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A How-to Guide on legislating for an

Ecosystem Approach to Fisheries

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By

Philippe Cacaud

Legal Expert
Nordenfjeldske Development Services (NFDS)
Trondheim, Norway

Shannon Cosentino-Roush

Legal Expert
Nordenfjeldske Development Services (NFDS)
Gaborone, Botswana

with the collaboration of

Blaise Kuemlangan

Chief
FAO Development Law Service
Rome, Italy

Yoon Jee Kim

Associate Legal Officer
FAO Development Law Service
Rome, Italy

Kwame Koranteng

EAF-Nansen Project Coordinator
FAO Fisheries and Aquaculture Department
Rome, Italy

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FAO EAF-Nansen Project Report No 27. Rome, Italy.

Preface

Much progress has been made with the implementation of the ecosystem approach to fisheries (EAF), but challenges for full implementation still remain in many countries, regardless of capacity and resources. In many instances, management and institutional structures present barriers to the implementation of EAF because they were designed to support systems in which sectors are managed independently. One of the outputs of the EAF-Nansen Project “Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries” is “policies formulated consistent with EAF principles at national and regional levels”. Related to this objective are activities to review available international instruments relevant to EAF; the preparation of a guide to aid the development of country and regional policy; the integration of EAF considerations into policy making in selected partner countries through stakeholder consultations/workshops; and support for the development of policy documents consistent with EAF in selected partner countries.

Early in the implementation of the EAF-Nansen Project, a study was carried out that resulted in the publication “Legislating for an ecosystem approach to fisheries: a review of trends and options in Africa”, following which a need was expressed for the development of a publication that would provide guidance on how to apply the recommendations presented in the report. This How-to Guide was conceived and designed to meet that need and to assist fisheries managers and those responsible for drafting legislation to facilitate EAF implementation within the national legal framework. The guide is intended as a tool that governments could utilize to ensure that the legal framework that is developed to incorporate EAF considerations is as comprehensive as possible.

The first step in the development of the guide was to identify the basic elements required for EAF implementation that should be included in national fisheries and EAF-relevant, sector-specific legislation. The basis of the guide is the identification of key components for legislating for EAF, the operationalization of these key components into concrete steps for drafting legislation, and the provision of relevant examples, largely from Africa but also from other parts of the world. The drafting steps that relate to each component serve as a checklist, ensuring that the different elements of each component are adequately legislated for, and that EAF may be effectively integrated into national legislation.

The initial draft of the How-to Guide was prepared by a team of legal consultants under the guidance of the Food and Agriculture Organization (FAO) of the United Nations’ Development Law Service (LEGN), in close cooperation with the FAO Marine and Inland Fisheries Branch. The guide was then field tested by LEGN under a legislative assistance project. This provided a valuable opportunity to develop a more nuanced approach towards legislating for an EAF and facilitating its implementation.

The How-to Guide analyses current and emerging trends relevant to the implementation of EAF. A discussion of challenges and barriers to the implementation of EAF follows because identifying these is crucial to the further facilitation of EAF; countries seeking to implement EAF within their legal frameworks could face similar challenges and barriers. A clear message is that EAF implementation on a substantive global scale is possible.

The guide includes examples from several parts of the world to demonstrate different approaches to drafting legislation that incorporate each of these components. It also contains components that are routinely addressed during the review or development of a country’s legislative framework for fisheries, such as objectives and principles, input and output controls, fishery management plans, monitoring, control, surveillance and enforcement. This demonstrates that, while this guide is specifically concerned with the development of EAF-friendly legislation, EAF should be considered part of the overall objective of improving the legal framework for fisheries management.

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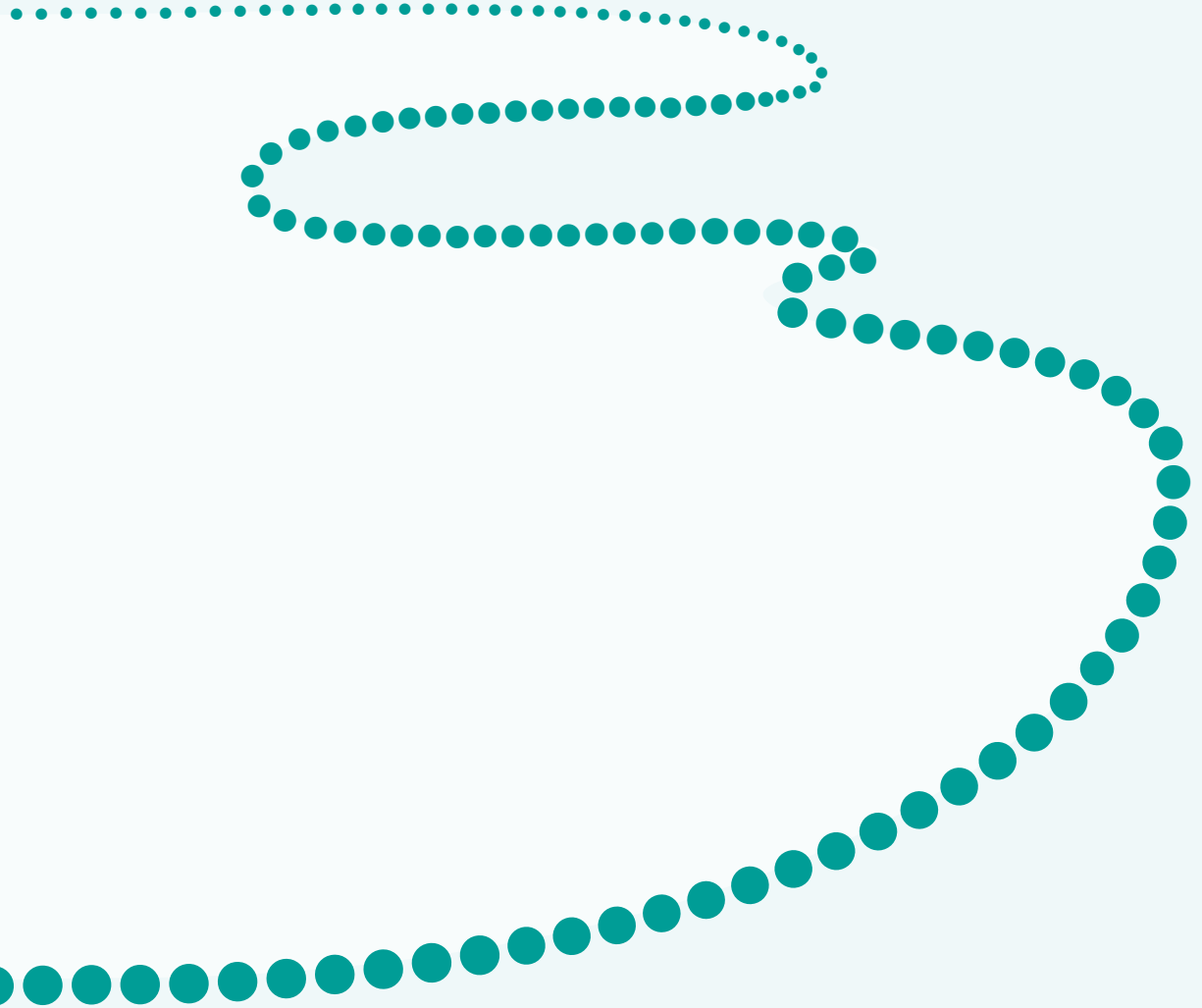
The authors are most grateful to all individuals who provided comments in the course of preparing this How-to Guide, including FAO field staff.

The How-to Guide is available in English and French. Editing, design and layout were done by Claire Attwood and Wendy Worrall of Fishmedia (South Africa) respectively. Amélie Brito of Arkiris Traduction (France) translated the How-to Guide into French.

The EAF-Nansen Project

FAO started the implementation of the project “Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries (EAF-Nansen GCP/INT/003/NOR)” in December 2006 with funding from the Norwegian Agency for Development Cooperation (Norad). The EAF-Nansen Project is a follow-up to earlier projects/programmes in a partnership involving FAO, Norad and the Norwegian Institute of Marine Research (IMR) on assessment and management of marine fishery resources in developing countries. The project works in partnership with governments and GEF-supported Large Marine Ecosystem (LME) projects and other projects that have the potential to contribute to some components of the EAF-Nansen Project.

The EAF-Nansen Project offers an opportunity to coastal countries in sub-Saharan Africa, working in partnership with the project, to receive technical support from FAO for the development of national and regional frameworks for the implementation of an ecosystem approach to fisheries management and to acquire additional knowledge on their marine ecosystems for use in planning and monitoring. The project contributes to building the capacity of national fisheries management administrations in ecological risk assessment methods to identify critical management issues and in the preparation, operationalization and tracking the progress of implementation of fisheries management plans consistent with the ecosystem approach to fisheries.



1 Background

1.1 Background to the Ecosystem Approach to Fisheries (EAF) and the Food and Agriculture Organization of the United Nations (FAO) tools to support its implementation

All over the world, fisheries play an important role ecologically, socially, economically and even culturally, providing sources of food, employment, income, recreation, tradition and more. In the past, fisheries have largely been managed independently of the ecosystems in which they exist, with the emphasis placed on controlling the fishing of a target stock(s) to ensure the provision of food and income or livelihoods for humans¹. Over time, the global community increasingly began to recognize the significance of interactions between fish species and their ecosystems; the wide range of social and cultural factors related to fisheries; the poor performance of traditional fisheries management approaches, as demonstrated by the poor state of many of the world's fisheries; and the recent advances in science regarding the functional value of ecosystems². As a result of these realizations, it became apparent to the global community that there was a need to move beyond traditional fisheries management approaches to better incorporate ecosystem considerations and interactions – including the human component – through a comprehensive and integrated approach referred to as the “ecosystem approach to fisheries³”.

As defined by the FAO, the EAF “strives to balance diverse societal objectives, by taking into account the knowledge and uncertainties about biotic, abiotic, and human components of ecosystems and their interactions and applying an integrated approach to fisheries within ecologically meaningful boundaries⁴”. Although the FAO definition of EAF outlines key principles and highlights the importance of ecosystem-based management, it was not the first internationally recognized text to do so. In fact, many of the principles that are central to EAF were pioneered in a number of international agreements and conference documents⁵. For example, at the 1972 Conference on Human Environment, concepts central to EAF were highlighted, including: people’s participation, resource limitation, planning and management, and international collaboration and equity⁶. The Rio Declaration recognized various principles that are pertinent to EAF, including: cater for future generations (Principle 3), integrate environmental protection in development (Principle 4), encourage public participation (Principle 10), and widely apply the “precautionary approach” (Principle 15)⁷. Additionally, the 2001 Reykjavik Declaration emphasized the need to take “into account the impacts of fisheries on the marine ecosystem and the impacts of the marine ecosystem on fisheries” and that “the objective of including ecosystem considerations in fisheries management is to contribute to long-term food security and to human development and to

¹ FAO. 2003. Fisheries Management. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2, p. 11–12. Rome, FAO.

² Ibid.

³ Ibid.

⁴ Ibid. p. 14

⁵ These include: the 1972 United Nations Conference on Human Environment; the 1982 United Nations Convention on the Law of the Sea (UNCLOS); the 1992 United Nations Conference on Environment and Development and its Agenda 21; the 1995 FAO Code of Conduct for Responsible Fisheries; the 2001 Reykjavik Declaration; and the 2002 World Summit on Sustainable Development (WSSD).

⁶ FAO. 2003. Fisheries Management. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2, p. 5. Rome, FAO.

⁷ Ibid. p. 76

assure the effective conservation and sustainable use of the ecosystem and its resources⁸." Similarly, the 2002 Plan of Implementation of the World Summit on Sustainable Development stated the need to "develop and facilitate the use of diverse approaches and tools, including the ecosystem approach, the elimination of destructive practices, the establishment of marine protected areas ... and the integration of marine and coastal areas into key sectors⁹." Though references to principles consistent with EAF were included in these texts over a period of many years, what was missing was experience in implementing them on a practical and operational level¹⁰. Therefore, countries requested that the FAO provides guidance by producing a set of technical guidelines related to EAF¹¹.

In 2003, FAO published a supplement on the EAF (hereinafter referred to as the EAF Guidelines) in its Technical guidelines for responsible fisheries: fisheries management. The EAF Guidelines translated the high-level EAF principles and policy goals into practical and operational objectives, processes and measures that could be applied to a broad range of social, cultural and economic settings, particularly in developing countries. Though the EAF Guidelines served as a valuable tool, there was a belief that more guidance was needed on the role of the human

dimension in the effective implementation of EAF, i.e. the social, cultural, economic, political and institutional processes and factors¹². In response, in 2009 the FAO published an addendum to the EAF Guidelines on the "Human dimensions of the ecosystem approach to fisheries" (hereinafter referred to as the "Human Dimensions Addendum") which provides further detail on key concepts and components relevant to EAF and for the practical planning and implementation of EAF¹³. Over the period in which the EAF Guidelines and the Human Dimensions Addendum were evolving, the Norwegian Agency for Development Cooperation (Norad) was discussing and entering into a partnership with the FAO on a project relating to EAF implementation in developing countries.

In 2006, the FAO, with funding from Norad, began the implementation of the project "Strengthening the Knowledge Base for and Implementing an Ecosystem Approach to Marine Fisheries in Developing Countries," also referred to as the "EAF-Nansen Project". Under the project, coastal countries in sub-Saharan Africa could receive technical support from the FAO for the development of national and regional frameworks for the implementation of an EAF and acquire additional knowledge on their marine ecosystems for use in planning and monitoring¹⁴.

⁸ FAO. 2003. Fisheries Management. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2, p. 79. Rome, FAO.

⁹ Ibid.

¹⁰ FAO. 2003. Fisheries Management. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2, p. 5. Rome, FAO.

¹¹ Ibid.

¹² Ibid.

¹³ Ibid.

¹⁴ Skonhoft, A. 2011. Legislating for an ecosystem approach to fisheries. A review of trends and options in Africa (English). In FAO EAF-Nansen project report No. 10, Rome, FAO. 158 pp.

1.2 Summary of the EAF-Nansen study “Legislating for an ecosystem approach to fisheries”

In 2011, under the umbrella of the EAF-Nansen Project, the FAO published the study “Legislating for an ecosystem approach to fisheries: a review of trends and options in Africa.” The objective of the study was to provide the countries participating in the EAF-Nansen Project with information on the practical adoption and application of an EAF from a legal perspective – in particular by providing guidance on how to incorporate an EAF into national legislation¹⁵. The study begins by introducing the concept and principles of EAF and reviewing the international and regional instruments that are relevant to EAF, briefly describing the instrument and highlighting the EAF principles contained therein. The study also provides a legal analysis of the national fisheries and EAF-relevant legislation of 16 coastal African countries.

An important aspect of the study is the identification and description of key legal provisions that could facilitate EAF implementation if included in a country's legal framework. These key legal provisions include: the clear definition of the scope of law and the institutional structures; mechanisms for coordination, cooperation and integration; mechanisms for stakeholder participation; listed objectives that include EAF principles; the requirement for fisheries management plans; measures to regulate fishing effort and catch; measures to regulate fishing methods and gear; measures to institute fisheries spatial and temporal controls, such as closed areas or MPAs and closed seasons; monitoring, control and surveillance measures conducive to EAF; and mechanisms or measures to address additional issues such as aquaculture, environmental impact assessments, alien species, marine pollution, fisheries research, integrated coastal zone management plans and recreational or sport fishing.

While the study largely discusses the inclusion of these legal provisions in fisheries legislation,

it also discusses their inclusion in other sector-specific legislation, such as aquaculture, mining and petroleum. The inclusion of EAF principles in such sector-specific legislation is crucial because these sectors could significantly impact the ecosystems on which fisheries depend.

In addition to the EAF Guidelines, the Human Dimensions Addendum and the EAF-Nansen legislative review, in 2012 the FAO published the EAF Toolbox which is aimed at national and local fisheries management authorities, including fishery managers, scientists and stakeholders looking for practical solutions they can apply to their specific circumstances and resources. The EAF Toolbox presents useful tools, in order to facilitate EAF implementation by national and local fisheries management authorities.

1.3 Purpose of the How-to Guide on legislating for an EAF

Despite the various resources described above, FAO decided that an additional tool was needed to assist those responsible for drafting legislation to facilitate the implementation of EAF. In order to produce such an innovative tool, the FAO, through the EAF-Nansen Project, supported the creation of a “how-to” guide for legal practitioners and fisheries managers.

The basis of this How-to Guide is the identification of key components for legislating for EAF, the operationalization of those key components into concrete drafting steps, and the provision of relevant examples from national legislation, largely from Africa but also from other parts of the world. The review concludes by providing a synthesis of existing challenges and trends in legislating for EAF. Overall, it is clear that the national fisheries and sector-specific legislation analysed varies in the extent to which key EAF legal provisions have been included. Additionally, recently adopted legislation better incorporates key EAF legal provisions than older legislation.

¹⁵ Skonhoft, A. 2011. Legislating for an ecosystem approach to fisheries. A review of trends and options in Africa (English). In FAO EAF-Nansen project report No. 10, p. iv. Rome, FAO.

2 Methodology for creating the How-to Guide

The first step in creating this How-to Guide was to identify the key minimum components that support EAF implementation and which should be included within national fisheries and EAF-relevant, sector-specific legislation.

The process of identifying the key minimum components began with a review of the EAF Guidelines, the Human Dimensions Addendum and the EAF Toolbox. These three FAO publications were reviewed with the purpose of establishing a list of key EAF principles, processes and measures that should be incorporated into national legislation to facilitate EAF implementation. Next, the EAF-Nansen Project's study *Legislating for an ecosystem approach to fisheries: a review of trends and options in Africa* was examined so as to compile a list of the key legal provisions – including management measures, processes and mechanisms – that should also be included in national legislation to facilitate EAF implementation.

