Recommended Best Practices for

Regional Fisheries Management Organizations

Report of an independent panel to develop a model for improved governance by Regional Fisheries Management Organizations

CHATHAM HOUSE

Recommended Best Practices for Regional Fisheries Management Organizations

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Richard Tarasofsky
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Foreword

One of the great innovations of the UN Fish Stocks Agreement of 1995 was to place regional fisheries management organizations (RFMOs) at the heart of international fisheries management. It was hoped that a multilateral set of rules which created a stronger legal basis for RFMOs to manage the stocks in their jurisdictions, even *vis-à-vis* non-member countries, would rescue the bulk of the world's fisheries from the tragedy of the commons.

However, the reality has been different: high seas fisheries have continued to decline. The FAO's recently released *State of World Fisheries and Aquaculture 2006* reveals a stark picture: more than two-thirds of high seas fish stocks are either depleted or at high risk of collapse, especially the straddling stocks that move between national maritime waters and the high seas. RFMO performance has not lived up to expectation. The FAO publication went on to say that 'strengthening RFMOs in order to conserve and manage fish stocks more effectively remains the major challenge facing international fisheries governance'. This is not just a scientific finding, but also a political one. As Michael Lodge notes in the introduction to this report, various UN bodies, including the General Assembly, have identified RFMO governance as needing improvement. This has created the space in which a robust debate on how to reform RFMOs can take place.

This expert panel is an effort by Chatham House's Energy, Environment and Development Programme (EEDP) to contribute a response to this challenge. For us, the opportunity to host this important panel was very welcome. Not only does this fit well with our wide portfolio of projects on international governance of environment and development. But it also resonated well with the growing amount of work we have recently begun on fisheries: a new series of stakeholder information meetings and a new website – www.illegal-fishing.info. More broadly, the panel's approach of identifying best practices within RFMOs, combined with considering how external drivers from other regimes interface with RFMOs, is very much in line with how Chatham House approaches similar issues. By offering this report by leading experts, and the related technical papers, we hope that the debate on reforming RFMOs will move swiftly from discussion to action.

I would like to register my thanks to a number of people. First, our Associate Fellow Michael Lodge has expertly anchored and steered this project. Without him this report would not have been completed as quickly or to such a high standard. Secondly, I am grateful to the panel members themselves for being such enthusiastic and generous participants in this process. Thirdly, thanks to Blaise Kuemlangan for his very helpful peer review. Margaret May and Gemma Green at Chatham House have been instrumental in pulling the many strands together in order to produce this report and the associated technical studies. Finally, the financial support of the contributing governments is gratefully acknowledged. In this connection, I am also thankful to the OECD Roundtable on Sustainable Development for housing Michael Lodge during the course of this project.

Richard G. Tarasofsky
Head, Energy, Environment and Development Programme
Chatham House

Introduction and Overview

The idea of preparing a comprehensive suite of recommended best practices for regional fisheries management organizations (RFMOs) was first proposed as one of the recommendations of the ministerially-led Task Force on Illegal, Unreported and Unregulated Fishing on the High Seas (the High Seas Task Force). Although the purpose of the Task Force's work was to devise a set of practical proposals for tackling the immediate problem of illegal, unreported and unregulated (IUU) fishing, it very quickly realized that if international actions aimed at curbing IUU fishing were to achieve their full effect, it would be essential also to improve the effectiveness with which the present system of high seas governance is implemented. A key aspect of this would be to promote and encourage progressive reform of RFMOs so as to ensure that they are fully equipped to carry out the role envisaged for them by international fishery instruments such as the UN Fish Stocks Agreement and the FAO (UN Food and Agriculture Organization) Code of Conduct for Responsible Fisheries.

Although a relatively recent phenomenon (the first such regional organizations began to appear in the 1950s), RFMOs are generally acknowledged to play a critical role in the global system of fisheries governance. In recent years, there has been an increasing recognition of the need for RFMOs to improve their performance in accordance with the demands of strengthened international fishery instruments aimed at better conservation and management of fishery resources. Calls for better performance have come from, *inter alia*, the 2006 United Nations Fish Stocks Review Conference, the FAO Committee on Fisheries, the 2005 St John's Conference on the Governance of High Seas Fisheries and the High Seas Task Force. The most recent (December 2006) UN General Assembly resolution on sustainable fisheries urged RFMOs to strengthen their mandates and to modernize their measures for and approaches to fisheries management; it called upon States to make further efforts to strengthen and enhance cooperation among existing and developing RFMOs.[1] The same resolution also called upon States to develop and apply best practice guidelines to RFMOs and to undertake performance reviews of them, based on transparent criteria.

This publication is intended to assist and inform States and RFMOs in their efforts to improve RFMO performance by setting out what the Panel collectively views as current 'best practice' in the implementation of international fishery instruments and by clearly delineating the priorities and goals that RFMOs should pursue if they are to meet the core challenges of global fisheries management.

The Independent Panel

The work that led to this publication was commissioned by a group of stakeholders which had been part of the High Seas Task Force – the governments of Australia, Canada, New Zealand and the United Kingdom and WWF International. The idea was to commission a small group of internationally recognized experts on issues relevant to high seas fisheries governance and RFMOs and ask them

[1] A/61/105, 8 December 2006.

to develop a 'model RFMO' based on a comprehensive assessment of best practices worldwide. In order to ensure an objective and independent approach, it was decided that the work of the Panel – the Independent Panel on Regional Fisheries Management Organizations (referred to in this study as 'the Panel') – would be hosted by the Energy, Environment and Development Programme at the Royal Institute of International Affairs (Chatham House), London. Chatham House is one of the world's leading organizations for the analysis of international issues. Hosting the Panel at Chatham House was intended to demonstrate that it is independent of the commissioning governments but at the same time to ensure that the quality and integrity of its work meet established and objective standards of excellence.

The members of the Panel were selected for their expertise (for their details, see pages xii–xiv). The intention was not that they should necessarily represent different geographical regions but that their expertise should cover all relevant disciplines – law, economics, science and policy. In addition, the FAO and representatives of the RFMOs were invited to participate in and comment on the Panel's work.

