance with the relevant conservation and management measures'.

20 EC Treaty Art. 300 para 7.

21 See more on this topic below.

22 For a case study see the reasoning of the court concerning the Arvoredo Biological Marine Reserve in Brazil, Figueredo, *supra*, note 9.

(4) *On the formal quality of law: ‘Design a Fisheries Code that is well-defined, conclusive and comprehensive’*

Legislation represents a distillation of political decisions. The more precise the law’s language, the more clarity for administrative bodies (what to do or what to leave), and the more certainty for the individual investing labour and capital. Administrative officials and economic stakeholders are more apt to comply with a comprehensive law that covers most issues relevant to fisheries because it will facilitate its understanding and thus enhance the willingness to comply (or the chances of successful legal recourse).

Fisheries laws often begin with statements of goals and general principles. These are not to be understood as definite rules, but instead they guide decision-making bodies in the exercise of their discretion. Although such provisions do not create legally binding obligations, it is still important that they cover the important issues and are carefully defined.

Fisheries laws often confine themselves to establishing administrative bodies and allocating competences to them. This means that they concentrate on the legal relationships within government. An extreme example in this regard is Brazil.²³ Although it is important to establish clear boundaries between the different branches of government, the laws should go further and elaborate on the legal relationships between government and the individual. The rule of law demands that the law informs citizens about their precise rights and duties.

For instance, the need to obtain a licence for a certain activity is an encroachment on individual freedoms and should therefore be introduced by parliamentary law rather than by administrative decree. Moreover, the law should specify the conditions for granting a licence and its terms. Often, the aim and criteria of the licence requirement for vessels are unclear: is licensing only a way to register the ship; or

shall it ensure that safety and gear and equipment requirements are met; or shall it control vessel size and numbers in order to limit catch quantities? If the conditions for granting the licence are not specified, administrative bodies have broad discretion, which could result in arbitrariness and corruption.

The rule of law is best served by precise laws. This will contribute to the legitimacy of fisheries management and hence the willingness of the individual fishermen to comply.

(5) *On basic rules: ‘Lay down basic rules guiding administrative action, including the sustainable use of resources, precaution, and ecosystem protection’*

When setting down principles and criteria, fisheries legislation should strive for a high level of protection of fish resources. If the law is not ambitious in this respect, one can hardly be more in regard to the implementation and enforcement of the law.

For the sake of clear terminology, principles are to be distinguished from rules. Principles are general propositions that can be weighed against opposing propositions and under certain circumstances overruled by them. By contrast, rules are conclusive and cannot be set aside by opposing propositions.²⁴ Fisheries law should include both. Principles guide the overall direction of administrative action. Rules direct administrative bodies in concrete cases, for instance, when issuing licences or introducing subordinate legislation on management measures.

A priority for Fisheries Laws is the proper phrasing of the principle or – even better – the rule of sustainable use of fish resources. There are two options for a definition of sustainability:²⁵ a weaker one which requires the balancing of ecological, economic and social interests, and a stronger one, which in principle allows for balancing, but which sets a clear upper limit if the reproduction of living organisms is endangered.

23 Ibid.

24 They may, however, be so constructed that the (unequivocal) rule commands the balancing of different interests. The weighing of principles is then incorporated into the rule. On the relevant terminology see Winter, G. (2006). ‘The Legal Nature of Environmental Principles’. In: Winter, G. (Ed.) *Multilevel Governance of Global Environmental Change*, pp.587-604, at 592. Cambridge, UK: Cambridge University Press.

25 See Winter, G. (2008). ‘A Fundament and Two Pillars. The Concept of Sustainable Development 20 Years after the Brundtland Report’. In: Bugge, H.C. and Voigt, C. (Eds) *Sustainable Development in National and International Law*. Groningen, Netherlands: Europa Law Publishing.

Many national fisheries laws that include the principle of sustainability do not define it. Commonly, the weak version of sustainability is advocated. However, effective fisheries management requires the strong version. Some laws such as the EC regulation on fisheries oscillate between these two poles. While the definition of 'sustainable exploitation' refers to the safe biological limits of stocks, the rule guiding administrative practice introduces the possibility of balancing biological limits with economic and social concerns.²⁶ This is a major flaw of the regulation; but fisheries law in other states also does not give priority to stock conservation over economic or social concerns, even though the economy and society are more flexible than fish stocks and ecosystems when it comes to finding other means of subsistence.

A second principle relevant to fisheries legislation is the precautionary principle. It helps to guide the fisheries assessment process where reliable data is lacking and modelling is undeveloped. Given the somewhat uncertain status of the precautionary approach in international and constitutional law, it is advisable that the national fisheries laws decide whether the principle shall be respected or not.

There are different options for a definition of the precautionary principle,²⁷ the minimum being that in situations of uncertainty and potentially serious harm, government should not wait for definite proof of harm.²⁸ This definition of the principle has caused ICES to introduce precautionary reference levels for biomass and fishing mortality below the critical limit reference levels.²⁹ A more ambitious phrasing would include situations where the harm is not (yet) serious, but preventative action should nevertheless be taken as a precautionary policy. In a third version, the precautionary reference level could be interpreted as a level mitigating a reduction in stocks (non-serious damage) well before collapse (serious damage).³⁰

The third most important principle is the protection of ecosystems. Fish are both a contributor to and a beneficiary of the ecosystem. This means that overfishing has side effects, transforming the ecosystem into a state unfavourable for the recovery of stocks. Even imposing a fishing moratorium does not help rebuild stock in such cases. While this is common knowledge in fish biology, ecosystem protection has not yet found its way into many national laws. National law should incorporate the principle of ecosystem protection in order to better guide stock assessments and management.

(6) *On institutions: 'Clearly delimit and integrate competences of competing administrative bodies'*

The effectiveness of fisheries management measures also depends on the structures and functions of the administrative bodies in charge of subordinate rule making, decisions in individual cases, and monitoring and surveillance. In general, tasks and structures should fit with each other. There are three dimensions to the proper allocation of competences: horizontal, diagonal and vertical.