Once the two lists were compiled, they were then analysed for overlap, duplication, similarities

and distinctions. In instances where there was duplication or similarity between the components and provisions on the two lists, these were comprehensively compiled into a single component that was included on the list of minimum components. Components or provisions that were on only one of the two lists were also included in the How-to Guide's list of minimum components, either as a stand-alone component or added to another component. Moreover, when there were distinctions between the components or provisions on the two lists, those distinctions were taken into account so as to include the most comprehensive form.

Once a working draft was compiled, the How-to Guide was subjected to a thorough review process to ensure that no key principles, measures, mechanisms or processes for facilitating the implementation of EAF through legislation had been omitted. Following the review process, the list of minimum components was finalized and the next step for creating the How-to Guide began: the operationalization of the components into key legislation drafting steps.

3 Summary of minimum components for legislating for EAF

The How-to Guide on legislating for EAF consists of 17 minimum components that should be included within national fisheries and/or EAF-relevant, sector-specific legislation in order to support and facilitate EAF implementation. While the components provide useful overarching guidance, the essential concrete and practical guidance is provided by the drafting steps. These steps outline key elements that should be included, in some form, within national legislation. In that sense, the drafting steps serve as a check-list, ensuring that the components are adequately legislated for, and further guiding countries that seek to effectively integrate EAF to

their legal frameworks. In summary, the How-to Guide aids the user by:

- describing the component that should be reflected in legislation;
- identifying the specific elements that need to be considered in the drafting of legislation;
- setting out answers to the questions posed as justification for the relevance or significance of the component; and
- outlining the steps to take in drafting, with reference to examples that could provide inspiration.

The 17 components are summarised here:

Component 1 states, “the objectives and principles of EAF-relevant legislation should include key EAF concepts.”

Some key EAF concepts include: applying the precautionary approach; broadening stakeholder participation; promoting institutional coordination, cooperation and integration; considering species interactions; promoting sustainable development; and avoiding overexploitation and preserving marine biodiversity. Though this list is by no means exhaustive, these and other key EAF concepts should be included as objectives and principles in EAF-relevant legislation in order to guide the effective administration and implementation of the legislative provisions.

Component 2 states, “to the extent possible, the formation of management boundaries should be ecologically meaningful and management measures should be harmonized across boundaries and jurisdictions, locally, nationally and internationally, when ecologically relevant.”

Management boundaries that are ecologically meaningful are those that are determined by resource ranges, habitats and other ecological considerations. The harmonization of management measures across boundaries means that – when ecologically relevant – measures are coordinated, compatible and consistent across management and governance structures, locally, nationally and internationally. Both of these factors should be legislated for because species and habitats do not respect legally or historically-defined boundaries, but are rather based on ecosystems. Thus, in order to effectively legislate for the management of ecosystems (rather than for targeted resources) ecosystem boundaries should be the foundation of management boundaries, and management measures should be harmonized across boundaries and jurisdictions.

Component 3 states, “the precautionary approach should be outlined.” The FAO Technical Guidelines on EAF define the precautionary approach as follows:

“Where there are threats of serious irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent any undesirable ecological, social or economic outcome¹⁶.” While the precautionary approach has been legislated for and applied under traditional management approaches, it is even more important to legislate for and apply it under an EAF because there are greater levels of uncertainty involved when managing ecosystem structures, functions and relationships.

Component 4 states, “mechanisms for stakeholder participation and transparency should be outlined.”

Mechanisms for stakeholder participation and transparency enable the general public and interested parties to gain information, engage in the decision-making process and gain a sense of ownership in the management of shared resources. Stakeholder participation and transparency have the potential to improve the effectiveness of management measures and improve the rate of compliance with such measures, for example by fishers and fishing communities. Some mechanisms that facilitate stakeholder participation and transparency are: the inclusion of stakeholders in advisory councils or bodies; the right of access to information; the right to comment on proposed management decisions or actions, in meetings and in writing; and the right to engage in the management process more generally. Because the human dimension is crucial to the effective implementation of EAF, it is important to legislate for mechanisms that inform and engage stakeholders and facilitate transparency.

¹⁶ FAO. 2002. Fisheries Management. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2, p. 22. Rome, FAO.

Component 5 states, “mechanisms for coordination, cooperation and integration of approach between the institution responsible for fisheries management and other relevant institutions should be established.”

Coordination, cooperation and integration refer to the act of government institutions engaging in dialogue and working together to minimize duplication of effort, coordinate approaches, avoid contradictory initiatives and establish synergies in order to accomplish their respective goals and objectives. Mechanisms for coordination, cooperation and integration may take many forms, including the establishment of advisory or decision-making bodies composed of various institutional representatives, or the establishment of specific, well-defined processes. Since many activities and management measures affect the ecosystems in which fisheries occur, legislation should address mechanisms for the coordination of these activities, and for cooperation and integration between institutions.

Component 6 states, “lower level authorities, bodies and stakeholders should be integrated into management processes.”

Lower level authorities, bodies and stakeholders may be integrated into the management process through advisory, decision-making, implementation and/or enforcement roles. Legislation should address local engagement, participatory management and co-management because they ensure local and stakeholder buy-in, improved knowledge and consideration of local resources and systems (including traditional knowledge) and strengthened implementation and enforcement of management measures.

Component 7 states, “mechanisms for conflict management should be outlined.”

Conflict management mechanisms may take the form of representative bodies or commissions specifically established to manage conflicts, or the delegation of authority to an existing body, official or traditional authority. In addition, these mechanisms should describe the processes to be

followed when managing and resolving conflicts. It is important to legislate for such mechanisms, particularly in the context of EAF, so as to minimize the potential for, and actual conflict between fisheries users, and between fisheries users and other user groups. This will allow for sound and mutually beneficial management of fisheries resources and their ecosystems.

Component 8 states, “mechanisms for the integrated management of aquatic ecosystems should be established.”

Mechanisms for integrated management engage managers, users and stakeholders in the development of comprehensive management plans for aquatic ecosystems, including lakes, coasts and oceans. These mechanisms may establish and utilize representative bodies, composed of members from various institutions, industry, civil society and other stakeholders, or rely upon a lead institution to develop and implement the relevant management plans. Legislating for mechanisms that encourage the integrated management of aquatic ecosystems may help to minimize conflict between resource users and stakeholders, including the fisheries and aquaculture sectors, and ensure the overall health and integrity of the shared ecosystems.

Component 9 states, “controls on fishing operations, such as catch/output controls, effort/input controls, fishing gear controls, spatial controls and temporal controls, should be outlined.”

Controls may take various forms and generally fall within the five broad categories of: catch/output controls, effort/input controls, fishing gear controls, spatial controls and temporal controls. Legislating for these controls is important to limit fishing pressure on target species, thus preventing overexploitation; limit impacts on associated and non-target species, especially the incidence of bycatch and discards; limit negative impacts on habitats, especially those of critical importance; and limit pollution, excess energy expenditure and other harmful effects on the marine ecosystem.

Catch/output controls establish direct limits on the amount of fish that may be removed from a fishery in a given period of time. A common example of catch control is total allowable catch (TAC) which sets the total number or tonnage of fish that may be caught within a fishery in a given period of time. TACs are often further divided into individual quotas and allocated to participants in a fishery. Another example of catch control is “bag limit”, which restricts the number/quantity of fish that may be landed in a day. Catch controls may also place limits on the amount of acceptable bycatch and/or discards from a fishery. Generally, catch controls (particularly TACs) should be calculated on an annual or periodic basis, be based on scientific data and maximum sustainable yield (MSY) or maximum economic yield (MEY), and take into account the precautionary principle.

Effort/input controls establish limits on the capacity and effort of fishing vessels operating within a fishery in a given period of time. There are various effort controls that may be used, such as those that limit the number and size of fishing vessels that may operate within a fishery; the amount of time fishing vessels may operate within a fishery; or the number of fishing gears that may be deployed within a fishery. Effort controls are commonly implemented through the assignment of licenses to fish, which often regulate the number and size of vessels and the amount or type of gear permitted. Additionally, effort controls might include limiting the construction or importation of new vessels, or the importation, construction and purchase of new gear.

Fishing gear and method controls regulate the gear and methods that are permitted for use within a given fishery or area. These controls may take the shape of general prohibitions on types of gear, or methods or specifications on gear design, and areas or methods of use. For example, it is common to prohibit the use of explosives, toxic

substances, lights or electricity for fishing. It is also common to prohibit the use of nets of a specified mesh size and to prohibit the use of seine, trawl, or other specified methods in certain areas or zones.

Spatial controls regulate the area in which fishing operations may or may not take place. These controls may designate an area as closed to fishing, sometimes for a limited time owing to the fact that the area is used for spawning, as a nursery, or is an area of critical habitat or special concern, such as barrier reefs, around off shore structures or anchored fish aggregating devices (FADs).

Temporal controls regulate the time in which fishing operations may or may not take place. These controls may designate a period of time during which fishing is not allowed (a closed season) to protect fish during spawning or migration; or a moratorium period to allow depleted stocks to rebuild.

Component 10 states, “the design, implementation, monitoring and review of fishery management plans (FMPs) should be mandated.”

A FMP identifies the partners in the fishery and their respective roles, details the agreed objectives for the fishery, specifies the management rules and regulations which apply to it, and provides other details about the fishery which are relevant to the task of the management authority¹⁷. FMPs should be legislated because they significantly contribute to effective management and sustainable utilization of fisheries resources and ecosystems.

Component 11 states, “monitoring, control, surveillance and enforcement (MCSE) measures should be outlined.”

Monitoring is “the continuous requirement for the measurement of fishing effort characteristics and resource yields¹⁸.” The monitoring component of MCSE should “receive, integrate and verify information from the licensing unit, sea-going

¹⁷ FAO. 1997. Technical guidelines for responsible fisheries. No. 4. Rome, FAO. 91 pp.

¹⁸ Flewwelling, P. 1996. An Introduction to monitoring, control and surveillance systems for capture fisheries. FAO Technical Paper. No. 338, chapter 3. Rome, FAO. Available at <http://www.fao.org/docrep/003/V4250E/V4250E03.htm#ch3>.

units (sightings and inspections), observers, VMS and satellite imagery, radar, port inspection, regular dockside monitoring of landings, logbooks, production logbooks and air sightings for vessel identification, activity and location¹⁹." Control involves "the regulatory conditions under which the exploitation of the resource may be conducted²⁰." As such, the control component of MCSE requires appropriate and enforceable legal framework to "implement the approved, participatory fisheries management plans²¹." Surveillance involves "the degree and types of observations required to maintain compliance with the regulatory controls imposed on fishing activities²²." Enforcement refers to the actions taken to ensure compliance with the laws.

MCSE measures should be legislated to ensure an effective fisheries management system. Owing to the fact that EAF expands on traditional management approaches, addressing a wider range of issues, the legislation may need to address additional and/or broader MCSE measures. Some examples of MCSE measures that should be included (both for traditional fisheries management approaches and EAF are): procedures for the collection and recording of catch and effort information, including the keeping of logbooks; the establishment of observer schemes; the establishment of a vessel monitoring system (VMS) for the tracking of fishing vessels; procedures for the boarding and inspection of vessels, including at sea and in port; and the power for authorized officers to inspect, collect evidence, seize fish, gear and vessels, and interrogate, detain and arrest persons associated with suspected violations.

Component 12, states "fisheries-related offences, penalties and administrative and judicial processes should be outlined."

Fisheries-related offences are actions or omissions that violate the management and control measures outlined in the fisheries law. Some

examples include the use of prohibited gear, fishing during a closed season, fishing without a license, or failure to report required catch information. Penalties refer to the designated punishment for committing an offence. Penalties may require the payment of a fine, the suspension or revocation of fishing licenses, or even imprisonment. Administrative and judicial processes refer to the systems established to determine and confirm the commission of an offence and assign the relevant penalty to the offending party/parties. These processes encompass the compounding of offences/out-of-court settlement, the use of civil and criminal courts (including environmental courts), and the right of appeal.

Fisheries-related offences, penalties and administrative and judicial processes should be legislated for in order to ensure an effective fisheries management system. Because EAF expands upon traditional fisheries management approaches, addressing a wider range of issues, the legislation may need to address additional and/or more detailed fisheries-related offences, penalties and administrative and judicial processes.

Component 13 states, "EAF research should be promoted and provided for."

EAF research aims to gain a better understanding of species interactions and relationships, the role of habitat and the physical environment, the extent of anthropogenic activities and their effects, and other ecosystem factors. EAF research should be legislated for in order to improve the understanding, and thus the management of, fisheries and the ecosystems within which they are located.

Component 14 states, "mechanisms for habitat and biodiversity conservation and restoration should be outlined."

Mechanisms for habitat and biodiversity conservation and restoration may take many

¹⁹ Flewelling, P. 2003. Recent trends in monitoring, control and surveillance systems for capture fisheries. FAO Technical Paper. No. 415, p. 45. Rome, FAO. Available at <http://www.fao.org/docrep/005/Y4411E/Y4411E00.HTM>

²⁰ Ibid., p. 46

²¹ Ibid.

²² Ibid., p. 47

forms including: prohibitions on fishing for marine mammals, protection for endangered species, the creation of protected areas, or the restoration of critical wetland habitat. These mechanisms should be legislated for to maintain healthy marine ecosystems that support thriving fisheries for the present and future.

Component 15 states, “energy expenditure, pollution, the introduction of species and other potentially harmful activities should be regulated in order to limit the impacts on aquatic ecosystems.”

Energy expenditure, pollution, the introduction of species and other potentially harmful activities all impact the integrity of aquatic ecosystems upon which healthy fisheries rely. For example, energy expenditure contributes to climate change, which impacts species’ life cycles and ranges, and invasive species may disrupt aquatic ecosystem relationships and dynamics. In order to maintain the integrity of aquatic ecosystems, and thus healthy fisheries, legislation should limit the impacts of these potentially harmful activities.

Component 16 states, “a requirement for the production, submission and review of environmental impact statements (EIS) or environmental impact assessments (EIAs) for potentially impactful activities should be outlined.”

EIS or EIAs are reports compiled to detail the potential impacts on the ecosystem from a proposed activity, including the ecological, social, and economic impacts, and the potential alternatives or mitigation measures that may be taken to reduce these. The requirement for an EIS or EIA prior to authorizing potentially impactful activities should be legislated for in order to ensure that the health and integrity of ecosystems are maintained to the greatest extent possible, for the benefit of all current and future stakeholders.

Component 17 states, “the regular monitoring and review of management measures should be required.”

The timeline and process for regular monitoring and review depends on the type of management measure and the management priorities.

For example TAC limits should be monitored and reviewed more frequently than FMPs or integrated coastal zone management (ICZM) plans. Regardless of the established timeline or process, the regular monitoring and review of management measures should be legislated for in order to ensure that they fulfil the management objectives and, if not, are adjusted accordingly.

In the following pages, each of the 17 minimum components that should be included in national fisheries and/or sector-specific legislation in order to support and facilitate EAF implementation is elaborated upon through the use of examples from numerous jurisdictions. These examples provide some innovative ideas on how to legislate for EAF implementation and represent a range of approaches, while also reflecting some common patterns and trends. The examples are largely drawn from the EAF-Nansen legislative study, and hence from Africa, but the drafting steps also include examples from Australia, Canada and the United States of America (United States).

The How-to Guide is intended for a broad, global audience and must therefore be applicable to a wide range of legal, institutional and administrative systems. Similarly, the drafting steps are designed with a broad perspective and each outlines different mechanisms, processes, or types of management measures, rather than prescribing specific examples or models. Additionally, the drafting steps outline technical requirements, such as gear controls or VMS, and also discuss fundamental legal principles, such as the need to designate empowered authorities and establish their powers and responsibilities. It is important to note that the list of minimum components and the drafting steps represent a suggested floor, not a ceiling, for legal practitioners to legislate in support of EAF implementation.

4. Facilitating EAF implementation: from policy to legislation

EAF, at its core, is a policy rather than a legal concept. This means that the roots of EAF implementation should be grounded in the policy process. Since EAF is a cross-cutting concept and applies to both inland and marine fisheries, its representation in policy may take various forms. For example, in some countries, the concept and principles of EAF may be presented as a maritime policy, a fisheries policy, or a broader environmental policy.

Regardless of the specific form that it takes, presenting the concept and principles of EAF in policy should take place before the various EAF concepts, principles and corresponding provisions are incorporated in national legislation. In some cases, the EAF concepts and principles that are presented in policy may not need to be incorporated into legislation in order

for them to be implemented. This is because the authority or jurisdiction required to implement the policy provisions may already be established through existing legislation. However, if new legislative provisions are deemed necessary to implement the EAF-relevant policy, then the new legislative provisions should be drafted in line with the policy.

The minimum components for legislating for EAF should be reflected first in concept and principle through policy, and then in more specific terms through legislation. Although this process may not always be followed in practice and the adoption of legal text may actually precede policy, it is advisable that policy should precede national legislation. Formulating an EAF in the policy context enables a government to address its numerous dimensions and cross-cutting issues.