The Panel met twice during the lifetime of the project. At the first meeting, in September 2006, it developed an outline of the report and agreed on a work programme. Drafts of the various sections of the report were then developed, the members of the Panel collaborating by electronic communication. At the second meeting, in February 2007, the Panel reviewed the initial drafts and developed the first draft statement of recommended best practices, which appears in Chapter 12. In March 2007, an outline of its work was presented at the FAO in conjunction with the 27th session of the FAO Committee on Fisheries. Shortly thereafter, the Panel's draft report was made available for stakeholder and public consultation.

During April and May 2007, the members of the Panel worked extensively by electronic means to revise the draft report in the light of the feedback received after the FAO briefing and also the comments, criticisms and suggestions received from the public consultation. There is no doubt that the report has been much improved as a result of the extensive input by stakeholders.

How to use this report

The mandate of the Panel was to develop a 'model' for improved governance by RFMOs based on an analysis of the requirements of international fisheries instruments and best practice in their application. The basic intention was that the model should not only be capable of providing guidance for assessing RFMO performance in relation to international fishery instruments and identifying possible strategies for improving performance but should also address important new and emerging issues of concern.

It seemed to the Panel that the best starting point for developing a model or performance benchmarks was the provisions of international fisheries instruments and the best practice in their application. In this regard, one of the most important achievements of the UN Fish Stocks Agreement of 1995 was to set out for the first time in binding legal form the essential characteristics of RFMOs. The Agreement thereby significantly strengthened the position of RFMOs as the paradigm through which States are to cooperate in order to achieve and enforce conservation objectives on the high seas and in areas under their jurisdiction.

Nevertheless, the Panel found that there is in practice great divergence in the mandates of RFMOs and in the effectiveness of their implementation of the Agreement. In part, this is because although the Agreement sets out, in broad terms, the minimum requirements for RFMOs, many of them were established prior to 1995 and do not possess a mandate to carry out all the functions given to them. Moreover, there is neither a systematic approach to RFMOs' implementation of the Agreement nor effective ways for them to learn from one another about best practices.

The report is divided into 12 chapters, organized thematically. Chapters 1 and 2 deal with the legal and economic theory behind the cooperative management of shared fishery resources. This background is essential to an understanding of the inherent constraints and fragility under which cooperative resource management regimes involving large numbers of participants must operate. The key message of these chapters is that if an RFMO is to be stable over time, then the core issues of intra-RFMO compliance, coping with unregulated fishing and accommodating new entrants must be resolved

Chapters 3 to 11 deal with specific aspects of fisheries management by RFMOs. In these chapters, the Panel has attempted to analyse and identify current best practices by existing RFMOs while recognizing that 'best practice' continues to evolve rapidly. In the analysis, it was apparent to the Panel that all RFMOs do some things well and some things less well. No one RFMO has a monopoly on best practice, and there is ample scope for cross-learning. RFMOs are constantly generating new practices, both good and bad. However, they differ from one another in both constitution and political and regional context, and there is very little scope for prescriptive models of best practice. Moreover, none of the currently existing organizations is dealing effectively with all the problems. For these reasons, the Panel has tried to avoid simply making a list of the measures applied by various RFMOs in a particular field. Instead, it has used some of those measures as illustrations of desirable practice. Similarly, it has attempted to steer away from being prescriptive about the form of measures that RFMOs should apply in favour of trying to give clear guidance on the priorities and goals that they should pursue. In some areas, the Panel considered that there was no existing best practice, but has made reasoned recommendations for consideration by RFMOs.

Chapter 12, designed for use as a stand-alone document if required, consists of a summary of recommended best practices drawn from Chapters 1–11.

Conclusions from the Report

The expectations placed on RFMOs have grown exponentially over the past 20 years. A plethora of hard- and soft-law instruments have been created that address the problems of international fisheries governance. But despite the proliferation of RFMOs and the development and evolution of instruments aimed at empowering them, it is often suggested that they have generally failed to prevent the over-exploitation of straddling and highly migratory fish stocks and the degradation of their marine ecosystems.

The Panel's analysis indicates that there is clearly scope for more effective cooperation between members of RFMOs and between RFMOs themselves, particularly in the area of compliance and enforcement. Immediate practical steps that could be taken without changing existing paradigms include, for example, standardizing and sharing or consolidating vessel registers and information from vessel monitoring systems, as well as compiling and assessing scientific data on a global basis.

Implementation of the FAO port State model scheme on a regional basis, combined with a standardized approach to catch documentation schemes, would also reduce the opportunities for IUU fishing. The introduction of alternative dispute resolution procedures, such as panels of technical experts, would help to promote more effective decision-making. And a more systematic approach to the problem of non-members would help to reduce the scope for RFMO measures to be undermined and to promote a balance between fleet capacity and the resource base at the global level.

A core conclusion is that the success of international cooperation depends largely on the ability to deter free-riding. When few countries exploit a resource, free-riding can be effectively deterred. When the number of countries involved is large, however, free-riding is much more difficult to prevent. Success depends upon a careful manipulation of the costs and benefits, punishments and incentives for each participant. A good RFMO will (a) require that more be done to conserve and manage the stocks at an optimum level than States would otherwise be inclined to do, (b) create incentives for States to participate, and (c) create incentives for parties to comply.

Some issues remain that probably will be very difficult for RFMOs to resolve. These include dealing with excess capacity in the world's fishing fleets, allocating high seas fishing opportunities on an equitable and sustainable basis, and implementation of ecosystem-based management and the precautionary approach.

Ecosystem-based management acknowledges that fishing and other activities take place within complex communities of organisms and habitats and that fishing is only one of the many human activities that impact on these marine environments. The main goal of ecosystem-based management for fisheries management is to ensure the sustainability of catches without compromising the inherent structure and functioning of the marine ecosystem. Although defining best-practice approaches may be relatively straightforward, these new approaches pose significant challenges for implementation. Managing complex marine ecosystems requires considerably more data and information about ecological relationships and the impact on them of human activities than are provided by single-species management regimes. External factors such as poverty alleviation, food security, the profit motive and a lack of political will are likely to hinder progress in achieving effective management of marine resources under these new schemes, just as they did under single-species regimes. One approach for RFMOs may be to incorporate more active management rules for species of particular conservation concern. This would ensure not only that reference points are set for the take of the target species (usually the dominant species) in a single-species context but also that these reference points are linked to the sustainability of associated or dependent species of special concern.