(a) *The horizontal dimension: using and protecting the resource*

A major task of fisheries management is to integrate diverging interests, in particular, the interests of fishermen and the fishing industry, on the one hand, and resource preservation on the other. Two models of coordination are currently in use: opposition or integration. In principle, neither is preferable. Both have failed, but either could function well, if certain criteria are met.

In the 'opposition' model, two separate administrative structures with opposing political cultures are responsible for fisheries management: one

26 Consider Art. 2 para 1: 'The Common Fisheries Policy shall ensure exploitation of living aquatic resources that provides sustainable economic, environmental and social conditions'. For an interpretation of this clause in the sense of the strong version see Markus, *supra*, note 11.

27 Markowski, *supra*, note 13.

28 See definition in Art. 5 para f) of the Straddling Stocks Agreement.

29 Report of the ICES Advisory Committee on Fishery Management, Advisory Committee on the Marine Environment and Advisory Committee on Ecosystems, 2007, available at <http://www.ices.dk/products/icesadvice/2007/ICES%20ADVICE%202007%20Book%201.pdf>.

30 Unfortunately, EC Regulation No 2371/2002 in Articles 5 para 3 and 6 para 3 on recovery and management plans only refers to limits, not to precautionary reference points. This is in contradiction to the boastful promise in Art. 2 para 2 that the precautionary approach shall be applied.

body for fisheries, sometimes combined with agriculture and economic management in general; and one for environmental protection. In Brazil, for instance, the fisheries ministry (SEAP) is in charge of promoting fisheries, while sustainability is the responsibility of the environmental ministry and its agency, the IBAMA. It appears that this is not an adequate division of powers because it leads to conflicting measures. For example, the SEAP may issue plenty of fishing licences, but the IBAMA may restrict catch to levels so low that the fishing licences are effectively void. This does not mean that the opposition model could never be effective. It could be improved if the competences are properly coordinated, in particular, if mutual participation and consent in the decision making is required. For instance, the SEAP could be required to have the IBAMA's consent for its licensing policy, and the IBAMA would need the SEAP's consent for its TAC policy.

In the integration model, both the promotional and limitational functions belong to a single ministry. Ideally, the ministry's structure integrates economic and environmental priorities with a view to educating those with economic interests to adopt sustainable practices. This would presuppose that the ministry disposes of a well-equipped department or subsidiary body committed to fish stock and ecosystem monitoring and assessment. Often this is not the case. A bad example of this is the EC. The core competences in fisheries management lie with the Council of Fisheries Ministers, a body inclined to favour resource exploitation. It can act without the consent of the Council of Environmental Ministers.

The integration model can be radicalized to favour sustainable policies, if the entire responsibility for fisheries is handed over to the environment ministry. This variant would be based on a conception of fisheries as part of the marine ecosystem, and it would acknowledge the fact that fisheries ministries have largely failed at sustainable management. Thus far, this model has only been practised in relation to marine protected areas in a number of states, including Brazil and Kenya; but not in the EC, where the Council of Fisheries Ministers and the Commission claim exclusive competence for fisheries, even in relation to nature protection areas.

(b) The diagonal dimension: politics and expert administration

There are many fundamental questions of a political nature, which must be decided by institutions embedded in political debate which, in most countries, is the parliament. These include, for instance, whether fisheries should be subsidized, fish resources in the EEZ should be reserved for the country's own fleet, industrial fishing should be excluded from the coastal zone, destructive gear should be forbidden, the landing of catch should be limited to the country's own ports, levies on licences should be charged, etc.

There are, however, other issues of a technical nature that should be based on scientific findings. This is the case with all regulations directly related to the protection of the reproduction of the resource, such as the determination of TAC levels and restrictions of effort and gear. Decision making on these matters should be depoliticized, and shifted to independent bodies that are removed from short-term political interests. Once again, the EC is a bad example in this regard: the Council of Fisheries Ministers, which is in charge of setting TACs, is a highly politicized body which favours economic and social interests in fisheries over resource and ecosystem protection. The preferred approach would be to entrust the power to set TACs to an independent regulatory agency. Of course the fishing industry will exert pressure on this body to act in accordance with its interests. Special interest lobbying can degenerate into what political scientists call the 'capture of regulatory agencies'. However, a careful organization of the institution and its procedures helps draw the line between the legitimate right to be heard and illegitimate ascendancy.

(c) The vertical dimension: central and decentralized governance

In federal states, the competences for legislation and the implementation of laws must be distributed between the different levels of government. Although one might consider fisheries as a traditional responsibility of lower levels of government, the power to legislate is generally concentrated at the central level in many federal states. This is the case in Brazil, Mexico, Indonesia and (if one regards it as a federation) the EU. In these states (with the partial exception of Indonesia), executive rule making belongs to the central

government. In some states, even the administration of individual cases (e.g., issuing of licences) and surveillance activities belong to the central government

(e.g., Brazil and Mexico). This is not the case in the EU, where licensing and surveillance is the responsibility of the member states (see Table 1).

Table 1: Distribution of competences in different states

	Legislation	Subordinate rule making	Administration	Surveillance
Central government	BR, EAK, EU, MEX, NAM, RI	BR, EAK, EU, MEX, NAM, RI	BR, EAK, MEX, NAM, RI	BR, EAK, MEX, NAM, RI
State government		RI	EU, RI	BR, MEX, EU, RI

Key: BR=Brazil; EAK=Kenya; EU= European Union; MEX=Mexico; NAM=Namibia; RI=Republic of Indonesia

There is no single answer as to how competences should be divided between the different levels of government. The choice depends heavily on institutional traditions. While in principle the lower levels of government will have a better knowledge of local conditions and better access to stakeholder interests, it may nevertheless be susceptible to pressure by powerful industry stakeholders. Conversely, while the central government may be less likely to give in to local pressure, its knowledge and accessibility are limited. Central agencies in charge of fisheries should create local branches to be closer to local concerns. If local agencies are competent, they should be supervised by central agencies.

(7) *On distributional justice: ‘Support small-scale fisheries; give newcomers a chance; allow for a limited nationalization of fisheries’*

Within the limits of sustainable use of resources (in the strong sense of the term), there is some room to treat the various fisheries sectors differently. For instance, the interests of small-scale fisheries could have priority over industrial fisheries (a), new entrants to the industry may be discriminated against in favour of vested rights (b), and a state might favour certain foreign nations over others (c).