5. General guidelines for legislating for EAF

In addition to the minimum components that are described below, the following general guidelines should also be followed when legislating for an EAF:

1. The functions, powers and responsibilities of authorities and institutions should be clearly defined and outlined in legislation and overlapping or conflicting mandates should be avoided.
2. The geographic and substantive scope of the application of legislation should be clearly defined and outlined.
3. Primary legislation should be drafted broadly and should establish systems or processes. Primary legislation should also be drafted so that it is unlikely to require frequent amendment. Institutional practices or constitutional requirements usually prevent
4. Because EAF is a cross-cutting concept, governments need not adopt an EAF-specific legislation. Some of the outlined minimum components may be included within fisheries legislation, sector-specific legislation (such as for mining, petroleum,

the routine revision of primary legislation and therefore it should not contain provisions that could become dated and no longer aligned with contemporary practices or scientific developments. Having such provisions in place would make the primary legislation less effective at achieving the EAF objectives. Instead, the more specific provisions should be outlined in subsidiary legislation, such as regulations, decrees, or an appropriate legal mechanism, and follow the process that is outlined in the primary legislation.

agriculture, etc.) general environmental legislation, or subject-specific legislation (such as for endangered species or protected areas), depending on where they best fit within the legislative system. Some of the outlined minimum components may be

included within more than one piece of legislation, such as within both fisheries and sector-specific legislation. This is particularly the case for those that are more thematic in nature (e.g. biodiversity conservation or stakeholder participation).

6. Minimum components for legislating for EAF

Component

1

The objectives and principles of EAF-relevant legislation should include key EAF concepts.

What are some of the key EAF concepts and why should they be included as objectives and principles in EAF-relevant legislation?

Some key EAF concepts include: applying the precautionary approach; broadening stakeholder participation; promoting institutional coordination, cooperation and integration; considering species interactions; promoting sustainable development and avoiding overexploitation; and preserving marine biodiversity. Though this list is by no means exhaustive, these and other key EAF concepts are important to include as objectives and principles in EAF-relevant legislation in order to guide their effective administration and implementation.

Steps for including key EAF concepts in the objectives and principles of EAF-relevant legislation

EAF-relevant legislation, such as that for fisheries, forestry, the general environment, etc., should include within the outlined objectives and principles, but not be limited to, the following key EAF concepts:

- a. The precautionary approach;
- b. Stakeholder participation;
- c. Institutional coordination, cooperation and integration;
- d. The consideration and maintenance of ecological relationships between harvested, dependent and associated species;
- e. The promotion of sustainable development and avoidance of overexploitation (of marine living resources);
- f. The preservation of (marine) biodiversity;
- g. The conservation of (marine) resources for both present and future generations;
- h. Ecosystem well-being, including the human, biotic and abiotic components;
- i. A right of access to information and education;
- j. The harmonization of management measures, including cooperation for the management of shared resources;
- k. Ecosystem-based research;
- l. Adaptive management, including the regular monitoring and review of management measures;
- m. The reduction of conflict between users and stakeholders;
- n. The inclusion of lower level authorities and bodies into the management process; and
- o. The consideration of the socio-economic context, including employment, livelihoods, equity, poverty, gender, etc., when designing and implementing management measures.

Examples

Australia: the 1991 Fisheries Management Act states that the minister shall administer the Act and the Australian Fisheries Management Authority shall perform its functions in pursuit of the objective to ensure that “the exploitation of fisheries resources and the carrying on of any related activities are conducted in a manner consistent with the principles of ecologically sustainable development (which include the exercise of the precautionary principle), in particular the need to have regard to the impact of fishing activities on non-target species and the long term sustainability of the marine environment.”

Furthermore, the Act outlines the following as the principles of ecologically sustainable development:

- a. decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equity considerations;
- b. if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- c. the principle of inter-generational equity – that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
- d. the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making; and
- e. improved valuation, pricing and incentive mechanisms should be promoted.”

South Africa: the 1998 Marine Living Resources Act stipulates “the minister and any organ of state shall, in exercising any power under this Act, have regard to the following objectives and principles:

- a. the need to achieve optimum utilization and ecologically sustainable development of marine living resources;
- b. the need to conserve marine living resources for both present and future generations;
- c. the need to apply precautionary approaches in respect of the management and development of marine living resources;
- d. the need to utilize marine living resources to achieve economic growth, human resource development, capacity building within fisheries and mariculture branches, employment creation and a sound ecological balance consistent with the development objectives of the national government;
- e. the need to protect the ecosystem as a whole, including species which are not targeted for exploitation;
- f. the need to preserve marine biodiversity;
- g. the need to minimize marine pollution;
- h. the need to achieve to the extent practicable a broad and accountable participation in the decision-making processes provided for in this Act;
- i. any relevant obligation of the national government or the Republic in terms of any international agreement or applicable rule of international law; and
- j. the need to restructure the fishing industry to address historical imbalances and to achieve equity within all branches of the fishing industry.”

Component **2** *To the extent possible, the formation of management boundaries should be ecologically meaningful and management measures should be harmonized across boundaries and jurisdictions, locally, nationally and internationally, when ecologically relevant.*

What does it mean for management boundaries to be ecologically meaningful and for management measures to be harmonized across boundaries and jurisdictions, when ecologically relevant, and why should both be legislated for?

Management boundaries that are ecologically meaningful are those that are determined by resource ranges, habitats, and other ecological considerations. The harmonization of management measures across boundaries means that, when ecologically relevant, measures are coordinated, compatible and consistent across management and governance structures, locally, nationally and internationally. Both of these factors are important because species and habitats do not respect legally or historically-defined boundaries, but are rather based on particular ecosystems. Thus, in order to effectively manage for ecosystems (rather than for targeted resources) to the best extent possible, ecosystem boundaries should be the foundation of management boundaries and management measures should be harmonized across boundaries and jurisdictions.

Steps for legislating for ecologically meaningful management boundaries and harmonized management measures

To the best extent possible, when new management boundaries are formed, they should be ecologically meaningful, taking into account resource ranges, habitats and other ecological considerations. Any newly formed management boundaries should be overlapped as closely as possible with well-established management and governance structures in order to facilitate coordination and harmonization.

When well-established management boundaries and governance structures exist but are not based on ecological boundaries, the correlated management measures and plans should be harmonized to better account for ecosystem considerations, such as shared stocks, critical habitats, protected species, etc.

When well-established management boundaries and governance structures exist but are not tailored to the management of cross-cutting issues or ecosystem considerations – such as the management of shared fisheries stocks – specially-designed bodies or processes may be established. If these are established, the powers and responsibilities of the bodies and their processes should be outlined clearly. The bodies should be representative in design and the processes should allow for stakeholder and institutional participation and coordination.

The requirement for states to cooperate on the harmonization of management measures and plans should be outlined. This encompasses the requirement to cooperate bilaterally, regionally and also internationally, through management fora such as regional fishery management organizations (RFMOs).

Examples

Ecologically meaningful management boundaries

Canada: the 1996 Oceans Act calls for the development and implementation of plans for the integrated management of all activities or measures in or affecting estuaries, coastal waters and marine waters²³. In line with the Act, the

²³ Oceans Act, SC 1996, c 31. Available at <http://laws-lois.justice.gc.ca/PDF/O-2.4.pdf>

Oceans Action Plan designates five priority Large Ocean Management Areas (LOMAs) for phase one of integrated management planning²⁴. A LOMA is defined as a marine region that is determined using a combination of ecological and administrative considerations²⁵. The five existing LOMAs are characterized by important living and non-living marine resources, high biological diversity and productivity and many stakeholders competing for ocean space and resources²⁶. Based on assessments, conservation and socio-economic objectives are set²⁷. These objectives guide the design and implementation of the integrated-management plan for the LOMA²⁸.

Harmonization of management measures

National harmonization for managing highly migratory species

United States: the Magnuson-Stevens Fishery Conservation and Management Act, as amended in 2007, generally provides that the eight Regional Fishery Management Councils (RFMCs) shall prepare FMPs for each fishery under its authority that requires conservation and management. However, the Act states that the Secretary of Commerce shall prepare a FMP for any highly migratory species fishery that falls under the authority of more than one of the following councils: New England Council, Mid-Atlantic Council, South Atlantic Council, Gulf Council and Caribbean Council. In preparing these FMPs, the Secretary shall consult with the affected councils, commissioners and advisory groups. Furthermore, the FMP shall be harmonized with the United

States' obligations under relevant international fishery agreements and shall promote international conservation of the affected fisheries.

Bilateral, regional and international harmonization

Ghana: the 2002 Fisheries Act stipulates that the minister may and shall on the advice of the Fisheries Commission consult with foreign governments and in particular with governments of states sharing the same or interrelated fish stocks, with a view to: (a) ensuring the closest practicable harmonization or cooperation of their respective fisheries management and development plans and regulations; and (b) providing for the formulation of sub-regional or regional fisheries management and development plans including MCS for the allocation of fishing effort and catch for the formation or promotion of joint fishing by states sharing the same stocks, and for taking sub-regional or regional joint conservation measures.

Liberia: the 2002 Environment Protection and Management Law establishes a set of environmental principles that shall guide its implementation, including the "principle of international cooperation in the management of environmental resources shared by two or more states." It further prescribes that the Environmental Protection Agency shall enter into consultation with other state agencies in the region with a view to developing action plans for the cooperation and harmonization of the management of shared natural resources.

²⁴ Department of Fisheries and Oceans. 2005. Canada's oceans action plan – for present and future generations. Report DFO/2005-348. Ottawa, Canada. Communications Branch, Fisheries and Oceans. Available at <http://www.dfo-mpo.gc.ca/oceans/documents/oap-pao/oap-eng.pdf>

²⁵ Department of Fisheries and Oceans. 2011. National framework for Canada's network of marine protected areas. Ottawa, Canada. Available at <http://www.dfo-mpo.gc.ca/oceans/documents/dmpaf-eczpm/framework-cadre2011-eng.pdf>

²⁶ Ibid.

²⁷ Department of Fisheries and Oceans. 2002. Policy and operational framework for integrated management of estuarine, coastal and marine environments in Canada. Section 3.2.1. Ottawa, Canada. Oceans Directorate. Available at <http://www.dfo-mpo.gc.ca/oceans/documents/cosframework-cadresoc/im-gi-eng.pdf>

²⁸ Ibid.

Component 3

The precautionary approach should be outlined.

What is the precautionary approach and why should it be legislated for?

The EAF Guidelines explain the precautionary approach as follows: “where there are threats of serious irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation²⁹.” While the precautionary approach has been applied under traditional management processes, its application becomes even more crucial under EAF because there are greater levels of uncertainty involved when managing ecosystem structures, functions and relationships.

Steps for legislating for the precautionary approach

1. The precautionary approach should be included and defined in the objectives or principles of the law governing fisheries.
2. The precautionary approach should be included and defined in the objectives or principles of EAF-relevant legislation.
3. The precautionary approach should be included in the outlined processes for establishing management measures such as TACs, FMPs, gear regulations, etc.

Examples

Cameroon: the 1996 Law on Environmental Management states that the management of the environment and natural resources shall be guided by a suite of fundamental principles such as the precautionary principle.

Sierra Leone: the 1994 Fisheries (Management and Development) Decree outlines objectives and purposes for the management and development of fisheries, including to “ensure the proper conservation of the fishery resources through the prevention of over-fishing and the taking of a precautionary approach toward harvesting when data about the fishery resource are lacking.”

South Africa: the 1998 Marine Living Resources Act states that “the minister and any organ of State shall, in exercising any power under this Act, have regard to the following objectives and principles: the need to apply precautionary approaches in respect of the management and development of marine living resources.”

Mainland Tanzania: the 2004 Environmental Management Act outlines environmental management principles which shall be observed by persons exercising powers under the Act, including the precautionary principle.

²⁹ FAO. 2003. Fisheries Management. The ecosystem approach to fisheries. FAO Technical Guidelines for Responsible Fisheries. No. 4, Suppl. 2, p. 22. Rome, FAO.

Component 4

Mechanisms for stakeholder participation and transparency should be outlined.

What are mechanisms for stakeholder participation and transparency and why should they be legislated for?

Mechanisms for stakeholder participation and transparency enable the general public and interested parties to gain information, engage in the decision-making process and gain a sense of ownership in the management of shared resources. Stakeholder participation and transparency have the potential to improve the effectiveness of management measures and improve the rate of compliance with such measures, for example by fishers and fishing communities. Some mechanisms that facilitate stakeholder participation and transparency are: the inclusion of stakeholders in advisory councils or bodies; the right of access to information; the right to comment on proposed management decisions or actions, in meetings and in writing; and the right to engage in the management process more generally. As the human dimension is crucial to the effective implementation of EAF, it is important to legislate for mechanisms that inform and engage stakeholders and facilitate transparency.

Steps for legislating for stakeholder participation and transparency mechanisms

1. The principle or objective of stakeholder participation and transparency, including the right of access to information, should be outlined in the law governing fisheries.
2. The principle or objective of stakeholder participation and transparency, including the right of access to information, should be outlined in EAF-relevant legislation.
3. The establishment of advisory councils or bodies composed of representatives from industry, the artisanal sector, academia, civil society and local communities should be outlined. These advisory councils should be incorporated into the process for designing and establishing conservation and

management measures, including FMPs, at both the local and national level.

4. The requirement for public meetings or hearings should be outlined. These meetings or hearings enable interested parties to gain information and provide input and comment on the state of the resources and the current, potential, or planned management measures. The meetings or hearings should be well publicized and the public should understand their right to participate. For example, public meetings or hearings should be included as a part of the process of designing FMPs.
5. Notice to the public of proposed management measures or actions and the opportunity for the public to comment should be required. The notice should be widespread, ensuring that access to information is fair and transparent, and the time-frame for comment is sufficient to provide a reasonable opportunity to participate.

Examples

Outlined principle or objective

Cameroon: the 1996 Law on Environment Management states that the management of the environment and natural resources shall be guided by a suite of fundamental principles, such as the principle of participation. The principle of participation includes a citizen's right to access information and a stakeholder's right to be consulted before decision making that concerns the environment.

Advisory councils or bodies

Gabon: the 2005 Code of Fisheries and Aquaculture provides for the rights of coastal populations to initiate the process of classifying

(or declassifying) an area as an MPA. Their rights are similar to those of the fisheries authorities in this respect. When identifying the perimeters of a MPA and mapping out the nature of customary rights and other activities in the area, the authorities shall cooperate with the local population. For this purpose, consultative commissions shall be established, whose composition, organization and duties shall be provided for in regulations.

Senegal: the 1998 Marine Fisheries Code establishes the National Advisory Council for Marine Fisheries, which comprises representatives from the fisheries administration, research units, port authorities, the ministries of defence, finance, environment and decentralization, as well as persons representing ship-owners, artisanal fishers, fish sellers, the aquaculture sector and recreational fishers. Its function is to advise on draft FMPs and make proposals on the implementation of the Marine Fisheries Code.

The Code also provides that the minister may establish advisory bodies for artisanal fisheries in the regions. These councils shall include individual artisanal fishers, artisanal fishers' associations, fishmongers, fish processors, fish farmers, elected representatives, notables and representatives of the local administration. The bodies are designed to advise the minister on all artisanal fisheries related matters within a region and ensure that artisanal fishers are informed about conservation and management measures.

United States: the Magnuson-Stevens Fishery Conservation and Management Act, as amended in 2007, states that each RFMC shall establish and maintain a fishing industry advisory committee, which shall provide information and recommendations on and assist in the development of FMPs and amendments to such plans. As necessary or appropriate, the Council shall also establish other advisory panels to assist it in carrying out its functions.

Public meetings or hearings

United States: the Magnuson-Stevens Fishery Conservation and Management Act, as amended

in 2007, mandates that councils shall conduct public hearings so as to allow all interested persons an opportunity to be heard in the development of the FMPs and amendments to such plans. Moreover, council, committee, or advisory panel meetings shall be open to the public, unless they are required to be closed in accordance with special provisions under the Act. In preparing for a meeting, timely public notice shall be provided, including the time, place and agenda of the meeting. This shall be done by any means that will result in wide publicity in the major fishing ports of the region and also shall be published in the Federal Register. E-mail notification and website postings alone are not sufficient to provide public notice.

At the meetings, any interested person shall be permitted to present oral or written statements regarding the matters on the agenda. All written information submitted to the council by an interested person shall include a statement of the source and date of such information. Additionally, any oral or written statement shall include a brief description of the background and interests of the person in the subject of the oral or written statement.

Notice and comment

Mainland Tanzania: The 2003 Fisheries Act prescribes that the Director of Fisheries must disseminate information and written guidance by order or notice to the public, as appropriate, regarding the implementation of the Act.

United States: The Magnuson-Stevens Fishery Conservation and Management Act, as amended in 2007, provides for participation in the fisheries management process by mandating that notice is published, and an opportunity for comment is provided, regarding potential management actions or decisions. For example, after reviewing the councils' proposed regulations for compliance with the FMPs, the secretary shall publish them in the Federal Register for a public comment period of 15 to 60 days. Moreover, the secretary shall provide notice and the opportunity for public comment on the proposed regulations regarding observers on fishing vessels.

Mechanisms for coordination, cooperation and integration of approach between the institution responsible for fisheries management and other relevant institutions should be established.

What are mechanisms for coordination, cooperation and integration and why should they be legislated for?

Coordination, cooperation and integration refers to the act of government institutions engaging in dialogue and working together to minimize duplication of effort, coordinate approaches, avoid contradictory initiatives and establish synergies in order to accomplish their respective goals and objectives. Mechanisms for coordination, cooperation and integration may take many forms, including the establishment of advisory or decision-making bodies composed of various institutional representatives, or the establishment of specific, well-defined processes. Since many activities and management measures affect the ecosystems in which fisheries are based, legislation should address mechanisms for the coordination of these activities, and for the cooperation and integration between institutions for effective EAF implementation.