The greatest threat to the stability of management regimes introduced by RFMOs is the failure to allocate fishing opportunities on an equitable basis. It is therefore essential to address the allocation problem if a breakdown in the cooperative management of the stock of fish is to be averted. However, this problem cannot be addressed until the problems of intra-RFMO compliance, unregulated fishing and accommodating new members have been resolved. Simply closing the door to new members at the regional level is likely to prove ineffective on a global scale. RFMOs should be empowered to consider the use of a wide range of mechanisms for bringing acceptable economic benefits to all parties from cooperation and compliance, including access arrangements, quota trading and leasing.

It is evident to the Panel that if the problems of international fisheries governance are to be resolved, greater and more decisive, coordinated and coherent engagement with developing countries is essential. This includes moving more rapidly towards an operational basis for introducing developing

countries to the economic benefits of high seas resources. Developing countries want access to high seas resources (e.g. tuna), but existing fishing countries are loath to reduce their holdings in already fully subscribed fisheries. The result is that allowed catch levels are pushed higher to accommodate both, in the hope of a later mutual phase-down being agreed, and stocks are put at risk. IUU fishing has a devastating impact on the economies and livelihoods of developing countries. However, the other side of the coin is that one of the key drivers of the same IUU fishing is the presence of non-compliant fishing vessels flagged to open registries, many of which are based in developing countries. These issues are foreseen in the UN Fish Stocks Agreement, which provides general guidance on the forms of assistance to be given to developing countries and the objectives of that assistance. This guidance needs to be operationalized in a more coherent and effective manner. Assistance to developing countries should be directed at creating the institutional, management and technical capacity for effective control of their vessels around the world as well as foreign vessels within their waters and also at fostering their active cooperation with regional management arrangements. Novel operational solutions need to be found in order to accommodate developing countries' legitimate fishing aspirations (general principles are inadequate). For example, attrition, whereby a small percentage of all existing holdings reverts to a central pool each year for redistribution, should be considered.

Ongoing discussions about improvements to the global system of oceans governance have canvassed a wide range of institutional and legal reforms, among them the establishment of an overarching global oceans governance commission, new implementing agreements for the management of discrete high seas fish stocks and biodiversity on the high seas and also a new paradigm for the allocation of high seas fishing rights. Against this dynamic background, it is often difficult for RFMOs to remain focused on the four basic areas that need to be addressed to ensure effective fisheries management – resource assessment, distribution of fishing opportunities in line with the resource status, gear limitation and enforcement. Over the last 25 years enormous progress has been made in better defining the rights and duties of States over fisheries resources at the international level. As a result of the 1995 UN Fish Stocks Agreement, basic jurisdictional problems have been resolved. Any remaining obstacles to effective management result primarily from an absence of political determination to resolve management problems using the tools available in international fishery instruments.

That is not to say that there will not be greater challenges in the future. A key question is whether the current paradigm for structuring international institutions for fisheries management on a purely regional basis is sustainable for the future. In a globalized world, fleets are increasingly mobile and trade in fish and fish products is increasingly complex. With massive overcapacity in the world's fishing fleet, increased regulation in one area often results in transfers of capacity from one region to another to the detriment of the fisheries concerned. Management action in one region can have an immediate effect on other regions. At the same time, advances in technology, especially in surveillance and enforcement, suggest that it is redundant to establish separate databases for each region. There are strong arguments in favour of a global approach to the collection and analysis of catch and effort statistics, monitoring of the size and movements of fishing fleets and the allocation on an equitable basis of shares of harvests and fleet capacity. International fisheries are no longer the exclusive preserve of a few technologically advanced States. If we are to achieve long-term sustainable management of international fisheries, the key challenge for the future will be to establish a globalized regime in which all nations have the incentive to cooperate.

Paris, June 2007

Michael W. Lodge
Director of the Independent Panel

The Independent Panel

Michael W. Lodge

Michael Lodge is an Associate Fellow of Chatham House and a counsellor to the Round Table on Sustainable Development at the OECD. He has worked as a consultant on fisheries and on environmental and international law in Europe, Asia, the South Pacific and Africa. He served on the Secretariat for the High Seas Task Force from 2004 to 2006 and was lead author of the final report of the Task Force, *Closing the Net* (2006). He was the legal adviser to the International Seabed Authority from 1996 to 2004. In this capacity, he was responsible for drafting the first set of international regulations on prospecting and exploring for seabed minerals to be adopted under the 1982 United Nations Convention on the Law of the Sea and for negotiating and preparing contracts between the Authority and the first group of investors to be granted contracts for exploration of the deep seabed. From 1991 to 1995, he was Legal Counsel to the South Pacific Forum Fisheries Agency, based in Honiara, Solomon Islands, and played an active role in the UN Fish Stocks Conference. He was also Executive Secretary of the Conference for Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific, which concluded with the adoption of the Honolulu Convention in 2000. He then served as Head of the Interim Secretariat for the Preparatory Conference for the Western and Central Pacific Fisheries Convention. He has a degree in law from the University of East Anglia (1980) and a Master's degree from the London School of Economics (1995); and in 1981, he was called to the Bar, Gray's Inn. He has written widely on fisheries, the marine environment and deep seabed mining and has published numerous articles. He was Associate Editor of Volume VI of the *University of Virginia Commentary on the United Nations Convention on the Law of the Sea 1982*.