(a) *Distribution between large and small-scale fisheries*

Terminology

When addressing issues of distributional justice, precise

terminology is important. The law should precisely identify the groups it intends to target with its measures. Many terms – such as artisanal, traditional, indigenous, community-based, small-scale, large-scale, industrial, etc. - are understood differently. Therefore, legislators should choose their terminology carefully and define it accordingly.

Definitions should not be arbitrary; they must be informed by the regulatory goals. A country may decide to favour indigenous communities by freeing them from authorization requirements, as in Indonesia and Kenya. However, ‘indigenous’ should be defined. For instance, the state may only wish to grant this benefit to communities with customary structures of self-governance. As another example, the state may decide to exert tighter control over communities of artisanal fishermen who, although having settled at the coast for a long time, have remained individualized and competitive (e.g., Brazilian coastal fishermen who in general are Portuguese immigrants). By contrast, when reserving coastal areas for fishing by coastal communities, the state might choose to define the group of beneficiaries more broadly.

Reserving coastal zones for local communities

Many states have prohibited industrial fishers from fishing in their inshore seas. For instance, the competence to reserve fishing in waters up to 12 nm to ‘fishing vessels that traditionally fish in those waters from ports on the adjacent coasts’ has been re-delegated by the EU to its Member States.³¹ This appears to be

31 Art. 17(2) of Regulation 2371/02. See Markus, *supra*, note 11.

reasonable in terms of supporting local coastal economies. At the same time, this measure helps to protect the sensitive coastal ecosystems from environmentally damaging industrial fishing techniques.³² It can also be expected that local communities have greater experience, skill and social control techniques to ensure the sustainable use of resources.³³

Subsidizing small-scale fisheries

Subsidizing small-scale fisheries is another type of redistributive measure. Given the overall trend in large-scale fisheries, mainly due to gains in productivity and economies of large credits, small credit lines are important if the small fisheries sector is to be kept alive and flourishing. Such redistributive schemes can be combined with goals of resource preservation. For instance, in Kenya it was felt that economic constraints have forced fishermen into the lagoons and near shore where resources are already overexploited. This is partially because they are unable to invest in more seaworthy vessels due to the lack of credit.³⁴ A good solution was found in the Indonesian programme 'Economic Empowerment for Coastal Communities', which provides small fishermen with micro-credits via a special 'Credit Bank for Coastal Communities'.³⁵

(b) Distribution among historical participants and newcomers

Distributional justice is also a concern in matters of allocation and transferability of individual fishing rights.

A country establishing total allowable catch may decide to grant free fishing rights until the TAC is exhausted. This 'first come first served' approach initiates a race to fish and advantages larger vessels over smaller ones.³⁶ Therefore, the allocation of individual

fishing rights is a more just solution. To achieve this, different criteria can be applied.³⁷

In many systems, historical fishing is one criterion. 'Grandfathering' however excludes new entrants to the industry. It also creates inefficiency because, depending on the fish stock, the individual quota may be too small for a shipowner to use his or her vessel profitably. Thus, the vessel remains in the harbour unused for long periods of time but still creates costs.

In order to reduce inefficiencies, some countries allow individual quotas (IQs) to be transferred. This is the approach taken in the Netherlands, but also informally in other EU Member States.³⁸ As a consequence, after a short time larger companies will have bought up most of the individual tradable quota (ITQ) from smaller shipowners.³⁹

Benchmarking, allocating IQs according to certain material criteria, is a preferable system. A certain share of IQs may be reserved in this system for small-scale fisheries that are capable of operating profitably. Other criteria may be related to the environmental performance of vessels and gear.

(c) Distribution among nations

The issue of how fish resources should be allocated among states could also raise questions of distributional justice. UNCLOS has set standards for the different maritime areas: resources in the territorial sea are under the full sovereignty of the coastal states; resources in the EEZ also belong to the coastal state unless the coastal state is not capable of exploiting them (in which case it must allow access to third states);⁴⁰ resources in the high seas are free for all. However, almost all high-seas areas are now subject to a regional fisheries organization that sets TACs and allocates them to

32 Cf. Reason (14) of Regulation 2371/02. Markus, *ibid.*

33 Collet, S. (1998). 'The Communitarisation of Coastal Resources or the Common Ownership of Fish Resources in Europe: the Future for Coastal Fishing Societies in 2002'. In: Symes, D. (Ed.) *Property Rights and Regulatory Systems in Fisheries*, pp.165-174. Oxford, UK: Blackwell.

34 Kamau et al., *supra*, note 6.

35 Laode, *supra*, note 5.

36 See on basic differences between open access and a rights-based approach the contributions in Shotton, R. (2000). (Ed.) *Use of Property Rights in Fisheries Management*. FAO Fisheries Technical Papers 404/1 and 2. Rome, Italy: FAO.

37 For an overview see OECD. (2006). *Using Market Mechanisms to Manage Fisheries*, pp.73-75. Paris, France: OECD.

38 Commission Communication Com (2007) 73 final on rights-based management tools in fisheries, pp.3-4; see Markus *ibid.*

39 In Peru, for instance, inefficiency remains even with ITQs. The right to receive an ITQ is conditional on a shipowner owning a vessel and keeping it ready to operate. It is not essential that he actually uses the vessel for fishing. He may sell the quota every year. However, keeping the vessel operative is costly. These costs are wasted because the vessel is not used for fishing.

40 See on the precise meaning of this obligation Markowski, *supra*, note 13.

fishing nations. These are mostly based on criteria of historical fishing.

A problem occurs in federal systems with several states bordering the sea: shall the state be allowed to reserve their territorial seas and even their EEZs for their inner-state shipowners, or shall fishing be federalized in the sense that every citizen is entitled to fish everywhere. In the EU, any EU citizen (natural person or legal person registered in the EU) is entitled to fish in all EU waters (territorial seas and EEZs inclusive) with two exceptions.