Steps for legislating for coordination, cooperation and integration mechanisms

1. The mandate for government institutions with jurisdiction over EAF-relevant areas – from the local to the national level – to coordinate efforts, cooperate and integrate approaches should be outlined.
2. The mandate for the national government to coordinate, cooperate and integrate the regional and international processes and arrangements should be specifically outlined.
3. Mechanisms to facilitate the coordination, cooperation and integration of management decisions and regulatory actions should be outlined. A mechanism may involve the establishment of a body, council, or commission, composed of representatives from various institutions, charged with

designing, implementing, advising on and/or monitoring management measures. For example, the law governing fisheries may establish a representative body that formulates FMPs or adopts management measures. Additionally, a mechanism may detail a process by which a lead government institution shall consult with other relevant institutions before taking a management decision or action. For example, the law governing fisheries may detail a process by which the ministry responsible for fisheries shall consult with other relevant ministries such as mining, petroleum, environment, transport and commerce before finalizing a FMP.

4. Mechanisms to facilitate the coordination, cooperation and integration of environmental policies, plans and programs should be outlined. A mechanism may establish a body or commission, composed of representatives from various institutions, which is charged with monitoring, assessing and aligning the various environmental policies, plans and programs. Additionally, a mechanism may entail a process by which a designated authority is charged with monitoring, assessing and aligning the various environmental policies and plans.

Examples

Mandate for coordination, cooperation and integration

Mainland Tanzania: the 2003 Fisheries Act provides that the Director of Fisheries shall promote, encourage and support initiatives leading to the development and sustainable use of fish and aquatic resources “in cooperation with other appropriate agencies and divisions or departments of Government.”

Mechanisms for coordination, cooperation and integration: in laws governing fisheries

Ghana: the 2002 Fisheries Act establishes the Fisheries Commission, which is composed of representatives from the ministries responsible for transport, defence and the environment, the Water Research Institute, the Ghana Irrigation Development Authority and additional stakeholder representatives. The Commission is mandated “to regulate and manage the utilization of the fishery resources of Ghana and to co-ordinate the policies in relation to them.” For example, the Commission shall prepare and keep under continual review fishery plans; establish priorities for the utilization of fishery resources; ensure the monitoring, control and surveillance of the fishery waters; promote sub-regional, regional and international cooperation in fisheries management; and correlate fisheries with other water users and environmental protection.

Namibia: when declaring a marine reserve, the 2000 Marine Resources Act requires the consent of the minister under whose authority the particular area of state land falls and consultation with the competent land authorities, subject to the jurisdiction of a traditional authority. The minister shall, after consultation, establish objectives and permissible activities for the management of the reserve.

In other EAF-relevant laws

Namibia: the 2002 Aquaculture Act establishes the Aquaculture Advisory Council, which is composed of ministry staff, representatives from regional and local authorities and other stakeholders. Before the minister declares an aquaculture development zone, he or she shall consult with the Aquaculture Advisory Council and with any other ministry with jurisdiction in the proposed zone.

The 1991 Petroleum (Exploration and Production) Act states that advice from the ministers responsible for the environment, fisheries and finance shall be sought in relation to the clearing of exploration areas and when approving decommission plans.

Coordination, cooperation and integration at the local level

Mainland Tanzania: the 2003 Fisheries Act provides that the director shall ensure that all the local government authorities, associations of local authorities and other fisheries management authorities are consulted and kept informed of management of fisheries under the Act and any other related laws. If there is a conflict between the management plan of a local authority and other local authorities with an interest in or jurisdiction over a water body, the director and other relevant officers and members of local authorities shall consult and use their best endeavours to resolve such conflicts.

Coordination, cooperation and integration of environmental policies, plans and programs

Mauritius: the 2002 Environment Protection Act establishes the National Environment Commission, which comprises the Prime Minister, the ministers responsible for agriculture, housing and lands, economic development, environment, fisheries, health, industry and shipping and tourism, as well as participants from the University of Mauritius and a trade union. The Commission is charged with setting national objectives and goals and determining policies and priorities for the protection of the environment; reviewing progress made by public departments on any aspect of environmental management projects and programmes; ensuring coordination and cooperation between public departments, local authorities and other government organizations engaged in environmental protection programmes; making recommendations and issuing directions to public departments as is deemed fit; and monitoring and reviewing the activities of public departments concerned with the protection and management of the environment.

Component 6

Lower level authorities, bodies and stakeholders should be integrated into management processes.

What does it mean for local level authorities, bodies and stakeholders to be integrated into management processes and why should it be legislated for?

Lower level authorities, bodies and stakeholders may be integrated into the management process through advisory, decision-making, implementation and/or enforcement roles. Legislation should address local engagement, participatory management and co-management. These approaches are crucial to ensuring local and stakeholder buy-in, improving knowledge and consideration of local resources and systems – including traditional knowledge – and strengthening the implementation and enforcement of management measures.

Steps for legislating for the decentralization of management processes

1. The principle of integrating lower level authorities, bodies and stakeholders into the management process should be outlined as an objective in the law governing fisheries.
2. The principle of integrating lower level authorities, bodies and stakeholders into the management process should be outlined as an objective in EAF-relevant legislation.
3. The lower level authorities or bodies that are to be integrated into the management process should be established or designated and their roles and/or responsibilities clearly defined. It should be stipulated that the lower level authorities or bodies are to cooperate, both at the local level and with national authorities, and to engage stakeholders when fulfilling their roles and responsibilities. A special effort should be made to integrate the lower level authorities or bodies into the management process when resources are affected at a local level, such as with the design and implementation of FMPs, protected areas and the

management of small-scale or artisanal fisheries.

4. The integration of lower level authorities, bodies and stakeholders into the management process must complement, and not be in conflict with, any existing and overarching national policies or laws.
5. The relationships, including the respective roles and responsibilities, between the national authorities, the lower level authorities or bodies and any additional co-management structures should be outlined clearly.
6. The integration of lower level authorities, bodies and stakeholders into the management process should entail not only the assignment of roles and responsibilities, but also a corresponding allocation of financial, human and material resources.

Examples

Community-based co-management

Madagascar: the 1996 Law on Local Management of Renewable Natural Resources provides for the transfer of management responsibilities of natural resources, including aquatic resources, to local communities according to the terms and conditions specified in a contract between the local communities and the authorities. The contract grants the community the right (for a specified time) to manage the access, conservation, exploitation and development of the resources for which management powers have been transferred.

Mainland Tanzania: the 2003 Fisheries Act empowers fisheries stakeholders to form community-based groups known as beach management units (BMUs) in marine coastal areas by entering into management agreements with the Director of Fisheries. The 2005 Fisheries Act Regulations prescribe that the agreement that

establishes a BMU shall define the jurisdictional area (fish landing station) of the BMU and that every person engaging in fisheries activities within the BMU area, including fish processors, traders, gear repairers and suppliers and boat builders, shall be registered as members.

A BMU shall, but is not limited to: (a) develop a BMU fisheries management and landing station development plan in consonance with higher level fisheries management plans; (b) develop annual and quarterly work plans and budgets to implement the management and development plans; (c) collaborate in the collection of fisheries catch, effort and value information; (d) engage in monitoring, control and surveillance within the BMU area; (e) ensure hygienic, healthy and safe conditions at the landing stations within the BMU area, in accordance with governmental standards; (f) resolve conflicts; (g) participate in selection processes for the issue of fishing vessel license and fishing permits within the BMU jurisdictional area; (h) ensure fisheries license and permit fees are paid by BMU members in a timely manner; and (i) arbitrate to settle fisheries disputes between BMU members, between BMUs and between the BMU and other institutions.

Community-based advisory councils

Madagascar: the 1993 Ordinance Regulating Fisheries and Aquaculture provides that advisory councils for fisheries and aquaculture shall be established in each *Faritany* (local community) and shall comprise representatives from ministries, local government and the industry. The councils shall advise on any matter referred to them by the Department of Fisheries and Aquaculture or the Inter-ministerial Commission. The terms of operation and participation of the councils are to be determined by regulation.

Community cooperation on Marine Protected Areas

Gabon: the 2005 Code of Fisheries and Aquaculture provides for the rights of coastal populations to initiate the process of classifying (or declassifying) an area as an MPA. Their rights are similar to those of the fisheries authorities in this respect. When identifying the perimeters of a MPA and mapping the nature of customary rights

and other activities in the area, the authorities shall cooperate with the local population. For this purpose, consultative commissions shall be established, whose composition, organization and duties shall be provided for in regulations.

Regionally-developed FMPs

United States: the Magnuson-Stevens Fishery Conservation and Management Act, as amended in 2007, establishes eight RFMCs (Regional Fishery Management Councils) responsible for preparing management plans for each fishery under its authority that requires conservation and management. The RFMCs shall conduct public hearings, submit periodic reports, as required or appropriate, develop annual catch limits for managed fisheries, establish multi-year research priorities for fisheries, fisheries interactions, habitats and other areas of research, and establish a scientific and statistical committee, a fishing industry advisory committee and other advisory panels as are necessary.

Each RFMC shall be composed of voting members, which include: the principal state official with marine fishery management responsibility and expertise in each constituent state, who is designated by the governor of the state; the regional director of the National Marine Fisheries Service for the geographic area concerned, or his or her designee; and the members required to be appointed by the secretary in accordance with the outlined provisions. One such provision is that the individuals are knowledgeable regarding the conservation and management, or the commercial or recreational harvest, of the fishery resources of the geographical area concerned.

The non-voting members shall be: the regional or area director of the United States Fish and Wildlife Service, or his or her designee; the commander of the Coast Guard district for the geographical area concerned, or his or her designee; the executive director of the Marine Fisheries Commission for the geographical area concerned, if any, or his or her designee; and one representative of the Department of State designated for such purpose by the secretary of state, or his or her designee.

Component 7

Mechanisms for conflict management should be outlined.

What are conflict management mechanisms and why should they be legislated for?

Conflict management mechanisms may take the form of representative bodies or commissions specifically established to manage conflicts, or the delegation of authority to an existing body, official or traditional authority. In addition, these mechanisms should describe the processes to be followed when managing and resolving conflicts. It is important to legislate for such mechanisms, particularly in the context of EAF, so as to minimize the potential for, and actual conflict between fisheries users, and between fisheries users and other user groups. This will allow for sound and mutually beneficial management of fisheries resources and their ecosystems.

Steps for legislating for conflict management mechanisms

1. The principle of reducing and managing conflict over fisheries resources and their associated ecosystems should be outlined as an objective in the law governing fisheries.
2. The principle of reducing and managing conflict should be outlined as an objective in EAF-relevant legislation.
3. A mechanism for conflict management should be outlined within the law governing fisheries. This mechanism should designate the authority empowered to address conflicts related to fisheries and outline the procedure for doing so. The process should include the identification of the conflicts the authority has the power to review; the way in which the conflicts should be presented (including the right of the involved parties to present an argument) and the parameters for decision-making and resolving the conflict. In line with EAF principles, the authority should ideally be a representative body accounting for

various interests, and the process should be transparent and accessible.

4. A mechanism for conflict management should be outlined within EAF-relevant legislation. This mechanism should designate the authority empowered to address conflicts related to the relevant resource or ecosystem. The process should include the identification of the conflicts the authority has the power to review; the way in which the conflicts should be presented (including the right of the involved parties to present an argument) and the parameters for decision-making and resolving the conflict. In line with EAF principles, the authority should ideally be a representative body accounting for various interests, and the process should be transparent and accessible.

Examples

Ghana: the 2002 Fisheries Act establishes a Fisheries Settlement Committee, under the auspices of the Fisheries Commission, “to hear and settle complaints from persons aggrieved in respect of matters arising from or related to the fishing industry.” The members of the Fisheries Settlement Committee are to be appointed from the members of the Fisheries Commission.

The Fisheries Commission is cross-sectoral and composed of representatives from the ministries responsible for transport, defence and the environment, the Water Research Institute and the Ghana Irrigation Development Authority. Additionally, the Fisheries Commission shall include representatives from the Ghana Marine Fishing Officers Association, two representatives from the National Fisheries Association of Ghana (one representing artisanal and one industrial fishing) and one person knowledgeable about the fisheries industry or natural resource management.

Mozambique: Decree no. 43/2003 provides for establishing Community Fisheries Councils at the local level. Upon requests from stakeholders, the ministry may establish such councils with the intention of facilitating co-management, compliance with management measures and conflict resolution.

Senegal: the 1998 Marine Fisheries Code provides for the establishment of advisory bodies for artisanal fisheries in the regions. The ministry may establish such councils in the regions and may also designate its members. These councils shall include individual artisanal fishers, artisanal fishers' associations, fishmongers, fish processors, fish farmers, elected representatives, notables and representatives of the local administration. The councils shall organize the artisanal fishers with a view to reducing and resolving conflicts between

different fishery communities and between different gear groups.

Sierra Leone: the 1994 Fisheries (Management and Development) Decree states that the director shall take into account the listed objectives and purposes in the preparation of fisheries management and development plans and otherwise in management decisions, one of which is to "minimize to the extent practicable, fishing gear conflicts among users."

Mainland Tanzania: the Fisheries Act Regulations outline the multiple functions of BMUs, such as conflict resolution, including the charge to participate in selection processes for the issue of fishing vessels license and fishing permits within the BMU jurisdictional area to ensure equitable access to resources by BMU members.

Component 8

Mechanisms for the integrated management of aquatic ecosystems should be established.

What are mechanisms for the integrated management of aquatic ecosystems and why should they be legislated for?

Mechanisms for integrated management engage managers, users and stakeholders in the development of comprehensive management plans for aquatic ecosystems, including lakes, coasts and oceans. These mechanisms may establish and utilize representative bodies, composed of members from various institutions, industry, civil society and other stakeholders, or identify a lead institution to develop and implement the relevant management plans. The establishment of mechanisms for integrated management of aquatic ecosystems is critical to minimize conflict between resource users and stakeholders and to ensure the overall health and integrity of the shared ecosystems.

Steps for legislating for mechanisms for the integrated management of aquatic ecosystems

1. Mechanisms for the integrated management of aquatic ecosystems should be established. Integrated coastal zone or ocean management planning represent some key examples. A mechanism may involve a representative body or council, composed of members from various institutions, industry, communities, civil society and other stakeholders. The representative body may be charged with formulating the integrated management plan and overseeing its implementation. Alternatively, a mechanism may involve a lead institution that is charged with coordinating with other institutions, industry, communities, civil society and stakeholders. This lead institution may be charged with formulating and overseeing the implementation of the integrated management plan. Regardless of how the mechanism is designed, the designated authorities and their roles and the corresponding processes should be outlined clearly.
2. The requirement for FMPs and measures to comply with established integrated management plans for aquatic ecosystems, such as with marine spatial planning, should be outlined. For example, when designing FMPs and measures, designations made by integrated management plans of protected areas, critical habitat, or zoning for resource users should be respected.
3. The integrated management of aquatic ecosystems should be based on ecosystem delimitations. This ensures that the various activities and uses are managed in a comprehensive way that considers and protects the overall health and integrity of entire ecosystems.
4. The requirement for periodic reviews of managed aquatic ecosystems and the effectiveness of their corresponding integrated management plans should be outlined. The review of the managed ecosystems should assess the state of the aquatic resources, extractive activities, levels of pollution, habitat degradation and certain social and economic factors, such as levels of employment, etc. Additionally, the integrated management plans should be reviewed to assess whether the objectives and indicators have been met, the extent of implementation of the plans, and to determine any potential needs for adjustment or revision. The authorities responsible for implementing such reviews and the processes and the time frames governing the reviews should be clearly stated.
5. Throughout the integrated management processes, cooperation and coordination between all levels of government and

stakeholder participation should be emphasized. This ensures that all users and managers have the opportunity to engage in and feel part of the management process.

6. The importance of international cooperation for the integrated management of aquatic ecosystems should be emphasized. Because ecosystems often cross national jurisdictions, international cooperation is necessary for proper and effective management.

Examples

Integrated ocean management

Canada: the 1997 Oceans Act states that the Minister of Fisheries and Oceans shall lead and facilitate the development and implementation of a national strategy for the management of estuarine, coastal and marine ecosystems. To do so, the minister shall collaborate with other ministers and agencies from the national government, the provincial and territorial governments, aboriginal organizations, coastal communities and other stakeholders. The national strategy will be based on the principles of sustainable development, the integrated management of activities and the precautionary approach³⁰.

Additionally, the minister shall lead and facilitate the development and implementation of integrated management plans, encompassing all activities or measures in or affecting estuaries and coastal and marine waters. Again, the minister shall collaborate with other ministers and agencies from the national government, the provincial and territorial governments, aboriginal organizations, coastal communities and other stakeholders. In furtherance of the integrated management plans, advisory or management

bodies may be established and policies and programs shall be implemented³¹.

Canada's Ocean Strategy further outlines the national government's commitment to coordinated, collaborative oceans management and proposes the use of new and existing mechanisms such as committees, management boards and information sharing to promote this goal. Moreover, the strategy emphasizes the need to engage all partners in the planning and management processes³².

Building on the strategy, Canada's Ocean Action Plan outlines activities for phase one of the implementation of integrated management planning. The plan establishes five priority areas – LOMAs – and outlines the use of management tools, including ecosystem overview and assessment reports, the identification of ecologically significant areas, seabed mapping and the development of ecosystem objectives³³.

The planning process for the LOMAs involves four-steps, each of which includes engagement with government, industry, civil society, academia and other stakeholders. First, the LOMA boundary is determined, using a combination of ecological and administrative conditions, and the planning team is defined. Second, an ecosystem overview and an assessment report are compiled. Third, management objectives are established, including economic, social, cultural and conservation considerations. Finally, an integrated management plan is developed and implemented. The plan includes management measures and monitoring and reporting requirements³⁴.

Australia: the 1999 Environment Protection and Biodiversity Conservation (EPBC) Act states that the minister may prepare bioregional plans within the Commonwealth area. A bioregional plan may include provisions about the

³⁰ Available at <http://laws-lois.justice.gc.ca/PDF/O-2.4.pdf>

³¹ Ibid.