David Anderson CMG

David Anderson was a judge of the International Tribunal for the Law of the Sea (1996–2005) after retiring as Second Legal Adviser to the Foreign and Commonwealth Office. While with the FCO (1960–96), he was a member of the British delegation to many conferences, including the Vienna Conference on the Law of Treaties. Between 1973 and 1995, he played an active part in the Third UN Conference on the Law of the Sea and the Secretary General's Consultations about Part XI and the UN Fish Stocks Conference. He acted as the UK agent in the Fisheries Jurisdiction case (UK v. Iceland) at the merits stage before the International Court of Justice in 1972 and negotiated over a dozen maritime boundary treaties pertaining to several seas and oceans. He is now listed as an arbitrator under Annex VII of the LOS Convention. At different times, he has been a visiting professor in the Law Department at Durham University and at University College London. He has contributed to *International Maritime Boundaries* and the *Oxford Encyclopaedia of Maritime History* (2007). He has written about international fisheries and other aspects of the law of the sea and is a contributor to *Modern Law of the Sea – Selected Essays* (2007). He has an LLB (Leeds, 1958) and an LLM (London, 1960), and was called to the Bar, Gray's Inn in 1963. He is a member of the British

Institute of International and Comparative Law; the International Law Association (British Branch), the American Society of International Law and the Association Internationale du Droit de la Mer.

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Terje Løbach is a lawyer specializing in the law of the sea, especially fisheries law. He has been employed by the Norwegian fisheries authorities and the Norwegian foreign service. He has extensive experience in bilateral and multilateral negotiations and has also carried out consultancy work for a number of countries and international organizations. He has been involved in legal work related to most aspects of the management of marine resources, including drafting conventions, agreements and legislation. He has been Norway's representative to CCAMLR, FAO, ICCAT, IOC/ABE-LOS, NAFO, NEAFC, SEAFO and the UN. Mr Løbach has participated in several FAO expert consultations and has chaired the FAO Technical Consultation on Port State Measures to combat IUU fishing. Recently, he has assisted Namibia, South Africa and Vietnam in drafting new legislation concerning the management of living marine resources. In addition, he has been a member of the Nippon Foundation Research Task Force on National Ocean Policies and has spoken at numerous conferences, symposia, seminars and workshops

Gordon Munro

Gordon Munro is Professor Emeritus with the Department of Economics and the Fisheries Centre at the University of British Columbia, Vancouver, Canada. He was formerly a Distinguished Research Fellow with the Norwegian School of Economics and Business Administration in Bergen. He has been involved in research on fisheries management issues for over 30 years, and has published numerous articles and books on both their theoretical and policy aspects. In recognition of his contribution to the economics profession, the volume *Advances in Fisheries Economics* was published in his honour in 2007. During his career, he developed a particularly strong interest in fisheries management issues arising under the new international law of the sea, as exemplified by the publication in the late 1970s of his pioneering and prize-winning article on the economics of the management of internationally shared fishery resources. Along with his academic work, he has consulted for the Department of Fisheries and Oceans of Canada, the National Research Council (USA), the Royal Society of Canada, APEC, the OECD, UNEP and the Food and Agriculture Organization. He assisted the FAO in planning the 2002 Norway-FAO Expert Consultation on the Management of Shared Fish Stocks and then was a participant in it. From 1983 to 1996, he served with the Pacific Economic Cooperation Council, leading a task force on fisheries that focused on fostering cooperation in fisheries management between and among the developing coastal states of the Western and Central Pacific, Southeast Asia and Pacific Latin America. He was decorated by Chile and by Peru for this work.

Keith Sainsbury

Dr Keith Sainsbury has researched extensively on the assessment, ecology, exploitation and conservation of marine resources and ecosystems. His research has covered fishery assessment of resources that range from abalone to tuna and from the sub-Antarctic toothfish to tropical snappers. It has also addressed the development and practical application of adaptive management strategies,

the incorporation of the role of habitats in fishery production and assessment, and the development of practical spatial management measures in order to allow both conservation and exploitation. More recently, he has led major research initiatives for integrated multiple-use management of marine and coastal ecosystems. He continues a long research association with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia and is Professor in the Chair of Marine System Science at the University of Tasmania. He also fulfils a number of resource management roles and has participated in the development of policy and technical guidelines for the management of marine resources, and he has received significant recognition for his contributions to the sustainable use of marine ecosystems. Dr Sainsbury is a board member of the Australian Fisheries Management Authority, responsible for managing federal Australian fisheries, and a member of the New South Wales Total Allowable Catch Committee, responsible for setting catch quotas for lobster and abalone fisheries. He is Vice-Chair of the Board of the Marine Stewardship Council and Chair of the MSC Technical Advisory Board. He was a participant in the FAO expert consultancy that provided guidelines for the precautionary approach in fisheries, and chaired the FAO expert consultancy that developed the guidelines for the ecosystem approach to fisheries. He was a keynote speaker at the Fourth World Fisheries Congress, the 2005 ICES Annual Science Conference and the 2007 International Symposium on Integrated Coastal Zone Management. He was a laureate of the 2004 Japan Prize for contributions to the understanding of shelf ecosystems and their sustainable utilization.

Anna Willock

Anna Willock is a fisheries policy and management specialist with over 17 years' national, regional and international experience. Currently the senior policy manager for the Australian Fisheries Management Authority, she was TRAFFIC International's Senior Fisheries Adviser for six years. During this time, she authored technical reports and papers on various aspects of fisheries conservation and management. For example, these studies discussed using trade and market analyses to assess IUU fishing, analysed issues relating to listing marine species under CITES and gave assessments of experiences and best practice in RFMOs. Prior to joining TRAFFIC International, she was Fisheries Management Adviser at the South Pacific Forum Fisheries Agency. She participated in the negotiation of the Western and Central Pacific Fisheries Convention and also assisted individual Pacific island countries in the preparation of national fisheries policies and fisheries management and development plans. Ms Willock has broad experience in turning high-level policy and law into functional fisheries management regimes. She has liaised extensively with stakeholders in fisheries, including government agencies, scientific institutions, industry and conservation non-governmental organizations, and has participated in a range of regional and international forums: CCAMLR, WCPFC, IATTC, the proposed South Pacific RFMO, FAO, CITES, FFA, OECD and various UN organizations. She has been engaged by a range of governmental, non-governmental and inter-governmental agencies to provide expert advice and has participated in a number of FAO expert consultations as well as in expert working groups with CITES.