The first exception relates to the TAC scheme. Under this process, the first step is to break down the TAC into national quotas allocated to the Member States. This is done according to the principle of 'relative stability', which means that the member states receive the same percentage of the overall TAC every year.⁴¹ The stocks for which TACs are adopted are not necessarily located in the territorial sea or EEZ of the Member State which receives the quota. In the second step, the Member State quota is (re)distributed to individual fishermen. Only nationals are entitled to receive quota from their Member State.

In effect, the *per se* geographical 'nationality' is replaced by a (transitory) Europeanization and subsequent nationalization. In this author's opinion, the underlying concept of relative stability breaches considerations of distributional justice. For example, is it just that Spain and France continue to keep a greater share of EU fish resources, even though other Member States also desire a share? Why are these scarce and valuable resources still allocated for free? Why should privileged states not pay royalties for their exploitation rights?

The second exception concerns the territorial sea. As already stated, the competences to manage fisheries within the 12 nm limit were re-delegated to the member states. This implies a certain degree of re-nationalization. When issuing coastal fishing licences, member states may not openly exclude the nationals of other EU Member States, as this would be in breach of the principle of non-discrimination of EU citizens.

Nonetheless, coastal states may reserve coastal fishing for vessels located in their coastal harbours. This is a disadvantage to foreigners, but one that is tolerated because such indirect discrimination is justified in order to preserve the character of artisanal local fisheries. It is submitted that this solution is defensible in terms of distributional justice.

(8) *On research and monitoring: 'Establish independent research on stocks and ecosystems, separate stock assessment and decision making from management, provide for socio-legal research to support decision making'*

Knowledge about stocks and ecosystems is crucial for adequate fisheries management. Where coastal areas are reserved for indigenous fishing, knowledge passed down on traditional methods of observation may suffice. In all other cases, systematic scientific research is indispensable; this would include genuine investigation (e.g., representative sampling) and catch monitoring by keeping accurate and up-to-date records (e.g., logbooks, landing records, on-board observers, etc.).

Available data collected on fisheries are condensed into stock assessments. Although there is a plethora of literature on the methodology of stock assessment, administrative guidance papers summarising the state of the art are still widely unavailable. It is submitted that risk assessors should compile the existing methodological knowledge into administrative guidelines. This could also provide an opportunity to propose solutions on the controversial question of how to integrate the ecosystem approach into stock assessment.

Both research and stock assessment must be organized independently of any interference by politicians or private stakeholders. In risk analysis, assessment of the impact of fishing on an ecosystem and fish stocks should be separate from decision making on management measures. Also in terms of substantive criteria, research and stock assessment should be scientific and exclude considerations of the socio-economic effects of measures; these belong to the realm of management decision making.

⁴¹ Relative stability is based on the initial bargaining over MS shares in fish resources that took place in the year of Spain and Portugal's accession.

Socio-economic considerations are not exclusively value-laden and thus 'political'. They contain aspects that can be explored by social or economic scientific study. For example, one management option may be to improve enforcement of IQs by inspecting catch landings in ports. An empirical sociological study may provide information on the probability of inspectors becoming corrupt, which could help to eliminate such conditions. If a subsidy scheme is introduced for decommissioning vessels, an economic study may predict the risk of creating overcapacity and recommend measures to avoid this result. One recommendation is that fisheries research institutions consider appointing a team of social scientists in addition to their personnel of natural scientists.

(9) *On promotional measures: 'Link subsidies to maximum sustainable yield; consider laying a charge on fish catch if resources are scarce'*

Measures promoting fisheries are manifold. Two types shall be discussed here: (a) subsidies, and (b) royalty policies. We will not look at infrastructure such as the education of fishermen, harbour facilities, storage space and means of transportation.

(a) *Subsidies*

Subsidies are commonly defined as payments or tax deductions granted by the state to private parties for purposes of the public interest. They vary greatly and include funds directed at any of the following purposes:

- Capital costs for the purchase or modernization of vessels or gear;
- Variable costs such as energy consumption, the operation of the vessel, and the transportation of catch;
- Income in cases of unemployment, early retirement, re-education, temporary cessation of fishing, and compensation for fishing restrictions;

- As compensation and thus an incentive for the reduction of capacity by the scrapping or transfer of vessels; and
- As a support of prices of fish, e.g., payments for the withdrawal of fish from the market.⁴²

The following section will concentrate on subsidies for capital costs of vessels.

Coastal states possessing underexploited resources have often strived for building up a national fishing fleet in order to exploit their territorial seas and EEZs for their own benefit. This is permissible under international law,⁴³ and reasonable in political and economic terms. For states with small EEZs, however, it may be more profitable to grant access to third states in exchange for a share in the financial benefit.

Many states have enacted subsidy schemes in order to support the build-up of a national fleet. The example of Namibia, however, shows that state support is not always necessary. In that country, a national fleet grew up by itself without significant public subsidies.⁴⁴ However, if a state decides to set up a subsidy programme, it must be aware of the risk that it will build up fishing overcapacity. Apart from the fact that this would be a waste of public money, overcapacity creates political pressure exerted by shipowners to continue fishing allowances. It is difficult to counteract such pressure by imposing stringent management measures. Therefore, it is crucial to tie up subsidy programmes with capacity limitation.

The EC example shows how overcapacity was first built up and subsequently tackled by capacity-reducing measures.⁴⁵

In the 1970s and early 1980s, the EC allowed the Member States to grant subsidies for the purchase and improvement of fishing vessels and gear. It also provided subsidies from its own budget for the same

42 Cf. Markus, *supra*, note 11. On a general analysis of the variants of subsidies and their effects see OECD. (2006). *Financial Support to Fisheries. Implications for Sustainable Development*. Paris, France: OECD. The aspect stressed here – subsidies as a cause of overfishing – is surprisingly barely addressed in this otherwise comprehensive report.

43 UNCLOS Article 62. See for a precise interpretation of the surplus rule contained in this provision Markowski, *supra*, note 13.

44 Rukoro, *supra*, note 7.

45 Markus, *supra*, note 11.

purpose. This led to fishing overcapacity. Although the law provided that the building up of national fleets should remain within the limit of maximum sustainable yield, this was not taken seriously in practice.