³² Department of Fisheries and Oceans, 2005. Canada's oceans action plan – for present and future generations. Report DFO/2005-348. Ottawa, Canada. Communications Branch, Fisheries and Oceans. Available at <http://www.dfo-mpo.gc.ca/oceans/documents/oap-pao/oap-eng.pdf>

³³ Department of Fisheries and Oceans. 2002. Policy and operational framework for integrated management of estuarine, coastal and marine environments in Canada. Ottawa, Canada. Oceans Directorate. Available at <http://www.dfo-mpo.gc.ca/oceans/documents/cosframework-cadresoc/im-gi-eng.pdf>

³⁴ Ibid.

components of biodiversity, their distribution and conservation status; important economic and social values; heritage values; objectives relating to biodiversity and other values; priorities, strategies and actions to achieve the objectives; mechanisms for community involvement in implementing the plan; and measures for monitoring and reviewing the plan. In preparing the plan, the minister must consult with the public around a draft. Although a bioregional plan is not a legislative instrument, when making decisions under the EPBC Act the minister must have regard to a bioregional plan when it is relevant³⁵.

Integrated coastal management

South Africa: the 2008 National Environmental Management: Integrated Coastal Management Act requires that a National Coastal Committee be established to coordinate the implementation of the Act within the government and between the government and other stakeholders. The Minister of Environmental Affairs shall appoint the members of the committee and determine its powers. The committee must have a broad composition and include (i) persons with expertise in fields relevant to coastal management and coastal ecosystems; (ii) a representative from each provincial coastal committee; (iii) one or more members representing municipalities in the coastal zone; (iv) representatives of national government departments concerned with

the coastal environment; and (v) one or more members representing the management authorities of coastal protected areas.

At the provincial level, a lead agency for coastal management shall be designated and provincial coastal committees shall be established. The committees shall have broad participation, advise on matters concerning coastal management in the province, and assist in the development of the provincial coastal management programme.

The Act prescribes that the minister shall adopt a coastal management programme, which shall be reviewed every four years and shall include: (a) a national vision for coastal management, including the sustainable use of coastal resources; (b) national coastal management objectives; (c) priorities and strategies to achieve those objectives; (d) performance indicators to measure progress with the achievement of those objectives; (e) norms and standards for the management of the coastal zone generally and the specific components of the coastal zone; and (f) a framework for cooperative governance that (i) identifies the responsibilities of different organs of state and (ii) facilitates coordinated and integrated coastal management.

The Act states that coastal management programmes shall be adopted at provincial and municipal levels. It furthermore provides for the alignment and consistency between coastal management programmes and other management plans³⁶.

³⁵ Available at <http://www.comlaw.gov.au/Details/C2012C00248>

³⁶ Available at ftp://ftp.fao.org/fi/DOCUMENT/eaf_nansen/Reports/EAF-NansenReportNo10_En.pdf (135-6)

Component 9

Controls on fishing operations, such as catch/output controls, effort/input controls, fishing gear controls, spatial controls and temporal controls, should be outlined.

What are controls on fishing operations, such as catch/output controls, effort/input controls, fishing gear controls, spatial controls, and temporal controls, and why should they be legislated for?

Controls may take various forms and generally fall within the five broad categories of catch/output controls, effort/input controls, fishing gear controls, spatial controls and temporal controls. Legislating for these controls is necessary to limit fishing pressure on target species, thus preventing overexploitation; limit impacts on associated and non-target species, especially the incidence of bycatch and discards; limit negative impacts on habitats, especially those of critical importance; and limit pollution, excess energy expenditure and other harmful impacts on the marine ecosystem. The five categories of controls are defined as follows:

Catch/output controls:

Establish direct limits on the amount of fish that may be removed from a fishery in a given period of time. A common example is TAC which sets the total number or tonnage of fish that may be caught within a fishery in a given period of time. TACs are often further divided into individual quotas and allocated to participants in a fishery. Another example of a catch control is the bag limit which restricts the number of fish that may be landed in a day. Catch controls may also be used to place limits on the amount of acceptable bycatch and/or discards from a fishery. Generally, catch controls (particularly TACs) should be calculated on an annual or periodic basis, be based on scientific data and maximum sustainable yield (MSY) and take into account the precautionary principle.

Effort/input controls:

Establish limits on the capacity and effort of fishing vessels operating within a fishery in a

given period of time. There are various effort controls that may be used, such as limiting the number and size of fishing vessels that may operate within a fishery; the amount of time fishing vessels may operate within a fishery; or the number and type of fishing gears that may be deployed within a fishery. Effort controls are commonly implemented through the assignment of licenses to fish, which often regulate the number and size of vessels and the amount of gear permitted. Additionally, effort controls might include limiting the construction or import of new vessels, or the import, construction or purchase of new gear.

Fishing gear and method controls:

Regulate the gear and methods that are permitted for use within a given fishery or area. These controls may take the shape of general prohibitions on types of gear, or methods or specifications on gear design, and areas or methods of use. For example, it is common to prohibit the use of explosives, toxic substances, lights or electricity for fishing. And, it is common to prohibit the use of nets of a specified mesh size and to prohibit the use of seine, trawl, or other specified methods in certain areas or zones.

Spatial controls:

Regulate the area in which fishing operations may or may not take place. These controls may designate an area as closed to fishing (sometimes for a limited time) owing to the fact that the area is used for spawning, as a nursery, or is an area of critical habitat or special concern, such as barrier reefs, around offshore structures or anchored FADs.

Temporal controls:

Regulate the time in which fishing operations may or may not take place. These controls may

designate a period of time during which fishing is not allowed (a closed season) to protect fish during spawning or migration; or a moratorium period to allow depleted stocks to rebuild.

Steps for legislating for controls on fishing operations

As an overarching principle, controls on fishing operations should be outlined in primary legislation either broadly, establishing systems or processes, or in terms that are unlikely to change or require frequent or periodic amendments. This is because primary legislation is infrequently revised and may cause the controls to become dated and therefore less effective at achieving the management objectives. The more specific provisions of the controls should instead be outlined through subsidiary legislation, such as regulations or decrees, or through other appropriate legal mechanisms, such as FMPs, and follow the process that is outlined in the primary legislation.

Catch/output controls:

1. A scheme that either mandates (“shall”) or creates the ability (“may”) to institute TACs should be outlined. The scheme should describe the authority empowered and the process by which to institute TACs.

In line with EAF principles, the designated authority should ideally be as representative as possible and include both stakeholders and representatives from institutions from the national and lower levels of government. Thus, the designated authority may take the form of an established commission, management council, or other body. However, the designated authority may also be the minister responsible for fisheries, or another government official.

The process for establishing TACs may be specifically tailored and designed or may be included as part of a broader process, such as for the development of FMPs. In either case, the process to institute TACs should outline the category of vessels to which the TAC applies

(e.g. industrial, semi-industrial, artisanal); the period of time for which the TAC is declared; the process, if applicable, for sub-dividing the TAC into individual quotas; and the procedure for, and time of, TAC review or revision. If the scheme establishes that the institution of TACs is permissible (“may”), the process should also outline the procedure for determining a TAC, the period during which a TAC will be introduced and the specific fisheries that will be affected.

In line with EAF principles, the process that is outlined should include steps for stakeholder and institutional consultation at both national and local levels. Moreover, the process should ensure that the TACs are calculated on an annual or periodic basis, based on scientific data and MSY, and take into account the precautionary principle. In light of the increasing obligation to participate in RFMOs or other regional management initiatives, the TACs for shared stocks or highly migratory species should be coordinated with international or regional management measures. In order to ensure that the TAC is distributed equitably and transparently, a participatory process for allocating individual quotas that includes stakeholder engagement, should be outlined. Finally, a mechanism for monitoring the catch in real-time and closing a fishery when the TAC is reached should be defined.

While the principles and processes for establishing TACs and individual quotas should be outlined in the primary legislation, specific details, such as exact quantities, should be stipulated in subsidiary legislation or individual FMPs.

2. The ability to attach catch controls to licenses and access agreements should be outlined, including the authority responsible for allocating, issuing, and regulating quotas and the procedure to be followed. These catch controls may involve restrictions on the targeted species, the establishment of minimum sizes and weights and the institution of catch limits (which may also include limits on bycatch and discards).

3. The ability to institute additional catch controls should be outlined, including the authority responsible for allocating, issuing and regulating quotas and the procedure to be followed. These additional controls may include bag limits for recreational fishing, or other such measures.

Effort/input controls:

1. A fishing license scheme to regulate access to fisheries should be defined so as to replace the open-access systems that lead to overexploitation. The broad license scheme, including the requirement to obtain a fishing license, should be described in the main fisheries law. Specific details, such as the number of licenses to be allocated, permit conditions, etc., for each fishery should be outlined in subsidiary legislation and/or FMPs. The license scheme should designate the authority responsible for allocating, issuing and regulating licenses, the specified license duration, the requirement of a fee (not obligatory for non-commercial fisheries) and the conditions that may be attached to licenses, including the specification of allowable gear or methods, fishing area or fishing season. The scheme should also empower the designated authority to establish additional regulations for licensing through subsidiary legislation. While the primary legislation should outline the broad principles and provisions around licensing, the specific and detailed regulations should be included in subsidiary legislation.
2. Provisions for the establishment of effort controls should be made. Effort control may include a limitation on vessel capacity, a limitation on the expansion of the fishing fleet, a limitation on allowable days spent at sea, or even a limitation on the quantity of permitted gear. Because these effort controls involve detailed and specific information,

the process for establishing them should be outlined in the primary legislation, with the specifics detailed in subsidiary legislation. The provisions should stipulate the authority empowered to regulate effort controls through subsidiary legislation and the parameters of that authority. For example, the process may state that the minister is able to limit the introduction of new vessels – whether by import or construction – when it is determined that any increase in fleet capacity would put the management of the fishery at risk. It may also state, more generally, that the minister has the authority to establish additional effort controls in instances where they are deemed necessary for the sustainable management of fisheries.

Fishing gear and method controls:

1. Prohibitions on highly destructive gear and fishing methods should be outlined in the primary legislation governing fisheries. Prohibitions may include fishing by toxic substance, explosives, electricity, fishing with the use of light, beach seines and high seas drift nets of more than 2.5 km in length.
2. Additional provisions aimed at reducing the negative impacts of fishing methods and gear should also be outlined. These provisions may aim to improve selectivity, minimize bycatch, limit habitat degradation and reduce environmental impacts related to pollution and energy usage. Provisions that are unlikely to require frequent amendments may be outlined in the primary legislation, but many methods and gear controls are of a technical nature and therefore it may be more appropriate to describe them in subsidiary legislation. For example, primary legislation may prohibit trawling in areas with sensitive seabed habitat, require the use of biodegradable nets, restrict the use of FADs, or require the use of bycatch reduction

devices. Additional technical provisions such as minimum mesh sizes or other specifications for gear sizes may be included in subsidiary legislation.

Spatial controls:

1. Mechanisms to establish closed or restricted-use areas, which prohibit or limit fishing operations, should be outlined. Often the closed or restricted-use areas are specific to a certain time of year, type of fishery, a clearly defined period for rebuilding stocks, the protection of artisanal fishing, or for safety and security, such as around offshore structures or port areas. For that reason, the authority to define such closures and the procedure for doing so should be outlined in the primary legislation, but the technical details and specifics should be outlined in subsidiary legislation. In light of EAF, the process of defining such closures should involve stakeholder and institutional consultation, both at the national and lower levels. Additionally, when deciding upon closed or restricted areas, ecosystem considerations should be taken into account, including species interactions, habitat and the human dimension.

Temporal controls:

1. Mechanisms to establish times or seasons during which fishing operations are prohibited or limited should be outlined. Often the closed times or seasons are specific to a certain area, type of fishery, or for a clearly defined period for rebuilding stocks and for that reason, the authority to define such closures and the procedure for doing so should be outlined in primary legislation, but the technical details and specifics should be outlined in subsidiary legislation. In light of EAF, the process of defining such closures should involve stakeholder and institutional consultation, both at the national and lower levels. Additionally, when deciding upon closed times or seasons, ecosystem

considerations should be taken into account, including species interactions, habitat and the human dimension.

Examples

Catch controls

Angola: the 2004 Aquatic Biological Resources Act provides that the ministry shall set TACs on an annual basis. However, the TACs can be reduced if scientific data shows that the species in question are declining, or when there are other environmentally justifiable reasons. Based on the TACs, the ministry shall set fishing quotas for industrial and semi-industrial right-holders. No TAC is set for artisanal fishing.

Ghana: the 2002 Fisheries Act prescribes that the minister may, on the recommendation of the Commission, make regulations for TACs and a quota system. The Act also states that access agreements shall provide for allowable allocations that do not exceed “a level consistent with the conservation and management of fishery resources” and shall be consistent with FMPs.

Madagascar: Decree No. 94–112 states that licenses issued to foreign fishing vessels are only valid for one vessel and shall include information about the species which may be fished, minimum size and weight of species, bycatch and the quantity of catch.

Namibia: the 2000 Marine Resources Act states that the minister may set a TAC to limit the quantity of any marine resource that may be harvested in a given period. The TAC shall be set on the basis of the best scientific evidence available and after requesting the advice of the Advisory Council.

Effort controls

Cameroon: Decree No. 95/413 establishes measures to control fleet capacity by stating that growth in the industrialized and semi-

industrialized fleet is subject to authorization from the minister who is required to take an assessment of marine resources into consideration when authorizing such growth.

Gabon: the 2005 Code of Fisheries and Aquaculture requires authorization for commercial fishing, sport fishing, scientific fishing, aquarium fishing and artisanal fishing. Fishing licenses are issued by the Minister of Fisheries and Aquaculture upon technical advice from a designated commission. License holders must comply with the specific requirements of their permissions, including the duration of the license; the type and characteristics of the fishing gear permitted for use; the interior areas where fishing is allowed; the permissible species; open and closed seasons; and MCS requirements, including catch reporting.

Kenya: the 1989 Fisheries Act prescribes that the Director of Fisheries may adopt measures to limit fishing effort when “proper management of fisheries requires limitation of the number of persons or of vessels, nets or areas or other means employed in a fishery”. The Director of Fisheries may take such measures as he or she prefers, including refusing to issue or renew licenses; imposing special license and catch fees; and permitting preferential licensing in other fisheries.

With respect to licensing of foreign fishing vessels, the Fisheries Act prescribes that the director may only issue a license if he or she has determined “that there are fishery resources surplus to the Kenya fishing industry which may be harvested under the license; and he or she has determined the quantity of the surplus that may be harvested” by the foreign vessel.

Mauritius: the 2007 Fisheries and Marine Resources Act includes a limit on the number of gear licenses that can be issued; the permanent secretary shall not at any time license the use of more than 10 large nets, 10 pocket nets, 10 canard nets, five gill nets and 100 shrimp nets in the lagoon on the island of Mauritius; 8 large nets, 8 pocket nets, 8 canard nets and 15 shrimp

nets in the lagoon on the island of Rodrigues; and two large nets for fishing in the lagoon on the island of Agalega. A gear license is not transferable.

As another means to control fishing effort, the Act prescribes that no person shall import into Mauritius or construct a fishing vessel, without the approval of the permanent secretary. Likewise, no person shall manufacture, import, sell or supply any gear without a license (with some exceptions). Furthermore, no person shall modify the size of a fishing vessel registered under the Act without the permanent secretary’s written approval.

Fishing gear and method controls

Cameroon: the 1994 Law on Forestry, Wildlife and Fisheries provides several restrictions on the use of fishing gears. It prohibits the use of trawls and seines in the belt stretching three nautical miles from the baselines. Moreover, it prohibits the following: gear manipulation that reduces the selectiveness of fishing nets; the use of aqualungs or harpoons when fishing; fishing using fire arms, dynamite, explosives, poison, electricity, light, automatic traps and other means that can be harmful to aquatic species and habitats; and fishing with unregulated mesh size. The minister shall further regulate the use of gear and mesh size.

A 2001 regulation restricts the use of specific fishing methods and gear, such as beach seines, cages, hooks and nets, and introduces specific provisions related to mesh size for artisanal and industrial fishing.

Mainland Tanzania: the 2003 Fisheries Act provides that the Director of Fisheries may adopt various measures to improve the management of fisheries, such as measures prohibiting the use of certain types of fishing vessels and gears and ensuring traditional practices that are consistent with responsible fisheries as well as the needs and interests of indigenous people.

The director may attach multiple conditions to

the license, including those related to fishing methods and disposal of fish, use of fishing gear, fishing zones and minimum length or size of any species of fish.

Spatial controls

Morocco: under the umbrella of the 1973 Maritime Fisheries Law, several regulations have been adopted, such as a prohibition for a period of ten years (commencing 15 December 2005) on harvesting red coral in a zone situated 14 nautical miles from the baselines; and a 2008 prohibition on fishing for sardines, anchovies, mackerel, sable fish and sardinella in the Atlantic zone of the EEZ, between the 24° and 25° parallels, for a period of three years.

Senegal: The 1998 Marine Fisheries Code states that regulations can be made to close fishing zones, or to prohibit or limit fishing in certain zones. Under Decree No. 98–498, fishing zones for vessels licensed for coastal demersal fishing, deep-water demersal fishing, coastal pelagic fishing and deep-water pelagic fishing have been adopted. Prohibited fishing areas have also been declared. For instance, there is a ban on coastal pelagic trawling in specific areas. The ministry

can also, by way of regulation, provide for the temporary closure of fishing zones.