Acknowledgments

Many people contributed to the preparation of this report and to the development of the best practices recommended by the Independent Panel. They include all those who responded to the briefings on its work delivered at Chatham House and at the FAO Committee on Fisheries in March 2007. Their questions, criticisms and suggestions were invaluable in shaping the Panel's recommendations.

The Panel wishes to express gratitude especially to Dr Denzil Miller, Chair of the Regional Fishery Body Secretariats Network; Dr Driss Meski, Coordinator of the Tuna RFMOs; Dr Kjartan Hoydal, Secretary of the North East Atlantic Fisheries Commission; and Dr David Agnew of the Marine Resources Assessment Group, London for their valuable contributions to its work. Gratitude is also due to Richard Tarasofsky and the staff of the Energy, Environment and Development Programme at Chatham House and particularly to Dr Alison Hoare, who served as rapporteur to the Panel during its meetings.

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The Panel's work was greatly assisted by the findings from the three technical studies it commissioned, and it wishes to express its appreciation and gratitude to the authors of those studies: Dr Andy Rosenberg, Dr Maggie Mooney-Seus, Daniel Owen and Dr Trond Bjørndal.

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Abbreviations and Acronyms

See also page xviii for acronyms of main RFMOs considered in this report.

ABE-LOS	Advisory Body of Experts on the Law of the Sea (IOC)
APEC	Asia Pacific Economic Cooperation
CDS	Catch documentation scheme (CCAMLR)
CITES	1973 Convention on International Trade in Endangered Species of Wild Fauna and Flora
COFI	FAO Committee on Fisheries
CSIRO	Commonwealth Scientific and Industrial Research Organisation (Australia)
DWFS	Distant water fishing state(s)
EBM	Ecosystem-based management
EC	European Commission/European Community
ECJ	European Court of Justice
EEZ	Exclusive economic zone
EU	European Union
FAO	(United Nations) Food and Agriculture Organization
FFA	South Pacific Forum Fisheries Agency
ICES	International Council for the Exploration of the Sea
ICNAF	International Commission for the Northwest Atlantic Fisheries
ICJ	International Court of Justice
IMO	International Maritime Organization
IOC	Intergovernmental Oceanographic Commission
IOTC	Indian Ocean Tuna Commission
IPHC	International Pacific Halibut Commission
IPOA-IUU	International Plan of Action to Prevent, Deter and Eliminate Illegal, Unreported and Unregulated Fishing
IPOA-Seabirds	International Plan of Action for Reducing Incidental Catch of Seabirds in Long-line Fisheries
IPOA-Sharks	International Plan of Action for the Conservation and Management of Sharks
ITLOS	International Tribunal for the Law of the Sea
IUCN	The World Conservation Union (International Union for the Protection of Nature)
IUU	Illegal, unreported and unregulated fishing
LOS Convention	United Nations Convention on the Law of the Sea (also UNCLOS)
MARPOL	International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto
MCPA	Marine and coastal protected area
MCS	Monitoring, control and surveillance
MRAG	Marine Resources Assessment Group
MSC	Marine Stewardship Council
MSY	Maximum sustainable yield

NGO	Non-governmental organization
NPOA	National plan of action
OECD	Organisation for Economic Cooperation and Development
OSPAR	1992 Convention for the Protection of the Marine Environment of the North-East Atlantic
REIO	Regional economic integration organization
RFB	Regional fishery body
RFMO	Regional Fisheries Management Organization or Arrangement
RSN	Regional Fishery Body Secretariats Network (FAO)
SDP	Statistical documentation programme
SDS	Statistical documentation scheme
SPRFMO	International Consultations on a South Pacific Regional Fisheries Management Organization
SWIOFC	South West Indian Ocean Fisheries Commission
TAC	Total allowable catch
TIS	Trade information scheme
UNCLOS	United Nations Convention on the Law of the Sea (also LOS Convention)
UNEP	United Nations Environment Programme
UNFSA	UN Fish Stocks Agreement (Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea Relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks)
UNGA	United Nations General Assembly
VMS	Vessel monitoring system(s)
WTO	World Trade Organization
WWF	World Wide Fund for Nature (formerly World Wildlife Fund)

Note on Regional Fisheries Management Organizations

The focus of this study is regional fisheries management organizations (RFMOs). The FAO defines RFMOs as 'intergovernmental fisheries organizations or arrangements, as appropriate, that have the competence to establish fisheries conservation and management measures'. They are distinguished from regional fishery bodies (RFBs), which generally are consultative or advisory bodies that do not have the power to establish conservation and management measures.

There are now some 38 regional fishery bodies worldwide. These include 20 advisory bodies and 18 RFMOs. Some of these, such as the International Whaling Commission and the North Atlantic Salmon Conservation Organization, have very specific mandates or deal with single species. Others have broader mandates. Since 2003, new RFMOs have been established for the Western and Central Pacific Ocean (the Western and Central Pacific Fisheries Commission), the South East Atlantic (the South-East Atlantic Fisheries Organization) and the South Indian Ocean (the South Indian Ocean Fisheries Agreement). Since 2006, a process has also commenced to establish an RFMO for the southern Pacific Ocean. Thus, although some important gaps remain in terms of both species and area coverage, the majority of the world's marine fish resources are now under management by one or more RFMOs (see Appendix 2).

The RFMOs and Arrangements referred to in this report are listed below.