In the late 1980s and early 1990s, subsidies were adjusted to avoid further enlargement, and even to encourage fleets to shrink in size. The EC developed multi-annual programmes directed at keeping capacity in line with fishing potential. Subsidies for new vessels were made conditional on the decommissioning of old vessels of corresponding capacity. Subsidies were also paid to scrap vessels or transfer them to third states, as well as for the temporary cessation of fishing. They were flanked by subsidies for early retirement of fishermen and re-education for other employment. In effect, however, these measures did not lead to a significantly decreased fleet. A decrease in the number of vessels, however, was often offset by gains in catch capacity resulting from more effective engines and gear. Another consequence of this policy was that the subsidized transfer of vessels to third countries caused overfishing in their EEZs and territorial seas due to insufficient surveillance.

In response to this failure the EC attempted a third approach in the first decade of the new millennium. Aid for constructing vessels was phased out; and support for modernizing fishing vessels was only granted for improvements in safety, working conditions, hygiene and product quality, and only on the condition that such aid did not increase catch capacity. Additional support was granted to vessel owners who were affected by restrictions in connection with fish recovery plans. Funds for the transfer of vessels to third countries were also phased out. Whether this redirection of funds will achieve its aims remains to be seen.

In summary, the example of the EC shows that if subsidies are available, a fleet is quickly built up, but that getting rid of this extra capacity is highly complicated in the long term.

(b) Royalty policies

Many countries levy fees for fishing licences. However, in most cases the fee is calculated to cover the administrative costs of fisheries management. Some countries, such as Namibia and Indonesia, charge levies that correspond to a share of the economic benefit gained by the fishermen.⁴⁶ Even then, however, the amount is so small that it could not be equated with a royalty. This needs to be critically appraised.

The private use of natural resources is commonly free, as long as the resource has not become scarce or the individual use is small. 'Free' resources include, for instance, breathing air, cultivating land, collecting fruits on public lands, and bathing in public waters. By contrast, the exploitation of mineral resources is normally subject to the payment of royalties. This is because the scarcity of the resource increases its value; and under such circumstances it would be unjust to privatize the resource, instead of drawing on it in the public interest.

The practice of free fishing goes back to times when the resource was not yet scarce. Fishing was treated like all other uses of commons. As fish became scarcer and their economic value increased, the free allocation of exploitation rights equals a privatization of public value free of charge. This may be justified on the basis that fish are consumed by many people and thus, in a way, by the public as a whole. However, this hidden subsidy disguises the scarcity of the product, making it cheaper than it should be – so cheap that fish are even used for fish meal for the production of allegedly higher-value goods such as pork and farmed fish.

Very few states have introduced royalty payments for fishing rights. The closest scheme to this is found in those states which require payments at a level that helps finance the administrative management of fisheries. This is the case in Namibia. It is recommended that where the stock is scarce, the fishing industry should pay royalties. This would generate income for

⁴⁶ Rukoro, *supra*, note 7; and Laode, *supra*, note 5. For a more differentiated account of fee and levy regulation in different countries see Markowski, *supra*, note 13..

stock conservation and redistribution; and at the same time the consumer price would reflect the true costs. Of course, for reasons of distributional justice, small fishers could be exempted from royalty payments.

(10) *On management instruments: 'Fix total allowable catch, prohibit unselective fishing techniques, restrict fishing effort according to fish stock potential'*

As long as fishing capacity and effort remain low, and catch within the safe biological limits of stocks, there is no need for fisheries management. However, fisheries of this kind rarely exist any more. Marine fish resources have become scarce almost everywhere, and in response, different forms of fisheries management instruments have been introduced.

Management instruments can be categorized into catch limitation and effort control. Both shall be discussed in turn.

(a) *Catch limitation*

The instruments of catch limitation are:

- The determination of total allowable catch (TAC);
- The allocation and tradability of individual catch quota;
- The designation of nature protection areas and areas for recovery and special management of fisheries;
- The regulation of fishing techniques;
- The fixing of minimum catch and landing sizes of fish; and
- Restrictions of fishing periods and areas.

Total allowable catch

Decisions on TAC should follow certain principles that are clearly laid down in the basic law on fisheries. As stated above, the EC Regulation on Fisheries is an interesting example in this regard.⁴⁷ First of all, it states that the determination of overall allowable catch quantities must be based on best scientific knowledge. Secondly, as the scientific data often lack certainty, the precautionary approach must be applied. Thirdly, fish stocks depend on overall ecosystem functioning. If fish stocks are depleted, the ecosystem will change; and if the ecosystem changes due to external factors such as climate change, El Niño etc., fish stocks will likewise be affected. Therefore, ecosystem implications of stocks and fish mortality must be taken into account.⁴⁸ States should lay down the methodology used when conducting stock assessments in guidance papers.

It is critical whether, after scientific determination of catch limits, the political bodies should be allowed to waive stock protection in favour of other social and economic priorities. Such action would comply with the principle of sustainable development if this principle is understood as supporting short-term economic and social welfare gains at the risk of long-lasting damage to natural resources (and ensuing repercussions for the economy and society as a whole). This would be a wrong understanding of sustainability. If the stock is seriously threatened, any losses in employment and capital and any shortage of fish supply must be accepted in order to save the fishery in the long term. The precautionary principle, however, does permit some balancing, functioning as a buffer to safeguard competing interests. The fisheries assessment terminology proposed by ICES helps to understand the appropriate balancing better (see Table 2).⁴⁹

47 See above.

48 Regulation (EC) 2371/2002 Art. 2. See Markus, *supra*, note 11.

49 Report of the ICES Advisory Committee on Fishery Management, Advisory Committee on the Marine Environment and Advisory Committee on Ecosystems. (2007). *Book I: Introduction, Overviews and Special Requests*. International Council for the Exploration of the Sea, p.2. The methodology was taken up by the Fish Stocks Agreement, see Article 6(3)(b) and Annex II. For more details see also Markowski, *supra*, note 13.