Temporal controls

Mauritius: the 2007 Fisheries and Marine Resources Act states that “no person shall fish with, or have in his possession at sea a large net, a pocket net or a gill net between 1 October and the last day of February; a canard net from 1 May to 31 July and from 1 October to the last day of February.” Moreover, subject to the above, no person shall fish with or have in his possession at sea, river, lake or dam, a large net or canard net between 1800 hours and 0600 hours, or a gill net between 0600 hours and 1800 hours. It is also prohibited to fish oysters or have in one’s possession fresh oysters from 1 October to the last day of March. However, when weather conditions prevent fishing in the open seasons, the minister may authorize fishing for a period of a maximum of ten days during the closed season.

Kenya: under the 1989 Fisheries Act, the Director of Fisheries, with the approval of the minister, may impose management measures related to closed seasons for designated areas, species of fish or methods of fishing.

What is a FMP and why should it be legislated for?

A FMP identifies the partners in the fishery and their respective roles, details the agreed objectives for the fishery, specifies the management rules and regulations that apply to it, and provides other details about the fishery which are relevant to the task of the management authority³⁷. FMPs play an important role in supporting effective management and sustainable utilization of fisheries resources and the ecosystems they are a part of, both for the present and future. The principal steps for legislating for FMPs are outlined below, with an emphasis on ecosystem considerations so as to encourage the integration of EAF.

Steps for legislating for a FMP:

1. The authority with the power and responsibility to develop a FMP should be identified. The authority may be assigned to the national body responsible for fisheries management, to regionally established bodies, to established commissions or representative bodies, or other appropriate entities. Regardless of its identity or composition, the law should clearly outline the power and responsibilities of the authority that is charged with developing FMPs.
2. The process of developing the draft FMP should be detailed. This process should include multi-level and multi-sector collaboration and consultation with stakeholders, including the public at large. Collaboration, consultation and institutional engagement are key components of EAF because they ensure the consideration and inclusion of economic, social, political and cultural perspectives, from different angles and levels of governance.
3. Minimum components for inclusion in the FMP should be listed. The basic list should include a biological description of the fishery and the ecosystem in which it takes place, including its present state of exploitation; the social, economic and institutional aspects of the fishery; the species composition and levels of bycatch, both retained and discarded; the ecological relationships between harvested, dependent and associated species; the impact of other anthropogenic activities on the ecosystem; and a review of the relationship with other coastal or marine resource management plans. Importantly, the FMP should establish management objectives, indicators and measures that take into account ecosystem considerations, including ecology and socio-economics.
4. The authority, its powers and responsibilities, and the process for approving, adopting and publicizing an FMP should be outlined. The authority may be assigned to an official within the national institution responsible for fisheries, or another appropriate entity, such as a lower level of government or a local fisheries body. The process may involve the FMP being reviewed first by a technical or representative body, or being sent immediately to the approving authority. Additionally, there may be processes outlined for the draft to be sent back for changes before being reviewed once more prior to approval.
5. The process for reviewing and updating a FMP should be outlined. FMPs should be reviewed periodically – with the frequency of review depending on the fishery – and updated as needed. The process should include stakeholder consultation and institutional engagement as was carried out during the initial design of a FMP.

³⁷ FAO. 1997. Technical guidelines for responsible fisheries. No. 4. Rome, FAO. 91 pp.

Examples

Australia

1. Authority: under the 1991 Fisheries Management Act, the Australian Fisheries Management Authority (AFMA) is mandated to determine plans of management for all fisheries.
2. Process for drafting: once AFMA decides to formulate a draft plan for the management of a fishery, it must notify the persons and organizations listed in a register established under section 17A of the Fisheries Management Act 1991 of AFMA's intent to establish a management plan and provide an opportunity for stakeholders and interested parties to comment on the draft within a specified time.
3. Minimum components: both discretionary and mandatory components of a FMP are outlined.

A plan of management may set out objectives, measures by which the objectives are to be achieved, performance criteria and timelines for review and assessment. It may also determine the method used to measure the fishing capacity; permitted fishing capacity; provide for the management of the fishery by a system of statutory fishing rights and other fishing concessions, including the specification of the relevant conditions; describe the fishery; specify the equipment permitted for use in the fishery; and prohibit or regulate recreational or scientific fishing.

Additionally, the Fisheries Management Act states that a plan of management must contain measures that aim to reduce to a minimum the incidental catch of fish, not taken in accordance with the plan, and the incidental catch of other species. The plan is also required to establish stock-specific reference points if it affects straddling, highly migratory, or ecologically related fish stocks.

4. FMP adoption: once AFMA has determined a plan of management, it must submit the plan to the minister for approval, outlining consultations undertaken and any comments received. The minister must evaluate the plan to ensure that AFMA gave due consideration to comments, performed adequate consultations, and remained consistent with AFMA's corporate and operational plans.
5. Review and amendment: at any time AFMA may amend a plan of management. In such cases it must provide written notification to each holder of a related statutory fishing right and inform them of where to obtain copies of the amended plan.

Ghana

1. Authority: under the 2002 Fisheries Act, the Fisheries Commission shall prepare a plan for the management and development of fisheries.
2. Process for drafting: the Fisheries Commission shall, during its preparation, carry out such consultations as it considers appropriate with organizations, authorities and persons affected by the fishery plan. Coordination with, and the participation of other concerned ministries and institutions is ensured through the composition of the Commission itself (the Commission is composed of representatives from various ministries, industry and government).
3. Minimum components: a fishery plan shall be based on the best scientific information available, ensure optimum utilization but avoid overexploitation, and be consistent with good management principles. Each plan shall: identify the fishery resource and its characteristics, including its economic and social value and interrelationships with other species in the ecosystem; assess the present state of exploitation of each resource and, taking into account relevant biological, social and economic factors,

determine the potential average yields of the resource; specify the conservation measures to be enforced to protect resources from overexploitation; indicate the research necessary to enhance management of the fishery resources; and specify the information and other data required for effective management and development of fisheries.

4. FMP adoption: each FMP or reviewed FMP shall be submitted to the minister who shall, in turn, submit it to the Cabinet for approval.
5. Review and amendment: no specific process is outlined.

Monitoring, control, surveillance and enforcement (MCSE) measures should be outlined.

What are MCSE measures and why should they be legislated for?

Monitoring is “the continuous requirement for the measurement of fishing effort characteristics and resource yields³⁸.” The monitoring component of MCSE should “receive, integrate and verify information from the licensing unit, sea-going units (sightings and inspections), observers, VMS and satellite imagery, radar, port inspection, regular dockside monitoring of landings, logbooks, production logbooks and air sightings for vessel identification, activity and location³⁹.” Control involves “the regulatory conditions under which the exploitation of the resource may be conducted⁴⁰.” As such, the control component of MCSE requires appropriate and enforceable legal framework to “implement the approved, participatory fisheries management plans⁴¹.” Surveillance involves “the degree and types of observations required to maintain compliance with the regulatory controls imposed on fishing activities⁴².” Enforcement refers to the actions taken to ensure compliance with the laws.

MCSE measures are mandatory for any effective fisheries management system and are equally important with EAF. However, because EAF expands upon traditional management approaches and addresses a wider range of issues, it may require additional and/or broader MCSE measures.

Some examples of MCSE measures to be included for traditional fisheries management approaches and EAF are: procedures for the collection and recording of catch and effort information, including the keeping of logbooks;

the establishment of observer schemes; the establishment of a VMS for the tracking of fishing vessels; procedures for the boarding and inspection of vessels, including at sea and in port; and the power for authorized officers to inspect, collect evidence, seize fish, gear and vessels, and interrogate, detain and arrest persons associated with reasonably suspected violations.

Steps for legislating for MCSE measures:

As an overarching principle, MCSE measures should be outlined in primary legislation either broadly, establishing systems or processes, or in terms that are unlikely to change or require frequent or periodic amendment. This is because primary legislation is revised infrequently and may cause the MCSE measures to become outdated and therefore less effective at achieving the management objectives. The more specific provisions of the MCSE measures should be outlined in subsidiary legislation, such as regulations, decrees, or the appropriate legal mechanism, by the authority identified and through the process outlined in the primary legislation.

1. An observer scheme should be outlined. The scheme should detail the categories of vessels/ fisheries that it applies to and the role that observers play. Their role may be tailored to the category of vessel or the type of fishery and may be limited to the collection of catch/effort data and the collection of scientific samples, or may include the authority to register and/ or report violations of management measures. The scheme should ensure that observers have full access to all parts of the vessel and

³⁸ Flewelling, P. 1996. An introduction to monitoring, control and surveillance systems for capture fisheries. FAO Technical Paper. No. 338, chapter 3. Rome, FAO. Available at <http://www.fao.org/docrep/003/V4250E/V4250E03.htm#ch3>

³⁹ Flewelling, P. 2003. Recent trends in monitoring, control and surveillance systems for capture fisheries. FAO Technical Paper. No. 415, p. 45. Rome, FAO. Available at <http://www.fao.org/docrep/005/Y4411E/Y4411E00.HTM>

⁴⁰ Ibid., p. 46

⁴¹ Ibid.

⁴² Ibid., p. 47

its equipment and to any place in the country where fish that have been caught in national waters are unloaded, processed, stored or transshipped. Additionally, the scheme should be designed in line with regional or international requirements and should recognize the authority of relevant regional observer programs.

2. A requirement for VMS should be outlined, detailing the specific categories of fishing vessels and/or fisheries to which it applies. The requirement should apply both to vessels licensed to fish in national waters and to national vessels authorized to fish in waters beyond national jurisdiction. Additional VMS specifications may be outlined through subsidiary legislation.
3. A requirement for the reporting of catch and effort data should be outlined. The requirement should clearly identify the vessels that are expected to report, to whom they are required to report (the designated authority), the frequency and timing of their reports and the method or format in which they are required to report. The required parameters for reporting should include: weight of fish caught (including percentage of bycatch), species, dates of fishing, fishing zones, gear/methods employed, type of vessel, and if relevant, time of departure from national waters and catch status at the time. While the reporting of catch and effort data may be required for various or all categories of vessels, at the very least it should be required for all commercial fishing vessels that fish within national waters, and for all nationally-flagged vessels authorized to fish within waters under national jurisdiction and beyond.
4. A requirement to maintain a record of licensed fishing vessels should be outlined. The requirement should designate the authority responsible for maintaining the record and the information that is to be included for each category of vessel. For industrial vessels, the recorded information should include the name of the vessel; the flag state and any previous flag states; the radio call sign; the International Maritime Organization (IMO) number and the Automatic Identification Signature (AIS); if relevant, the VMS signature; if relevant, the vessel length and tonnage; the fishing methods and gear used; the name and nationality of the operator and beneficial owners of the vessel; and any transgressions of fisheries legislation associated with the vessel. In addition, a requirement to maintain a record of nationally-flagged vessels authorized to fish in waters under national jurisdiction and beyond, should be outlined.
5. A requirement that all fishing vessels, including artisanal and small-scale vessels, be registered with the relevant fisheries or maritime authority should be outlined⁴³. To be registered, a vessel should be required to provide the name of the vessel; the flag state and any previous flag states; the radio call sign; if relevant, the IMO number and AIS signature, if relevant, the vessel length and tonnage; the name and nationality of the beneficial owners of the vessel; and any transgressions of fisheries legislation associated with the vessel. The required specifications for marking vessels should be detailed and ideally should correspond with internationally approved standards, such as those outlined by the FAO⁴⁴. Overall, the registration process should be detailed broadly through the relevant fisheries or maritime law and more specifically through subsidiary legislation. The requirement for the fisheries and maritime authorities to cooperate and coordinate throughout the registration process should be mandated.
6. The authorized officers with the duty and power to enforce the provisions of the law governing fisheries resources (and its

⁴³ The maritime or shipping authority is competent to register all larger-scale vessels, generally defined as those 24 m and above, but which may differ depending on the Maritime law. The remaining small-scale vessels (not covered by the above) are registered by the fisheries authority.

⁴⁴ FAO. 1996. Standard specifications for the marking and identification of fishing vessels. *In* Technical guidelines for responsible fisheries. No. 1. Fishing operations. Rome, FAO. 26 pp. Annex II.

associated regulations) should be outlined.

The authorized officers should be granted the power to board and search vessels (at sea and in port) and other premises related to fishing; to examine logbooks, records, gear and catch; to investigate and collect evidence, to seize fish, gear and vessels; and to interrogate, detain and arrest persons associated with reasonably suspected violations.

7. Controls placed on the landing and transshipping of fish, both at sea and in port, and by national and foreign vessels, should be outlined. The controls should be consistent with and implement regional and international instruments, such as the 2009 FAO Port State Measures Agreement and RFMO conservation and management measures.

Examples

Observer schemes

Angola: the 2004 Aquatic Biological Resources Act states that fishery observers recruited from the coastal communities should monitor fishing activities taking place in the zones reserved for artisanal and subsidiary fisheries. Their function is to collect biological samples and catch data in the MPAs, to collect proof of the existence of industrial and semi-industrial fishing in the reserved zones, and to report any infringements of fisheries legislation to the competent authorities.

Ghana: the 2002 Fisheries Act provides for an observer scheme and observers shall perform such functions as the minister may determine, including collection of catch and effort data; taking reasonable samples of fish for scientific purposes; and reporting violations of the Fisheries Act and its regulations. All licensed fishing vessels shall permit an observer (or an authorized officer) to board and remain on the vessel “at such time and place as the director may request.” Observers shall have full access to all parts of the vessel, fish on board, records, logbooks, fishing gear and navigation equipment and radios. An observer

(or an authorized officer) shall furthermore have access to “any place within Ghana where fish taken in the fishery waters is unloaded, processed, stored or transshipped.”

Senegal: the 1998 Marine Fisheries Code provides for a fisheries observer scheme. The observer can stay on board a fishing vessel for up to 80 days and the master shall facilitate his or her tasks related to data collection and the taking of samples by giving him or her the necessary information and access to gear and areas of the vessel where fisheries activities are taking place. The duty to take aboard observers applies to all fishing vessels operating in Senegalese waters.

Reporting of catch and effort data

Cameroon: the 2001 Decree No. 2001/546 establishes a requirement for all fishing license, permit and authorization holders to keep a logbook. This logbook shall be submitted to the fisheries administration within 72 hours of entry into a Cameroonian fishing port.

Gabon: the 1994 Decree No. 62/94 requires that industrial and artisanal vessels maintain log books, which should contain information, entered on a daily basis, regarding catch (species and weight), fishing effort, fishing routes, fishing grounds visited, as well as the time of departure from Gabonese waters and the catch status at the time of departure. The latter information is to be submitted by radio to the fisheries administration, together with the position of the vessel. Once a month, the license holder shall submit a report to the fisheries administration with catch data, information on fishing zones visited and the fishing gear used.

Senegal: the 1998 Marine Fisheries Code establishes an obligation for both artisanal and industrial fishing vessels to furnish catch data related to weight and amount of fish caught, the species that were caught, transshipped or transported, the dates the fish was caught and the zones in which the fish was caught or transshipped, the characteristics of the vessel, as well as the gear and methods used for fishing.

Mainland Tanzania: the 2005 Fisheries Act and associated regulations prescribe that every member of a BMU shall every day fill in a standard tally book, recording fish weight, value and price and submit the data to an authorized officer in their locality. Every District Fisheries Officer shall subsequently be required to submit monthly fishery statistics to the director by the fifth day of the following month.

Requirement for VMS

Gabon: the 2005 Decree No. 62/PR/MEFPE provides that all vessels fishing in Gabonese waters are required to be fitted with a VMS. Information about the position of the vessel shall be sent to the fisheries administration and tampering with the VMS equipment, or data falsification, are subject to sanctions.

Mainland Tanzania: the 2005 Fisheries Act regulations provide for the establishment and maintenance by the director of a VMS system for the industrial fishery. Every commercial fishing vessel conducting fishing in marine waters shall be fitted with VMS gadgets to enable surveillance centres to track their movement. A designated MCS operations room shall coordinate the functions of the VMS. While at sea, a fishing vessel shall at all times have all its VMS gadgets switched on. Every captain of any commercial fishing vessel shall abide by all instructions given by the relevant MCS operations room.

Requirement to maintain a record of fishing vessels

Mauritius: the 2007 Fisheries and Marine Resources Act requires the Permanent Secretary to keep a record of both fishing vessels under 12 m and of licensed vessels, foreign or Mauritian. With respect to licensed vessels, the Act requires the record to include detailed information on the name of the vessel; the port and country of registration; previous registration; international radio call sign; length, net registered tonnage; and fishing method and gears. The record also requires the name and nationality of any natural or legal person with beneficial ownership of the

vessel and particulars of any previous offences committed by the use of the fishing vessel.

Requirement for registering and marking fishing vessels

Ghana: the 2002 Fisheries Act states that all artisanal, semi-industrial and industrial fishing vessels shall be registered, and a register shall be maintained to that effect.

Mauritius: the 2007 Fisheries and Marine Resources Act requires Mauritian fishing vessels to be registered with the Permanent Secretary or in accordance with the Merchant Shipping Act. The Permanent Secretary shall assign an identification mark to all vessels registered under the Act. No fishing vessel shall be allowed into the maritime zones of the country unless the vessel is marked in accordance with FAO's standard specifications for marking of vessels, or as specified by the flag state.

Designation and powers of enforcement authority

Ghana: the 2002 Fisheries Act establishes an Enforcement Unit responsible for MCS of all fishing operations within the fishery waters by whatever appropriate means, including the running of a VMS system for foreign fishing vessels and general enforcement of the Act. The Enforcement Unit shall include personnel from the secretariat of the Fisheries Commission. The Act empowers authorized officers to, inter alia, board vessels and other premises; conduct searches; examine records, logbooks, fish, fishing gear and VMS systems; and interrogate and arrest persons or seize vessels, catch and fishing gear that are reasonably suspected of being involved in violations of the Fisheries Act.