Regional Fisheries Management Organization		*Year established*
CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources	1982
CCBSP	Convention on the Conservation and Management of the Pollock Resources in the Central Bering Sea	1996
CCSBT	Convention on the Conservation of Southern Bluefin Tuna	1994
GFCM	General Fisheries Council for the Mediterranean (now Commission)	1952
IATTC	Inter-American Tropical Tuna Commission	1950
ICCAT	International Convention for the Conservation of Atlantic Tunas	1969
IOTC	Indian Ocean Tuna Commission	1996
IPHC	International Pacific Halibut Commission	1923
NAFO	Northwest Atlantic Fisheries Organization	1979
NASCO	North Atlantic Salmon Conservation Organization	1983
NEAFC	North East Atlantic Fisheries Commission	1982
NPAFC	North Pacific Anadromous Fish Commission	1993
PSC	Pacific Salmon Commission	1985
SEAFO	South East Atlantic Fisheries Organization	2003
SIOFA	South Indian Ocean Fisheries Agreement	2006
WCPFC	Western and Central Pacific Fisheries Commission (Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean)	2004

1

The Purpose and Role of RFMOs in the International Governance System

Introduction

Regional fisheries management organizations or arrangements (RFMOs) play a critical role in the global system of fisheries governance. They are the primary mechanism for achieving the cooperation between and among all fishing countries, including coastal States, that is essential for the effective management of international fisheries. The essential purpose of an RFMO, therefore, is to provide an effective forum for international cooperation in order to enable States to agree on conservation and management measures for those fisheries.

Experience has shown that without cooperation in 'common pool' resources, open to exploitation by all, the objectives of long-term sustainability and optimum utilization become extremely difficult, if not impossible, to achieve. In the case of international fisheries, the difficulty is that because of the nature of international law, attempts to avert the threat to common pool resources through the establishment of stable cooperative management frameworks, RFMOs, have of necessity been conceived of as arrangements between nation-states entered into voluntarily and on a regional basis. States that are unwilling to do so cannot be compelled to join regional agreements and states that are not party to regional agreements are not bound by the rules of those agreements.

This chapter explains, by way of background, how the ongoing, and escalating, problems of over-exploitation and sub-optimal utilization of world capture fisheries emerged and describes the basis of the current legal regime for the management of international fisheries through RFMOs.

The world capture fisheries management crisis and the new international law of fisheries

As has been recognized for over half a century, the root cause of the economic problem in capture fisheries management lies in their traditional common property, or 'common pool', nature and the resulting open access, or near open access, fisheries.

In open access fisheries, it is irrational for an individual fisher to invest in the resource. By refraining from harvesting, the fisher can expect no more than to increase the harvests of his or her competitors. In these circumstances, the individual fisher has every incentive to regard fishery resources as if they were non-renewable, in other words as resources to be mined. H. Scott Gordon, in a seminal article that marked the beginning of modern fisheries economics (Gordon, 1954), argues that open access fishery will be in equilibrium only when the net economic returns from the fishery (which he referred to as 'resource rent') have been fully dissipated.

The magnitude of the threat to the stability of fishery resources owing to the 'common pool' nature of capture fishery resources will depend upon the potential profitability of the fisheries based on

these resources. If that profitability is minimal, the threat may be minor. Conversely, if it is high, the objectives of long-term sustainability and the optimum utilization of fishery resources become extremely difficult, if not impossible, to achieve without an effective cooperative management regime. The more likely scenario is a severe overexploitation of the resources and their sub-optimal utilization.

Serious management of world ocean fisheries is relatively recent, beginning about 60 years ago. In the early twentieth century, the state of world capture fishery resources was not a matter of concern (National Research Council, 1999). Until comparatively recently, the legal regime for high seas fisheries was based on two fundamental premises: (a) the impossibility of the high seas being subject to effective occupation and (b) the inexhaustible nature of marine fishery resources (Orrego Vicuña, 1999, pp. 4–5, but see also Lodge, 2002). In the early seventeenth century, premise (b) was by no means unreasonable. Given the state of fishing technology then, heavy exploitation of high seas fishery resources was prohibitively costly (not to say dangerous). The belief that the great ocean fishery resources were protected by economics continued until late in the nineteenth century. In 1883, Thomas Huxley, one of Britain's leading biologists of the day, declared at a London exhibition on fisheries that 'probably all the great sea fisheries are inexhaustible' and that attempting to regulate them was pointless (cited in National Research Council 1999, p. 16).

Even as Huxley spoke, however, premise (b) was becoming qualified. Fishing technology was changing rapidly – the shift from sail to steam is the prime example – bringing a fall in harvesting costs. As those costs fell, the great sea fishery resources lost their natural protection, and gradually it was realized that marine capture fishery resources were not inexhaustible after all. A growing awareness of the increasing untenability of premise (b) eventually led to States taking measures to conserve living resources through voluntary curbs upon the exercise of their freedom to fish on the high seas. This was done initially through international agreements. An early example is the response to the outcome of the Bering Sea arbitrations[1] that took the form of the 1911 North Pacific Fur Seal Treaty, which is discussed further in Chapter 2. An immediate post-Second World War example is the International Commission for the Northwest Atlantic Fisheries (ICNAF), established by Canada, the United States and several European countries in 1949. This was one of several regional commissions set up in response to encouragement from the newly formed (1945) United Nations Food and Agriculture Organization (FAO). Further examples from this time are the now defunct Indo-Pacific Fisheries Commission and the General Fisheries Council for the Mediterranean, established in 1952.

The emphasis on the need to conclude regional agreements as the basic pattern for managing international fisheries was reinforced by the findings of the Rome Technical Conference on the Conservation of the Living Resources of the Sea of 1955 – one of the early contributions to better fisheries management of the FAO. The Rome Conference, convened in the context of the work of the International Law Commission on the draft articles for the 1958 United Nations Conference on the Law of the Sea (UNCLOS I), agreed for the first time that the conservation and management of high seas fisheries resources could be carried out only through international cooperation in research and regulation. It agreed also that the best way of achieving this was through the establishment of

[1] The Bering Sea arbitrations of 1898 and 1905 provide good illustrations of the problem of attempting to apply unilateral conservation measures to stocks on the high seas and, in consequence, the need for cooperation among all participants in a fishery.

regional conventions, based on the geographical and biological distribution of the marine populations concerned. These recommendations were reflected in the provisions of the Convention on Fishing and Conservation of the Living Resources of the High Seas of 1958, which in turn became the source of articles 116–120 of the 1982 United Nations Convention on the Law of the Sea (the 'LOS Convention').