Table 2. ICES terminology on stock assessment and catch limitation

	Spawning stock biomass (SSB)	Fishing mortality (F)
Limit reference point	B_{lim} : minimum biomass. Below this value recruitment is expected to be 'impaired' or the stock dynamics are unknown.	F_{lim} : exploitation rate that is expected to be associated with stock 'collapse' if maintained over a longer time.
Precautionary reference point	B_{pa} : precautionary buffer to avoid that <i>true</i> SSB is at B_{lim} when the <i>perceived</i> SSB is at B_{pa} .	F_{pa} : precautionary buffer to avoid that <i>true</i> fishing mortality is at F_{lim} when the <i>perceived</i> fishing mortality is at F_{pa} .
	The buffer safeguards against natural variability and uncertainty in the assessment. The size of the buffer depends upon the accuracy of the projections (of SSB and F) and the risk society accepts that the true SSB is below B_{lim} and the true F is above F_{lim} . The accuracy of the projections depends on the magnitude of the variability in the natural system and of the accuracy of the population estimates.	

If the spawning stock biomass has fallen to the limit reference point and the exploitation rate⁵⁰ is at a level that would eventually cause stock collapse, the decision on TAC must disregard any costs to economy and society. Such 'tough decisions' would probably require mitigating actions such as requiring compensation payments in cases of serious loss. The buffer between the limit and the precautionary reference points creates room for balancing socio-economic concerns. For instance, in relation to the B_{pa} , the F_{pa} may be set at a higher than precautionary level for a period of time allowing the incremental reorientation of the fishing industry.

Allocation of individual catch quota

As outlined above, once a TAC has been fixed, various criteria for the allocation of quotas to states and individuals can be envisaged; these range from taking a 'first come, first served' approach through to benchmarking. Most of the problems associated with allocation are distributional in character. However, allocative criteria also bear upon the sustainability of the use of the resource. The tradability of individual quotas is a clear example of this. Tradability ensures that the quota is effectively fished out; however, this is not expedient from a sustainability perspective. Given that the total allowable catch is often set at too generous

a level, the non-use of individual quota is a hidden but welcome means of buffering the initial weakness.

Protected areas

Marine protected areas (MPAs) can serve different aims. Traditionally, the primary goal has been to protect the water body and seabed against pollution from ships, from accidents and from the dumping of waste. Of course, this is also done to preserve fish habitat.

Another type of MPA is designed to preserve the ecosystem. The effect on fisheries is twofold: fishing is restricted, but the protected area also functions as a fish nursery, bolstering stock levels for the benefit of those who fish in the sea surrounding the protected area. Environmental agencies, and not fisheries ministries or agencies, should be responsible for the management of this kind of protected area. This is the case in many states. Kenya with its differentiated system of parks (non-fishing) and reserves (limited fishing),⁵¹ but also Brazil⁵² are good examples in this regard. In the EC, however, the Council of Fisheries Ministers claims competence for nature protection zones in cases where fishing activities are affected.⁵³

A third category of MPAs is tailored to protect fish stocks. For instance, the EC Fisheries Regulation

50 Which is curiously called fishing mortality as if the death came about naturally.

51 Kamau et al., *supra*, note 6.

52 Figueiredo, *supra*, note 9.

53 Markus, *supra*, note 11.

provides that a fishery may be subjected to a 'recovery plan' if the stock is outside safe biological limits, or if such a plan is necessary to keep the stock within safe biological limits. The measures taken focus on catch limitations. The problem with this type of MPA is that it does not adequately address those activities which degrade the ecosystem in other ways, and thus the living conditions of the fish.

Fishing techniques

The regulation of fishing techniques requires awareness of the aims to be pursued, including:

- Avoiding the infliction of unnecessary pain of animals;
- Selectivity of the catch in relation to undersized and non-targeted fish;
- Prevention of destructive effects on the seabed; and
- Avoiding the killing of seabirds.

The crucial point is of course the type of fishing technique applied. The techniques score differently in relation to the regulatory goals:

- Certain unnecessarily painful and unselective catch techniques are generally forbidden, such as the use of explosives and poisons.
- Purse seines, i.e., vertical nets that encircle schools of fish, that are closed at the bottom and drawn together: the use of this technique targets fish that form schools. It should be used only for catching fish that are not accompanied by non-targeted protected fish or mammals (such as dolphins that like to swim beneath tuna schools). In addition, by-catch of undersized or non-targeted fish should be avoided by fixing appropriate minimum mesh sizes.
- Trawling nets, i.e., conical nets towed in the sea or along the sea bottom: bottom trawling should be banned. With this technique, bycatch is difficult to avoid, because the movement of the net presses caught fish together and reduces mesh size. Regulation can reduce damage by slowing down the velocity of towing and prescribing ample

mesh sizes, allowing small fish to escape. The width of the opening of trawling nets may also be restricted in order to avoid catching non-targeted fish.

- Longline fishing uses lines with hundreds or even thousands of baited hooks. In order to avoid the incidental mortality of seabirds, regulators may require the use of weights to ensure the lines sink quickly, the deployment of streamer lines to scare birds away from the baited hooks as they are deployed, setting lines only at night with ship lighting kept low (to avoid attracting birds), limiting fishing seasons to the southern winter (when most seabirds are not feeding young), and a prohibition against discharging offal while setting lines. The length of longlines and number of hooks may be restricted in order to prevent overcatch.

Minimum catch and landing sizes

Establishing minimum catch and fish landing sizes aims to allow juveniles to grow until they have spawned, improving reproduction rates and population size. Minimum sizes are complemented by maximum percentages of juveniles in landed catch. Although landing requirements help to ensure compliance with minimum size standards, one of the negative effects of this approach is that the mostly dead bycatch is returned to the sea instead of being used. Some countries, such as Norway, prohibit the throwing back of bycatch, requiring fishermen to land it in order to check overcatch. Of course, this only works if vessels are continuously monitored (e.g., by on-board inspectors).

Restricted times and areas

Restrictions on fishing for a period of time in a given area or on fishing certain species commonly aim to protect mating and spawning times and grounds. Such restrictions are also used as emergency measures. For instance, if a global TAC is established without further allocating individual quotas, fishing must be stopped once the overall TAC has been exhausted. Alternatively, fishing under individual fishing rights and quotas may actually deplete the stock, because the TAC was set too high. In such a case, time and area restrictions must be established before the overall TAC is exhausted.