Controls placed on landing and transshipment

Namibia: the 2000 Marine Resources Act provides that no fishing vessel shall transship or land any marine resources unless it is authorized to do so. The regulations detail further conditions, including the specification that 48 hours' notice must be given prior to landing. Transshipment

may not be carried out anywhere besides a port and must be done under the supervision of a fisheries inspector.

Mauritius: the 2007 Fisheries and Marine Resources Act states that transshipment is prohibited except in a port or other approved place. However, transshipment can take place elsewhere if it is deemed “necessary” or it is done in accordance with management measures agreed upon by Mauritius.

Mauritian vessels shall land catch in Port Louis harbour or a fish landing station and shall give notice two days prior to landing. Mauritian vessels will also need to inform the National

Coast Guard of the expected time of arrival, while foreign vessels will need to give notice before entry into the marine waters or port. For the purpose of implementing international management measures, the Act specifies that foreign vessels shall only land or transship in a port or offshore terminal upon obtaining a permit from the permanent secretary. Where a fishery officer has reason to believe that the vessel was involved in “any fishing activity in contravention of any international fishery conservation and management measure” he or she may prohibit the vessel from landing or transshipping; notify the flag state and provide the flag state with such information, including evidence relating to that contravention.

What are fisheries-related offences, penalties and administrative and judicial processes and why should they be legislated for?

Fisheries-related offences are actions or omissions that violate the management and control measures outlined in the fisheries law. Some examples include the use of prohibited gear, fishing during a closed season, fishing without a license or failure to report required catch information. Penalties refer to the designated punishment for committing an offence. Penalties may require the payment of a fine, the suspension or revocation of fishing licenses, or even imprisonment. Administrative and judicial processes refer to the systems established to determine and confirm the commission of an offence and assign the relevant penalty to the offending party/parties. These processes encompass the compounding of offences/out-of-court settlement, the use of civil and criminal courts (including environmental courts) and the right of appeal.

Penalties and administrative and judicial processes are necessary for any fisheries management system to be effective and thus are equally so with EAF. However, because EAF expands traditional fisheries management approaches and addresses a wider range of issues, it may require the outlining of additional and/or more detailed fisheries-related offences, penalties and administrative and judicial processes.

Steps for legislating for fisheries-related offences, penalties, and administrative and judicial processes:

1. The fisheries-related offences and corresponding penalties should be detailed. The offences may be either civil or criminal and the penalties should be weighted depending on the level of severity of the corresponding offences. The penalties should be formulated and outlined in a way that maintains their strength over time, regardless of changing circumstances. For example, instead of establishing fixed monetary penalties, it may be better to utilize formulas, such as a percentage of the total market value of the sale of the illegal catch, or penalty units.
2. The administrative and judicial processes used for determining and confirming offences and applying the relevant penalties to the offending parties should be outlined. The administrative processes should provide for the compounding of offences/out-of-court settlement and rules and procedures should be laid down to ensure the transparency and equity of such processes. The judicial processes should allow for a right of appeal.

Examples

Offences and penalties

United Republic of Tanzania: the 2009 Regulations for the Deep Sea Fishing Authority Act state that:

“65. A person who unlawfully alters, destroy, erase or obliterate any declarations, certificate or other documents made or issued under these Regulations, or any label or mark placed on any vessel in accordance with these Regulations, commits an offence.

66. A person who unlawfully possesses shark fins without carcass onboard a vessel licensed under these Regulations commits an offence and on conviction shall be liable to a fine of not less than one billion shillings or to imprisonment for a term

of twenty years or to both and in addition to the fine and imprisonment, the Court may order the forfeiture of any vessel, structure, equipment, device or thing in connection with which the offence was committed.

67. A person who carries out fishing activity without license issued under these Regulations commits an offence and on conviction shall be liable to a fine of five billion shillings or to imprisonment for a term of twenty years or to both and in addition to the fine and imprisonment, the Court may order the forfeiture of any vessel, structure, equipment device or thing in connection with which the offence was committed.

68. A person who contravenes any license condition commits an offence and on conviction shall be liable to a fine of not less than one billion shillings or to imprisonment for a term not less than twenty years or to both that fine and imprisonment.

69. A person who assaults, resists, obstructs, or intimidates a fishery inspector, fishery observer or authorized officer in execution of his duty under these Regulations commits an offence and on conviction shall be liable to a fine of not less than one million shillings or to imprisonment for a term not exceeding two years or to both that fine and imprisonment.

70. A person who contravenes the provision of Regulation 25 commits an offence and on conviction shall be liable to a fine of twenty billion shillings or to imprisonment for a term of not less than ten years or to both that fine and imprisonment.

71. A person who commits an offence under these Regulations where no specific penalty has been provided shall be liable to a fine of not less than one million shillings or to imprisonment for a term not exceeding two years, or to both that fine and imprisonment.”

Compounding of offences

Mauritius: the 2007 Fisheries and Marine Resources Act outlines that:

- (1) The Permanent Secretary may, where an offence has been committed whilst using a boat or vessel
 - a. compound the offence, except an offence under section 12(1)(b) and (c), if the owner or master of the boat or vessel admits the commission of the offence and agrees in writing to pay such amount of money which shall not exceed the maximum fine specified for the offence in the Act;
 - b. order the release of any item seized under section 58 of this Act on payment of a sum of money not exceeding the estimated value of the seized item as may be agreed in writing by the owner or master of the boat or vessel.
- (2) A Compounding Commission shall be established to assist the Permanent Secretary in determining the amount of money to be paid by the offender under subsection (1), having due regard, *inter alia*, to the circumstances of the case and the past behaviour of the offender.
- (3) The Compounding Commission shall be appointed on a part-time basis and shall consist of –
 - a. a Chairperson, who shall be a law officer of at least 10 years standing, appointed by the minister;
 - b. 2 senior officers from the Ministry responsible for the subject of fisheries, designated by the Permanent Secretary.
- (4) The Chairperson and the members shall be paid such fees as shall be determined by the minister.
- (5) Every agreement to compound shall be final and conclusive.

(6) Where the amount agreed upon under this section is not paid in accordance with the compounding agreement, the Permanent Secretary shall send a certified copy of the agreement to the competent court which shall thereupon proceed to enforce such agreement in the same manner as if it had imposed such agreed amount by way of a fine.

(7) On payment of the agreed amount in accordance with the compounding agreement, no further proceedings in regard to such particular offence shall be taken against the person who has so agreed to the compounding.”

Judicial process

Ghana: the 2002 Fisheries Act outlines that:

(1) An act or omission in contravention of a provision of this Act committed

- a. by a person within the fishery waters; or
- b. outside the fishery waters by a Ghanaian citizen or a person ordinarily resident in Ghana; or
- c. by a person on board a local fishing vessel, shall be dealt with in such court as the Chief Justice may determine except that where a foreign fishing vessel is involved, the matter shall be dealt with by the High Court and the judicial proceedings shall be taken as if the act or omission had taken place within the jurisdiction of Ghana.

Component 13

EAF research should be promoted and provided for.

What is EAF research and why should it be legislated for?

EAF research aims to gain a better understanding of species interactions and relationships, the role of habitat and the physical environment, the extent of anthropogenic activities and their effects, and other ecosystem factors. It is important to bolster EAF research in order to improve the understanding and thus management of fisheries and the ecosystems within which they live. In the past, fisheries research has been focused on improving knowledge at the species level, but now it is important that fisheries research is focused on improving knowledge at the ecosystem level as well.

Steps to legislate for EAF research:

1. The promotion and utilization of EAF research should be outlined within the principles or objectives of the law governing fisheries.
2. A research programme aimed at furthering the knowledge and understanding of EAF should be outlined. The authority or authorities responsible for conducting the research programme should be designated and charged with involving stakeholders, such as industry, academia, and communities, in the research program. Additionally, the objectives for the research programme, based on EAF principles, should be outlined. These may include research on inter-species interactions, the impact of fishing on target and non-target stocks, the identification of spawning and nursery areas, areas of critical habitat, rates of bycatch and discards per fishery, the incidence and effect of pollution on the fisheries, the status of ecosystem biodiversity, the social and

economic dimensions, such as employment, food security, income distribution and other considerations.

3. When outlining the process for the development of conservation and management measures, such as gear modifications, TACs, fishery management plans, etc., the consideration of the findings of EAF research should be required.

Example

United States: the Magnuson-Stevens Fishery Conservation and Management Act, as amended in 2007, tasks the Secretary of Commerce to initiate and maintain, in cooperation with the RFMCs, a comprehensive programme of fishery research. The strategic research plan shall include the following areas:

1. Research to support fishery conservation and management, including biological research of stocks of fish, the interdependence of fisheries or stocks of fish, the identification of essential fish habitat, the impact of pollution on fish populations, the impact of wetland and estuarine degradation, and other factors affecting the abundance and availability of fish.
2. Conservation engineering research, including the development and testing of new gear technology and fishing techniques to minimize bycatch and any adverse effects on essential fish habitat.
3. Research on the fisheries, including the social, cultural and economic relationships among fishing vessel owners, crew, United States fish processors, associated shoreside labour, seafood markets and fishing communities.

What are mechanisms for habitat and biodiversity conservation and restoration and why should they be legislated for?

Mechanisms for habitat and biodiversity conservation and restoration may take many forms including prohibitions on fishing for marine mammals, protection for endangered species, the creation of protected areas, or restoration of critical wetland habitat. Conserving and restoring habitat and biodiversity is crucial for maintaining healthy marine ecosystems that support thriving fisheries for the present and future.

Steps for legislating for habitat and biodiversity conservation and restoration mechanisms:

1. The importance of habitat and biodiversity conservation and restoration should be outlined in the objectives of the law governing fisheries.
2. The importance of habitat and biodiversity conservation and restoration should be outlined in the objectives of EAF-relevant legislation.
3. The processes for establishing fisheries management measures, such as FMPs or gear regulations, should incorporate the consideration of habitat and biodiversity. For example, when establishing FMPs, the habitats and species related to the fishery should be outlined and measures should be taken to limit the negative impacts of fishing on them.
4. Special protection for marine mammals, sea turtles and other particularly vulnerable marine life should be outlined. This may be a prohibition on fishing for marine mammals and sea turtles, except by special authorization, or a more extensive system that encompasses protection of their critical habitats as well. These special protections should be coordinated with other national designations or protections, such as endangered or threatened species lists, and regional and international conservation and management measures. To ensure this, the coordination between the various authorities involved in marine environment protection, such as fisheries, environment, etc., should be required.
5. A mechanism for the designation and protection of threatened and endangered species should be outlined. This mechanism should identify the authority empowered with designating a species as either threatened or endangered, the requirement for the designating authority to cooperate with other relevant authorities throughout the listing process, the definition and qualifying factors of each designation, the process for listing, including steps for consultation, and the special protections associated with the designations.
6. A mechanism for establishing protected areas should be outlined. The mechanism should designate the authority empowered to establish the protected area, which may be an official, institution, or a commission or other representative body. The mechanism should outline the type(s) of protected areas and describe their associated levels of protection (e.g. marine reserves, marine parks, marine sanctuaries, or MPAs). The process for nominating, establishing and managing a protected area should be outlined and should include stakeholder participation, particularly of local communities, and consultation and coordination with various authorities, both at the national and local levels. Depending on the level of protection, various activities may be prohibited or restricted and the implementation and enforcement may take

- place at a national or local government level, or in cooperation with local communities.
7. A mechanism for the restoration of damaged habitat and ecosystems should be outlined. The mechanism should designate the authority and process through which it is decided when, where and how a damaged habitat/ecosystem shall be restored. The mechanism should also outline the funds that may be used to engage in restoration activities. Protected areas and, in some cases, FMPs serve as examples of mechanisms to restore damaged habitat and ecosystems.
 8. The importance of educational and awareness-raising activities for promoting habitat and biodiversity conservation and restoration should be outlined. Special funds may need to be established to support such activities.
 9. The principle of, and mechanisms to support, habitat and biodiversity conservation and restoration should be outlined in EAF-relevant legislation, such as laws governing the coastal zone, mining and petroleum extraction, etc.

Examples

Habitat conservation

Gabon: the 2005 Code of Fisheries and Aquaculture in the Republic of Gabon (the Fisheries Code) enables the establishment of aquatic reserves, marine parks or sanctuaries. Marine parks are established for the purpose of protection, conservation and propagation of animal or plant species and the management of their habitats. Sanctuaries are areas that protect animal and plant species threatened with extinction.

For species on the verge of extinction, the Code also empowers the fisheries and aquaculture administration to engage in ex-situ conservation, notably through the use of aquaria and gene banks.

Mauritius: the 2007 Fisheries and Marine Resources Act prohibits the cutting, taking,

removing or damaging of mangrove plants, or constructing any structure within the territorial sea or internal waters without the Permanent Secretary's written authorization.

Mainland Tanzania: the 1994 Marine Parks and Reserves Act provides for the establishment of the Park and Marine Reserve Unit within the Division of Fisheries. The Unit's functions include the establishment, management and monitoring of marine parks and reserves. Under Part IV of the Act, a Marine Parks and Reserves Revolving Fund is established. The role of village councils, which are empowered to participate in the development of regulations, zoning and management plans for marine parks, is provided for under Part V. Before declaring an area within the territorial waters or exclusive economic zone (EEZ) a marine park reserve, the relevant local government authorities need to be consulted.

United States: The Magnuson-Stevens Fishery Conservation and Management Act, as amended in 2007, calls for the national fisheries administration to work with RFMCs to develop FMPs for each fishery under their jurisdiction. One of the required provisions of FMPs is that essential fish habitat (EFH) be identified and described for the fishery, adverse fishing impacts on EFH are minimized to the extent practicable, and other actions are identified to conserve and enhance EFH. The Act also mandates the national fisheries administration to coordinate with, and provide information to, other federal agencies to further the conservation and enhancement of EFH. Additionally, federal agencies must consult with the fisheries administration on any action that might adversely affect EFH. When the fisheries division of the National Oceanic and Atmospheric Administration (NOAA) finds that a federal or state action would adversely affect EFH, it is required to provide conservation recommendations.

Biodiversity protection

Angola: the 2004 Aquatic Biological Resources Act stipulates that the Government shall adopt necessary measures for the protection of aquatic species that are rare, on the verge of extinction, or need to be protected for other reasons.

The ministry shall define the management regime for these species, including **measures for ex-situ and in-situ protections.**

Kenya: the 1991 Fisheries (General) Regulations declare the maritime zones of Kenya to be a marine mammal and turtle sanctuary, which means that no person shall kill, harass or take any marine mammal or turtle.

Mauritius: the 2007 Fisheries and Marine Resources Act prohibits the landing and sale of marine turtles and eggs, marine mammals, undersized fish, and crabs and lobsters in the berried state, unless authorized for scientific or conservation purposes.

Mainland Tanzania: under the 2003 Fisheries Act, the minister may declare, upon consultation with concerned persons in the private and public sectors, the conservation of any critical habitat or endangered species. The Fisheries Act regulations state that any endangered species caught alive shall be returned in the water immediately.

Habitat restoration:

United States: the Magnuson-Stevens Fishery Conservation and Management Act, as amended in 2007, authorizes the Community-based Restoration Program to implement and support the restoration of fishery and coastal habitats. The Program provides federal financial and technical assistance for local restoration and promotes stewardship and conservation values. Furthermore, the Act authorizes NOAA to update scientific information and protocols in order to improve restoration techniques for a variety of coastal habitat types and present the results in a format that is easily understood by restoration practitioners and local communities.

Non-fisheries laws

Angola: the 2004 Petroleum Activities Law states that the holders of petroleum rights shall take the precautions that are necessary to protect the environment, including biodiversity and ecosystems.

Kenya: the Constitution stipulates that the state shall “protect genetic resources and biological diversity.”

Mozambique: the 1997 Environmental Act states that all activities that threaten conservation, reproduction, quality and quantity of biological resources, especially those threatened with extinction, are prohibited. The Government shall ensure that appropriate steps are taken to maintain and regenerate animal species, recuperate damaged habitats, create new habitats and control activities and the use of substances that are likely to harm animal species and their habitats.

The government shall establish environmental protection zones to protect and preserve environmental resources, and maintain and improve ecosystems that have a recognized ecological and socio-economic value. Such environmental protection zones may be national, regional, local or international, and may cover marine waters. Measures shall be adopted to define the role of local communities in the management of these zones and identify permitted and prohibited activities within the protected zones and adjacent areas.

South Africa: the 2004 National Environmental Management: Biodiversity Act applies to all of South Africa's territorial waters, EEZ and continental shelf, and is intended to give effect to the Convention on Biodiversity and other international agreements affecting biodiversity that have been ratified by South Africa. The Act also provides for cooperative governance in biodiversity management and conservation and establishes a South African National Biodiversity Institute; a national planning and monitoring framework for biodiversity, including the development of a National biodiversity framework, bioregional and biodiversity plans, including mechanisms for coordination and alignment with other spatial and development plans. It also provides for the designation and protection of various categories of threatened or protected ecosystems and species, including marine species.

Energy expenditure, pollution, the introduction of species and other potentially harmful activities should be regulated in order to limit the impacts on aquatic ecosystems.

Why are these activities potentially harmful and why should they be legislated for?

Energy expenditure, pollution, the introduction of species and all other potentially harmful activities impact and have the potential to undermine the integrity of aquatic ecosystems upon which healthy fisheries rely. For example, energy expenditure contributes to climate change, which impacts species' lifecycles and ranges; invasive species may disrupt aquatic ecosystem relationships and dynamics. In order to maintain the integrity of aquatic ecosystems and to promote healthy fisheries, regulations should be introduced to limit the impacts of potentially harmful activities.