By the mid-1970s, when the new 200-nautical-mile exclusive economic zone (EEZ) regime was clearly on the horizon, it was estimated that over 90 per cent (by volume) of the world's commercial marine capture fishery harvests was taken within 200 nautical miles of the shore (Alexander and Hodgson, 1975). However, given the mobility of most capture fishery, it was inevitable that coastal States establishing EEZs would find that some of their EEZ fishery resources were shared with neighbouring coastal States (transboundary fish stocks) and some with distant water fishing States operating in the high seas adjacent to their EEZs (straddling and highly migratory fish stocks).[2]

By the close of the Third United Nations Conference on the Law of the Sea in 1982, how to manage transboundary fish stocks was seen as the main shared fish stock management problem. Because only 10 per cent of capture fishery harvests were from stocks in the remaining high seas, the straddling and highly migratory fish stock management problem did not seem to be of great importance (Munro, Van Houtte and Willmann, 2004). In part, this may have been a result of the fact that since the 200-nautical-mile limit was introduced in most places only around 1977, there was insufficient evidence of problems before the end of the Conference in 1982.

This sanguine view was transformed over the next decade. More and more cases of the over-exploitation of straddling and highly migratory stocks emerged. The 10 per cent figure mentioned above was in a sense misleading. The reality is that of the world capture fishery harvests based on shared fish stocks, 60 per cent are in fact based upon straddling and highly migratory stocks, actual and potential (Munro, Van Houtte and Willmann, 2004, p. 7). Over-exploitation of the high seas segments of straddling and highly migratory fish stocks could, and did, undermine attempts to manage the intra-EEZ segments of the stocks.

The response to the emerging crisis in the management of straddling and highly migratory fish stocks was the 1993–5 United Nations Conference on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks and the United Nations Fish Stocks Agreement (UNFSA) of 1995 (United Nations, 1995). The purpose of UNFSA was to implement more effectively the relevant principles of the LOS Convention, thereby supplementing and buttressing the Convention as a whole (Munro, Van Houtte and Willmann, 2004).

The provisions of the LOS Convention and UNFSA

The relevant provisions of the LOS Convention for straddling and highly migratory fish stocks are in Part V (the Exclusive Economic Zone) and Part VII (the High Seas).

Articles 63(2) and 64 of the LOS Convention address straddling stocks and highly migratory stocks

[2] These classes are, of course, not mutually exclusive, as there are numerous transboundary fish stocks that are also either straddling or highly migratory in nature. In any event, it has been estimated that these classes of shared fished stocks (along with discrete high seas stocks) account for up to one-third of world marine capture fishery harvests (Munro, Van Houtte and Willmann, 2004, p. 7).

respectively. Article 63(2) admonishes the coastal State and 'the States fishing for such stocks in adjacent area' to seek 'either directly or through appropriate subregional or regional organizations to agree upon measures necessary for the conservation of these stocks in the adjacent area'. Although coastal States and distant water fishing States (DWFS) are called upon to cooperate in good faith, they are not required to reach an agreement (Munro, Van Houtte and Willmann, 2004). Article 64 is stronger: it calls for the coastal State and the DWFS to cooperate, through appropriate international organizations, with the objective of ensuring the conservation and optimum utilization of these stocks within, as well as beyond, the EEZ.

Article 87 provides that all States have the freedom to fish on the high seas. But that freedom is not absolute. Article 116 subjects this right to other treaty obligations, and to the rights and duties as well as the interests of coastal States as provided for, *inter alia*, in article 63, paragraph 2, articles 64–67 and articles 117–120. Articles 117 and 118 provide for the duty to cooperate with other States whose nationals fish in the same area or for the same stocks in taking measures necessary for the conservation of those stocks. This duty can be discharged by direct cooperation or by establishing an RFMO.

UNFSA significantly strengthened the position of RFMOs as the paradigm for the adoption of fisheries conservation and management measures. In this sense, it implements the call for cooperation on high seas conservation in the LOS Convention and thus represents a progressive development of the concepts of cooperation, compatibility and responsibility that are set out in the LOS Convention.

The primary objective of UNFSA is to seek effective and compatible conservation and management regimes both inside and outside areas of national jurisdiction. UNFSA is meant to apply, unless otherwise specified, to the conservation and management of straddling and highly migratory fish stocks beyond areas of national jurisdiction. There is, however, a significant proviso. According to article 3, coastal States, in the exercise of their sovereign rights in areas under national jurisdiction, are required to apply, *mutatis mutandis*, the general principles of conservation and management enumerated in article 5 of the Agreement. This is a very important qualification. It is designed to ensure that the management principles set out in UNFSA are applied seamlessly both on the high seas and in areas under national jurisdiction. These principles include the requirement that conservation and management measures should be established on the basis of a precautionary approach and should use reference points for establishing the level of utilization of stocks. They should be based on the best scientific information available. For this purpose, an essential element in the management procedures is (the requirement for) the collection and exchange of data and information. Furthermore, article 6, on the application of the precautionary approach, and (importantly) article 7, on the compatibility of conservation and management measures, 'apply also to the conservation and management of such stocks within areas under national jurisdiction …'

UNFSA accords a key role to RMFOs as the appropriate medium through which States are to cooperate so as to achieve and enforce conservation objectives both on the high seas and in areas under national jurisdiction. Its main contribution in this regard is to define the desirable institutional characteristics of an effective RFMO by listing, in a legally binding form, the matters upon which States are expected to agree in order to bring about the sustainable management of fisheries. These include agreement on conservation and management measures to ensure long-term sustainability, agreement on participatory rights such as allocations of allowable catch or levels of fishing effort, agreement on decision-making procedures that facilitate the adoption of conservation and management measures in a timely and effective manner, and agreement on mechanisms for obtaining scientific advice and

ensuring compliance with and enforcement of conservation and management measures.

Where no RFMO exists for an existing or emerging fishery, States must cooperate in order to establish one. Where an RFMO does exist, States that wish to fish for the resource are obliged to join the RFMO or, at the very least, to conduct themselves in accordance with its rules. At the same time, UNFSA emphasizes that States with a 'real interest' in the fisheries concerned are entitled to become members of a relevant RFMO. This important and difficult provision is designed to ensure that, on the one hand, UNFSA cannot be used to protect the position of States currently fishing on the high seas by freezing out potential new participants and that, on the other hand, RFMOs should not be open to all States unless they have a recognizable interest in the fisheries concerned. The implication is that only those States that are members of the relevant RFMO, or that agree to apply the conservation and management measures established by the RFMO, may have access to the fishery resources to which those measures apply.