Cumulation of measures

All of the catch management measures complement each other. Some serve to prevent circumvention of another measure. For instance, an individual catch quota that is not accompanied by minimum mesh and catch sizes would indiscriminately deplete juveniles. Other measures pursue diverging goals. For instance, while the protection of spawning seasons and sites is directed at safeguarding fish stocks, nature protection areas take a broader vision of the ecosystem. For these reasons all catch management measures must be cumulative.

(b) Effort limitation

In this study, effort restrictions shall be understood to comprise the following instruments:

- Regulation of the number of vessels;
- Regulation of the loading capacity and engine power of vessels;
- Regulation of the fishing gear allowed to be carried on board; and
- Regulation of days spent at sea.

While catch limitation means to extrapolate from fish stocks to fish intake activities, effort regulation means to extrapolate from fishing capacity to catch activities. The logic underlying both types of measures overlaps, making it somewhat arbitrary what instrument to put into what category.⁵⁴ The main reason why effort is used as a distinct category is that limiting intake might be difficult to supervise if fishing effort is left unregulated. For instance, although it appears that setting individual quotas for a certain fish species serves as an effective instrument to limit intake, quota could be exceeded if the size of vessel used in that case is also not limited. A second goal of limiting effort, in addition to catch reduction, is to reduce inefficiency of fishing that occurs if overcapacity is kept operative but underexploited. A third aim is the fair distribution of fishing opportunities: in many countries, large vessels are prohibited from fishing in the coastal zones to reserve coastal resources for artisanal fishermen.

In order to provide guidance on determining

sustainable effort, it is most appropriate to fix the total allowable catch for a fishery. TACs establish both individual catch limits and effort. A number of factors are involved which make it more difficult to derive effort from TACs than it is to determine individual catch quotas. For instance, in order to calculate the optimal number of vessels, fishing practices and cost structures must be estimated. Alternatively, effort restrictions may be deduced from yield as measured by catch per unit indicators. A decrease in catch per unit indicates overcapacity.

In terms of legal forms, the number, size and gear of vessels can be controlled by the requirement that the purchase and operation of a vessel must be authorized by an administrative licence. Many states do require a licence of this sort, but the regulations are often not clear on what licensing criteria apply. Some states use the licensing requirement only to collect information on the number of vessels in operation. Others apply a kind of intuitive effort control, but hardly any state relates this to precise considerations of stocks and catch potential. In the EC, this was attempted in the multiannual guidance programmes (MAGP), but the methodology of relating stocks to effort is still underdeveloped.⁵⁵ More pragmatic criteria have therefore been used; e.g., a new vessel can only be licensed if an old vessel is decommissioned. In any case, the licensing of a vessel normally does not include the issuance of an actual fishing right. The licence is granted under the condition that catch restrictions are introduced or an individual catch quota obtained.

(11) On involving stakeholders in the organization of management: 'Distinguish between self-management, co-management and participation in decision making'

The process of adopting fisheries management measures needs to be organized. One crucial question is how to involve the stakeholders. The different management organizational structures include self-management, co-management, participatory management and autocratic management, each distinguishable on the basis of their requirements and effects.

54 For a different grouping see King, M. (2007). *Fisheries Biology, Assessment and Management*, pp.297-304. 2nd edition. Oxford, UK: Blackwell.
55 Markus, supra, note 11.

Since time immemorial, many indigenous coastal communities have self-managed their inshore fisheries in order to preserve stocks and ecosystems. They have proven that the problem of the tragedy of the commons – the overuse of common resources because self-restraint does not pay – can be avoided by imposing stringent social norms.⁵⁶ However, self-management systems of this kind are rapidly vanishing. All of them anyway operate within a state, i.e., a structure claiming to possess the monopoly of regulatory powers. States in which indigenous coastal communities have survived should give these people room for self-management, while at the same time supervising the exercise of these powers, given the possibility of abuse of powers by traditional leaders. For instance, Indonesian law now dispenses with the licensing requirement for traditional fishers; nevertheless, this does and should not mean that they are allowed to use poisons and explosives or other destructive techniques.⁵⁷

If indigenous communities manage their own catch activities, they perform a task traditionally belonging to their local sphere and daily concern. In a broader sense, self-management can also be organized by delegating tasks which previously belonged to the state administration (or could theoretically be assumed by it). For such delegation, fishermen's associations provide a necessary substructure for a professional and legitimated administration.⁵⁸ Examples of this kind of delegated self-management are EU producer organizations. Some member states allocate bulk catch quota to them, allowing them to redistribute the quota to individual fishers. They are also involved in the market organization, because they are given the power to determine withdrawal prices and buy up excess fish catch.⁵⁹

While self-management means that those involved enjoy an exclusive competence in this regard, co-management involves stakeholders in decision-making

bodies which are part of a state-bound administration. Examples of this kind are the Kenyan Beach Management Units and the Environmental Management Units in the Mexican Gulf of California, where stakeholders together with state representatives co-decide on matters of policy and law. These bodies may qualify as a model in this respect.⁶⁰

While co-management builds on a corporatist conception of administration, participatory management assumes that decision-making power is in the hands of state-based bureaucracies. But rather than using their powers autocratically, stakeholders are informed about issues and invited to comment or assist in public hearings before a decision is taken. This model necessitates that the public is given the right of access to relevant information. It has often been shown that participation is better than autocracy at building a shared understanding and thus the willingness of stakeholders to follow the rules.⁶¹

In the absence of community-based management approaches, fisheries must be managed by public administration of the state. An example of this in our sample is the reform of the policy and rule-making process for the Arvoredo Biological Marine Reserve in Brazil from a top-down to a bottom-up approach.⁶²

(12) *On enforcement and legal protection: 'Combine self-control with control by public administration; involve certified experts in surveillance activities; ensure legal protection of individual and third-party rights'*

Regulatory law that restricts individual freedoms will by its very nature meet resistance against its enforcement by its addressees. Fisheries management is telling in this respect. Any regulatory device has triggered a typical counter-device of *de facto* evasion. For instance, if individual catch quotas are fixed, vessels

56 Mapaure, supra, note 8. On the related theoretical discussion see Ostrom, E. (1990). *Governing the commons: the evolution of institutions for collective action*. Cambridge, UK: CUP.

