Towards Sustainable Fisheries Law

A Comparative Analysis

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Towards a Legal Clinic for Fisheries Management

Based on case studies of Indonesia, Kenya, Namibia, Brazil, Mexico, and the European Union

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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.

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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 Figuereido, 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. 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).

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 professionality 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 professionality 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:

- Fish stocks and fishing activities;
- Public perception of fisheries problem 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. Indonesia[5]

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 km^2, 3.1 million km^2 of archipelagic waters and territorial sea, and 2.7 million km^2 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 km^2. 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

- 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

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. Kenya[6]

Kenya has a coastline of about 640 km and an EEZ of 230,000 km^2. 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. Namibia[7]

Namibia has a coastline of 1,752 km, most of it bordered by desert. The territorial sea and EEZ cover 580,000 km^2. 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.

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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 Mapaure, 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).

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, 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.

4. Brazil[9]

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 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 Figuereido, 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.

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

the fishermens' 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 Resursos 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. 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.

5. Mexico[10]

Mexico has an EEZ of 3.15 million km^2 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 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 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 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.

6. European Union[11]

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 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.

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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 transhipment 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 transhipment. 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:
    - principles;
    - 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 transhipments, 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, transhipment, 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 law[15] 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.

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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.

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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, Figueiredo, 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.

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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 redistributional 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 redistributional 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 404/1and 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.

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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 *true* SSB is at B_{lim} when the *perceived* SSB is at B_{pa}.	F_{pa}: precautionary buffer to avoid that *true* fishing mortality is at F_{lim} when the *perceived* 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 rate[50] 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 Brazil[52] 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, fishermens' 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 Figuereido, 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 Rights[64] – 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 individualized[65] 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.