Steps for legislating for these potentially harmful activities:

1. Measures to regulate and reduce pollution of the aquatic ecosystem should be introduced. These measures should apply to all activities that might have an effect on aquatic ecosystems (including fishing, mining, shipping, etc.) and should also cover all types of pollution (including discards of bycatch, discharge of waste, vessel emissions, coastal runoff, etc.).
2. Measures to promote energy efficiency and reduce emissions should be introduced. These measures should apply to fishing vessels, merchant shipping vessels and the extractive industries such as marine mining and petroleum, etc. For example, energy efficiency may be promoted through fuel efficiency standards, vessel size limitations and equipment restrictions for fishing vessels.
3. The purposeful and incidental introduction of species should be controlled. This should be done by instituting a requirement for authorization prior to the planned introduction of any species, including species meant for aquaculture or fish stocking. When deciding whether to permit the introduction of species, the precautionary approach should be applied. In addition, strict controls should be placed on the exchange of ballast water. Other measures should be outlined to prevent the escape of exotic species into the wild.
4. Measures to prevent and eliminate ghost fishing should be adopted. These measures should prohibit the abandonment of fishing gear, require the notification of authorities when fishing gear is lost, and regulate the materials used in the manufacture of gear.
5. Marine extractive activities should be carefully regulated. Such activities include marine mining for minerals or petroleum, and the harvesting of marine plants, etc. These activities should require authorization, the compilation and submission of an EIS or EIA that includes steps for the mitigation of impacts and an undertaking to rehabilitate the area where the activity takes place following its termination.
6. Other potentially harmful activities should be regulated. These may include the construction of installations for use by industry, the laying of underwater cables, military exercises or arms testing, shipping, etc. These activities should be regulated to minimize pollution, degradation of habitat, emissions, impact on species, etc.

Examples

Pollution

Liberia: the 2002 Environment Protection and Management Law prescribes that the Environmental Protection Agency shall, in consultation with the line ministry and maritime

organization, issue appropriate regulations to prevent, reduce and control pollution or other forms of environmental damage from: a) land-based sources including rivers, estuaries, pipelines and outfall structures; b) vessels, aircraft and other engines used in the coastal zone; and c) installations and devices used in the exploration or exploitation of the natural resources of the seabed and subsoil of the EEZ.

Cameroon: the 1996 Law on Environmental Management prohibits the discharge, immersion and burning in marine waters of substances that threaten human health, marine resources, or are harmful to fisheries and aquaculture. This Law also outlines other measures that prevent marine pollution, including from vessels.

Introduction of organisms

Liberia: the 2002 Environment Protection and Management Law prohibits the introduction of any part of a plant, plant specimen or organism, and any animal or micro-organism, whether alien or indigenous, dead or alive, in the coastal zone.

Angola: the 2004 Aquatic Biological Resources Act prohibits the introduction of alien species and genetically modified organisms

(GMOs) into the aquatic environment without authorization.

Ghost fishing

Namibia: The 2001 regulation relating to the exploitation of marine resources states that it is prohibited to leave any fishing gear or non-biodegradable object in the sea or on shore without authorization.

Mining activities

Morocco: the 2002 Law on Exploitation of Quarries states that management plans for mining activities, including sea-bed mining, shall be made for designated areas and shall be in compliance with fisheries and other legislation. Authorization shall be obtained before mining can take place and activities taking place within an area subject to a management plan shall comply with the plan. The authorization shall specify the measures that have to be taken to protect aquatic species and their habitats. Authorization shall be refused if there is no management plan in place and the activities have the potential to harm marine fisheries and aquaculture, the environment and the equilibrium of the ecosystem.

A requirement for the production, submission and review of Environmental Impact Statements (EIS) or Assessments (EIA) for potentially impactful activities should be outlined.

What are EIS and EIA and why should they be legislated for?

EIS or EIAs are reports that detail the potential impacts on the ecosystem of a proposed activity. They typically include ecological, social and economic impacts, and the alternatives or mitigation measures that may be taken to reduce these potential impacts. It is important that an EIS or EIA is required prior to providing authorization for potentially impactful activities so as to ensure that the health and integrity of ecosystems are maintained to the greatest extent possible, for the benefit of all current and future stakeholders.

Steps for legislating for EIS or EIA:

1. EIS or EIAs should be required for activities that have the potential to affect ecosystems that support fisheries. Some examples of these activities are: fishing, aquaculture, mining, petroleum extraction, coastal development, etc. The requirement for an EIS or EIA may be established through a general environmental law, supported by subsidiary legislation, and be cross-referenced within sector-specific legislation, such as the fisheries or mining law.
2. The required components of an EIS or EIA should be detailed. At a minimum, an EIS or EIA should discuss the purpose/need for the activity, the ecosystem that may be affected, the potential impacts of the proposed activity (including ecological, economic and social impacts) and importantly, the potential alternatives or mitigation measures
3. The process for the submission, review and decision-making on the EIS or EIA should be outlined. As a start, the authority empowered to receive, review and decide upon the EIS

or EIA should be designated. This authority may be the minister responsible for fisheries (if the proposed activity relates to fishing), the minister responsible for mining activities, or even the minister responsible for the environment generally. Additionally, the process for reviewing and deciding upon the EIS or EIA should be outlined. This process should entail opportunities for public participation, e.g. comment periods and hearings, consultation with other relevant government institutions or localities, and the determination that adequate mitigation measures have been considered and taken where possible.

Examples

EIS requirement in a fisheries law

United States: The Magnuson-Stevens Fishery Conservation and Management Act, as amended in 2007, requires any FMPs or amendments to include a fishery impact statement which shall assess and analyse the likely impacts – conservation, economic and social – of the conservation and management measures. Additionally, the fishery impact statement shall assess and analyse possible mitigation measures for affected participants in the fisheries and fishing communities, participants in the fisheries conducted in adjacent areas, and whether and to what extent the measures may affect the safety of participants in the fishery⁴⁵.

EIS requirement in a non-fisheries law

Namibia: the 1992 Minerals Act prescribes that an application for a mining license shall include an EIA, which provides a more specific estimate

⁴⁵ Available at http://www.nmfs.noaa.gov/sfa/magact/MSA_Amended_2007%20.pdf

of the proposed operation's environmental effects and the proposed steps to be taken in order to prevent or minimize any such effects. After being granted a license by the Minister of Mines and Energy, another EIA must be carried out before any prospecting or mining operations may commence. If the EIA indicates that pollution is likely to occur, an environmental management plan shall be developed, indicating the proposed steps to be taken in order to prevent or minimize any environmental pollution.

Factors for determining if an EIS is required

Sierra Leone: the 2008 Environment Protection Agency Act outlines the factors that determine whether a project requires an EIA, including: the environmental impact on the community; whether the project is likely to have substantial impact on the ecosystem at its locality; whether the project will endanger any species of flora or fauna or their habitats; and the extent of the degradation of the quality of the environment.

The Act provides that EIAs shall be made available for public inspection and comment. The cross-sectoral board shall decide whether or not an EIA is approved and, hence, whether a license may be issued.

Public engagement in the EIS process

United States: The 1970 National Environmental Policy Act (NEPA) establishes a process for the detailed evaluation of the environmental effects of proposed federal actions and an analysis of its alternatives, particularly through EIS. The public, other federal agencies and stakeholders may provide input to an EIS and comment on the draft. Once the EIS is finalized and a federal agency has made its decision, the agency shall publish a public record of its decision-making process, including how it reviewed the EIS and considered its proposed alternatives. Throughout the process, the public may attend NEPA-related hearings or public meetings and may submit comments directly to the lead agency⁴⁶.

⁴⁵ Available at http://www.nmfs.noaa.gov/sfa/magact/MSA_Amended_2007%20.pdf

What does regular monitoring and review mean and why should it be legislated for?

The timeline and process for regular monitoring and review depends on the type of management measure and the management priorities. For example, TAC limits should be monitored and reviewed more frequently than FMPs or ICZM plans. However, regardless of the timeline or process, regular monitoring and review of management measures is important to ensure that they fulfil the objectives and, if not, are adjusted accordingly.

Steps for legislating for monitoring and review:

1. The principle of adaptive management should be outlined to emphasize the importance of reviewing and adjusting management measures to ensure that they achieve their desired objectives.
2. The mechanism for instituting TACs should include the timeline, authority and process for their monitoring and review. TACs should be monitored continually and reviewed, at a minimum, every year. The process for doing so should be transparent and involve institutional, industry and stakeholder participation.
3. The mechanism for developing and implementing FMPs should include the timeline, authority and process for their monitoring and review. FMPs should be reviewed, at a minimum, within five years of their development and the process for doing so should be transparent and involve institutional, industry and stakeholder participation.
4. The mechanism for issuing a license to fishing vessels should include the timeline, authority and process for renewing the license. The timeline and process for renewal may differ, depending on the category of fishing vessel (artisanal, semi-industrial, industrial or foreign-flagged). Additionally, the mechanism should allow for the continual monitoring of the licensee's compliance with all laws and regulations and should permit suspension and revocation of the license for non-compliance and other comprehensively documented circumstances.
5. As a general principle, mechanisms for establishing management measures or research plans/priorities should outline the timeline, authority and process for their monitoring and review.

Examples

Catch limits

United States: The Magnuson Stevens Fishery Conservation and Management Act, as amended in 2007, stipulates that each RFMC shall develop annual catch limits for each of its managed fisheries.

Research

United States: the Magnuson-Stevens Fishery Conservation and Management Act, as amended in 2007, states that each RFMC shall develop and update as necessary, multi-year research priorities, for five-year periods, on fisheries, fisheries interactions, habitats and other areas of research that are necessary for management purposes.

Fishery management plans

Angola: the 2004 Aquatic Biological Resources Act requires the ministry to adopt management plans for fisheries every five years.

Senegal: The 1998 Marine Fisheries Code states that the ministry is responsible for overseeing the development of annual or multi-year FMPs, which must be reviewed and adjusted on a regular basis.

Coastal zone management Plans

Liberia: the 2002 Environment Protection and Management Law states that the Environmental Protection Agency shall prepare a survey of the coastal zone and prepare a national coastal zone management plan every three years.

Licensing

Ghana: the 2002 Fisheries Act states that the duration of an industrial and semi-industrial fishing license cannot exceed one year, but can be renewed on an annual or quarterly basis.

7 Conclusion

It takes courage for a country to incorporate an EAF in national legislation and the national legal framework. Not only is EAF broad in scope – both in concept and application – it is also a relatively recent and novel approach to fisheries management. And most importantly, at its core EAF is a policy rather than a legal concept. As a result, articulating concepts like EAF in pragmatic, operational legal texts will always be a challenge.

Current and emerging challenges

Though much progress has been made with the implementation of EAF, many challenges remain and these are relevant to almost all countries, regardless of their capacity or available resources. Owing to the fact that the institutional and management structures of most countries are already well established and the roles, responsibilities, powers and jurisdictions of designated authorities are clearly defined, there is limited flexibility to accommodate an EAF. This creates a problem for the implementation of EAF because such management and institutional structures are typically designed to support systems in which sectors are managed independently and where jurisdictional boundaries are not outlined according to the boundaries of an ecosystem.

Limited knowledge and understanding of the dynamics of ecosystems and their functioning also pose a challenge to the implementation of EAF. This is partly as a result of the fact that in the past scientific research was largely focused on understanding individual species or resources, rather than the complex dynamics of large ecosystems.

The increased cost and time required for expanding stakeholder participation and institutional coordination, cooperation and

integration is another challenge. Effective implementation of EAF requires partnerships between states, government bodies and a range of diverse stakeholders and organizations. In order to bring about active stakeholder participation and coordination, specific actions and mechanisms will need to be planned and additional time and costs will need to be accommodated.

Lastly, the implementation of EAF increases the potential for conflict because more managers, users, and stakeholders are involved in the management process. However, these potential conflicts may be minimized and effectively addressed through the establishment and implementation of conflict resolution techniques, processes and mechanisms.

Current and emerging trends and further discussions on implementing an EAF

A number of trends are emerging from national institutions and the policy arena that are facilitating the implementation of EAF.

Firstly, there have been noticeable efforts to establish mechanisms to improve the integrated management of aquatic ecosystems, particularly coasts and oceans. These mechanisms aim to address the gap or overlaps between the many parallel processes that exist in institutional infrastructure so that shared spaces may be managed by a number of sectors and for various activities. For example, in Canada, the Oceans Act requires the development and implementation of integrated management plans for all activities or measures that affect estuaries, coastal and marine waters⁴⁷. Similarly, Australia passed the Environment Protection and Biodiversity Conservation Act, which facilitates the

⁴⁷ Oceans Act (1996), Section 31.

establishment of bioregional plans⁴⁸. And in the United States the National Ocean Policy and the correlated National Ocean Policy Implementation Plan support voluntary regional marine planning so that coastal and ocean managers, users and stakeholders may share information and plan for the utilization of marine resources⁴⁹.

Similarly, mechanisms to improve institutional coordination, cooperation and integration are being established. One such example is the design of overarching bodies to coordinate a government's environmental management activities and promote the integration of environmental considerations into programmes, policies and plans. In Kenya, for example, the 1999 Environmental Management and Coordination Act establishes the National Environmental Management Authority (NEMA) – the “principal instrument of Government in the implementation of all policies related to the environment” and empowered to “coordinate the various environmental management activities being undertaken by the lead agencies”. The 2002 Environment Protection Act in Mauritius similarly establishes a National Environment Commission which is, among other things, ensuring the coordination and cooperation between public departments, local authorities and other government organizations engaged in environmental protection programmes.

Another emerging trend is the establishment of mechanisms to support participatory or co-management approaches. These mechanisms enable local communities and authorities to actively participate in the management process; as the benefits of co-management approaches become apparent, so they are increasingly being used. For example, in Kenya and Tanzania BMUs have been established and charged with the management of local beach landing sites. Included in the responsibilities of the BMU are the registration of members and the development of BMU fisheries management and landing station

plans. This mechanism has increasingly been applied to the management and enforcement of protected or specially regulated areas.

A related trend is the establishment of mechanisms to improve stakeholder participation. This is seen in the proliferation of representative bodies that serve in advisory, decision-making and management roles. For instance, in Ghana the representative Fisheries Commission is charged with preparing and reviewing fisheries management and development plans and undertaking conflict resolution.

Finally, there is an emerging trend that emphasizes the harmonization of management measures across boundaries, particularly on a regional and international level. This is evident in the increasing numbers of countries participating in international negotiations and entering into regional agreements and in the integration of transboundary management measures into national legislation. Furthermore, many countries, such as Ghana, Liberia and Tanzania, go so far as to outline the principle of international cooperation in the management of resources in national legislation.

While many challenges to EAF implementation remain, these trends highlight the many and diverse ways in which countries are developing solutions. The examples given above, and others discussed in this How-to Guide demonstrate how EAF implementation is possible on a substantive global scale. This How-to Guide seeks to provide the means, albeit predominantly indirect ones, that contribute towards achieving the objectives of EAF and the impact of its implementation. As such, the EAF components and steps set out in this guide provide a good starting point for countries to ensure that EAF considerations become part of their policy and institutional frameworks. The drafting steps serve as a checklist, ensuring that the components are

⁴⁸ Environment Protection and Biodiversity Conservation Act (1999), Division 2 – Bioregional Plans.

⁴⁹ The National Ocean Policy Implementation Plan Fact Sheet. Available at <http://www.whitehouse.gov/administration/eop/oceans/implementationplan>

adequately legislated for and providing additional guidance for countries that seek to effectively integrate EAF.

However, it should be stated that the How-to Guide is not meant to replace a normal legislative review or gaps assessment exercise. Instead, it is a tool that may be used by a government to ensure that the legal framework – which results from a revision or development of fisheries legislation – will be as comprehensive as possible. The guide does contain components that are normally addressed during a review of a fisheries legislative framework, such as objectives and principles (Component 1), input and output controls (Component 9), fishery management plans (Component 10), monitoring, control and surveillance (Component 11) and enforcement (Component 12).

As such, the guide could assist legal practitioners from various jurisdictions and also be applied to different institutional and administrative systems. Often the principle, approach or tool used or described in this How-to Guide is not explicitly captured in the definition of EAF. For example, enabling or empowering communities to participate in decision-making (Component 4) is not spelled out in the EAF definition, but the definition describes a broader perspective that is central to implementation of EAF because it highlights the need to “strive [-] to balance diverse societal objectives, by taking into account the knowledge and uncertainties about ... human components of ecosystems.” Legal practitioners and stakeholders should consider this broad perspective when using this How-to Guide in the development of detailed operational implementation steps.

This How-to Guide on legislating for an ecosystem approach to fisheries (EAF) provides guidance and assistance to fisheries managers, and those responsible for drafting legislation, so that they may incorporate EAF considerations into their national legal frameworks.

The How-to Guide identifies 17 key components that are necessary for legislating for EAF and describes how these components may be included within national fisheries and/or EAF-relevant, sector-specific legislation in order to support and facilitate EAF implementation. Comprehensive examples are provided for each component. The publication also analyses current and emerging trends relevant to the implementation of EAF, and discusses the challenges and barriers that may stand in the way of effective implementation.

The initial draft of the How-to Guide was prepared by a team of legal consultants under the guidance of the Development Law Service (LEGN) of the Food and Agriculture Organization (FAO) of the United Nations in close cooperation with the Marine and Inland Fisheries Branch of FAO. The guide was then field tested by LEGN under a legislative assistance project. This provided a valuable opportunity to develop a more nuanced approach towards legislating for an EAF and facilitating its implementation.

The How-to Guide is intended as a tool that governments might utilize to improve the legal framework for fisheries management. A clear message is that EAF implementation on a substantive global scale is possible.

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