57 Laode, supra, note 5.

58 Willmann, R. (2000). 'Group and Community-Based Fishing Rights'. In: Shotton, R. *Use of Property Rights in Fisheries Management*, pp.51-57. Rome, Italy: FAO.

59 Markus, supra, note 11.

60 Kamau et al., supra, note 6.

61 Wilson, D. and Jentoft, S. (1999). 'Structure, Agency and Embeddedness: Sociological Approaches to Fisheries Management Institutions'. In: Symes, D. (Ed.) *Alternative Management Systems for Fisheries*, pp.63-72. Oxford, UK: Blackwell.

62 Figueredo, supra, note 9.

may tranship catch to other vessels; if the landing is controlled, inspectors may be bribed; if mesh sizes are restricted, double nets are used; if the assessment of maximum sustainable yield is handed over to a scientific body, its work will informally be politicized, or – if achieving independent judgement – its proposal may be overruled by political decision, or else – if the political decision duly follows the scientific advice – its enforcement may be deficient.

In contrast to regulatory law, enabling law such as the allocation of subsidies and fishing rights will hardly be evaded, because fishermen are interested in obtaining a benefit. Nonetheless, enforcement deficits in this area can occur when those who do not meet the necessary criteria for the grant try to receive a benefit illegally. For these reasons, proper surveillance of law implementation is crucial (a).

On the other hand, the public administration may encroach on the protected rights of fishermen when imposing enforcement measures and administrative inaction may impair the rights or interests of third parties. Therefore, the opportunity for court review of administrative action must be guaranteed (b).

(a) Enforcement measures

Traditionally, the public administration has been responsible for surveillance. More recently, their role has been assisted and partially replaced by two new modes of surveillance: self-control by the private actor, and control by publicly supervised private consultants.

Self-control by fishermen is practised in different forms:

- Recording catch in a logbook;
- Recording and declaring landings; and
- Recording and declaring purchases.

Control by public administration is exerted by:

- Water police patrols in territorial seas and EEZs inspecting catch practices on board;
- Satellite observation of movements of vessels (e.g., in protected zones, in areas out of bounds to large vessels, in no-catch seasons or areas, etc.);
- Permanent observers or inspectors on board vessels; and
- Inspection of landings and sales in ports.

In-port inspection has been entrusted to certified experts in some countries.

Depending on the social culture of a country, inspectors may be inclined towards leniency and even corruption. This is particularly so where inspectors live in local communities together with the fishermen and ship-owners. Organizing inspection in a way that inspectors rotate among harbours may make them more independent from those whom they supervise. Sometimes the privatization of surveillance is considered to be more resistant to corruption.

In order to make enforcement effective, administrative bodies or certified experts must be given powers to carry out their duties.

First of all, they must be authorized by law to enter vessels and facilities, to inspect premises, and to ask for information. The severity of encroachment on individual rights increases if inspectors feel a need to search the premises without the consent of the person concerned. The constitutions of some states require a primary search warrant, obtained from a judge, before they can carry out such an investigation.⁶³ Others – like those states party to the European Convention on Human Rights⁶⁴ – permit inspections where there is sufficient ground to believe that the law may be breached.

63 Art. 13 para 1 of the German Constitution.

64 ECHR Art. 8 para 2; on the jurisprudence of the European Court of Justice see Marauhn, T. (2006). Chapter 16 No. 95. In: Marauhn, T. and Grote, R. *EMRK/GG Konkordanzkommentar zum europäischen und deutschen Grundrechtsschutz*, Tübingen, Germany: Mohr/Siebeck.

65 The German Federal Administrative Court has held that a fisherman traditionally fishing in a certain area possesses a right to unpolluted waters and can thus ask for the quashing of a licence for the dumping of toxic waste. See Bundesverwaltungsgericht, judgement of 1 December 1982 – BVerwG 7 C 111.81 – Rep. 66, 307.

Secondly, if inspectors find violations of the law, they should possess powers to order rectification and execute such an order (e.g., by seizing bycatch or illegal gear). In some legal systems like the English, public authorities must ask the court to issue such an order and execution, which generally overcomplicates enforcement.

Thirdly, in cases where the law is violated, administrative or criminal sanctions must be available, depending on the severity of the violation. A controversial point here is whether only the individual captain should be responsible for a breach or whether the corporation which owns or operates the ship should be held to account. It is submitted that while an individual person must still be found to have committed the act with *mens rea* (i.e., with knowledge of its unlawfulness), authorities should be entitled to lay the sanction on the corporation if the deed was committed in its favour. This would allow to make the sanction easier to apply and thus a better deterrent.

(b) Court review of administrative action and inaction

Fisheries law should be explicit about the contents and the (individual and collective) holders of the rights it creates. These can be any of the following:

- Rights of participation;
- Rights of access to information;
- Substantive rights to a subsidy;
- Substantive rights to fish; and
- Substantive rights to protection of stocks and ecosystems.

Most importantly, the right to fish must be clearly defined. Fishing rights can have the following content:

- A right to possess and operate a vessel: most often this is provided by a licence for the vessel;

- A general right to fish: this may be attached to the licence for the vessel or provided by general law; in most cases it is subject to administrative management measures such as catch and effort restrictions;
- A right to be allocated a specific percentage of the total allowable catch; this is normally laid down in some subordinate legislation determined by administrators; depending on the legal basis the right is subject to modification;
- A specific right to catch certain fish in a certain area: this is allocated as individual catch quota; the quota can normally not be withdrawn except in an emergency (such as the sudden depletion of a stock); a withdrawal may trigger the duty to compensate; and
- A right to transfer or even trade rights to fish.

Rights provided by fisheries law must be enforceable in the courts. If, for instance, the allocation of an individual catch quota is revoked in violation of pertinent legal provisions the concerned shipowner must be given standing to sue the competent administrative body and ask the court to quash the revocation. If the catch quota was legally withdrawn, the shipowner may ask for compensation if the law or constitution so provides.

Third-party rights to the preservation of stocks and ecosystems are particularly difficult to design and to be made enforceable in the courts. As the interest in stocks and ecosystems can hardly be individualized⁶⁵ and is typically of a public nature, NGOs should be given rights of standing to invoke courts to quash decisions on unsustainable catch or demand that authorities enforce protective provisions.

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