In addition, UNFSA specifies in more detail than the LOS Convention the duties of flag States with respect to their vessels fishing on the high seas, introduces innovative provisions on enforcement by non-flag States and provides for port State jurisdiction in respect of fishing vessels.

Now that the main provisions of the LOS Convention and UNFSA concerning fishing in the EEZ and on the high seas have been summarized, it is relevant to consider in more detail some current legal issues especially relevant to the work of RFMOs. These issues are (1) the scope of the duty to cooperate and its relationship to the high seas freedom of fishing and (2) the duty of a flag State to exercise effective control over fishing vessels flying its flag, including their fishing activities.

Freedom of fishing on the high seas and RFMOs

It is still sometimes argued that insofar as, or to the extent that, the regulatory area of an RFMO has the status of high seas, the basic principle is freedom of fishing. Furthermore, it is contended, this principle applies to members whenever an agreement has not been reached within an RFMO on the allocation of fishing opportunities or it applies between members and a non-member State. Today, these arguments are seriously misleading and should be challenged in relation to the work of RFMOs.

It is true, of course, that 'Freedom of the high seas', article 87 of the LOS Convention, includes the freedom of fishing. But in the modern world, in which stocks have been shown to be exhaustible, this freedom is not absolute, as noted above. It has been made expressly 'subject to the conditions laid down in section 2' of Part VII of the Convention, concerning the conservation and management of the living resources of the high seas. In other words, the freedom is conditional.

Let us examine these conditions. Section 2 of Part VII contains significant provisions in articles 116–118. Article 116 subjects the right to engage in fishing on the high seas to obligations under other treaties, to the rights, duties and interests of coastal States as provided for in the articles applicable in the EEZ and to articles 117–120. In particular, as pointed out above, articles 117 and 118 provide for the duty to cooperate with other States whose nationals fish in the same area or for the same stocks in taking measures necessary for the conservation of the stocks. This duty, which is clearly of universal application as part of customary international law, can be discharged by direct cooperation or by creating an RFMO. As the International Court of Justice has found, 'It is one of the advances in

maritime international law, resulting from the intensification of fishing, that the former *laissez-faire* treatment of the living resources of the sea in the high seas has been replaced by a recognition of a duty to have due regard to the rights of other States and the needs of conservation for the benefit of all' (Fisheries Jurisdiction Case, 1974).

It is apparent that the conditions laid down in these articles in section 2 are far-reaching. Two conditions stand out. First, obligations under 'other treaties' include obligations arising from the constitutive treaties of RFMOs. Second, the duty to cooperate in taking conservation measures is a legal duty carrying important consequences. The International Tribunal for the Law of the Sea has applied the duty to cooperate in its Order prescribing provisional measures in the Southern Bluefin Tuna cases (1999). This duty should not be misconstrued as what is sometimes called 'soft law'.

The relevant provisions of the LOS Convention have been implemented and elaborated further by UNFSA. The aim of this Agreement is to ensure the long-term conservation and management of stocks. Its Part III contains detailed provisions about the duty to cooperate on conservation and management. This duty applies to members of RFMOs as well as to non-members. The duty of members is not discharged by merely creating or joining an RFMO. Members have an obligation to respect conservation measures adopted by the RFMO concerned. In cases where the members have failed to reach agreement on the allocation of quotas for a particular species or for a particular area, the duty to cooperate still persists. The members remain under a legal duty to cooperate.

Unilateral actions by members may amount to failures to respect the duty to cooperate and even possibly to observe the RFMO's own rules. Non-members which do not agree to apply an RFMO's conservation measures do not have access to the stocks covered by those measures. Unilateral action such as authorizing nationals to fish in a manner that undermines an RFMO's conservation measures may well be found to amount to a failure to cooperate, contrary to general international law and the LOS Convention, especially where prior warnings had been given by the member States through diplomatic channels. Such a failure would engage the responsibility of the State under international law. The same could apply for failing to prevent nationals from undermining such measures despite warnings.

To conclude on this issue, the freedom of fishing exists generally in the modern world. But it has become a conditional freedom. Very far-reaching conditions now exist in regard to the regulatory areas of RFMOs. There is no freedom to fish contrary to applicable conditions. These conditions include measures laid down by RFMOs, and there is no freedom to undermine any of them. On the contrary, fishing in such circumstances could violate general international law, the LOS Convention, UNFSA and the RFMO's constitutive instruments, depending upon the particular facts of a case.

Flag State duties

All States have the right to sail fishing vessels on the high seas. If a State exercises this right by granting its flag, it bears the responsibility to exercise effective control over its fishing vessels. As indicated above, the right to fish on the high seas is subject to conditions imposed by general international law. A State that is not a member of an RFMO should not fail to take account of the organization's existence, its regulatory area and its conservation measures. A non-member State, as a third State, may not be bound under the law of treaties by the RFMO's treaty regime, but this is not the end of the story. There are other obligations, of a general nature, which affect such non-member States.

All States are bound by the duty to exercise effective control. A State's actions of flagging and then authorizing or licensing vessels to fish for, say, several years in a large area that includes the regulatory area of an RFMO could be found to signify a failure to exercise effective control over its vessels if these actions result in fishing operations by those vessels that undermine the RFMO's conservation measures. This finding would be more likely if the members of the RFMO had previously made concerted diplomatic approaches to the licensing State that went unheeded. The right of a State to flag fishing vessels carries with it legal responsibilities towards other States, including the members of RFMOs. Flags should not be granted under a mistaken belief of impunity. This issue is discussed further in Chapter 6.

2

The Economic Drivers of Cooperation

Under the United Nations Fish Stocks Agreement of 1995 (United Nations, 1995), RFMOs are the primary mechanism for achieving the cooperation between and among coastal States and fishing States deemed necessary for meeting its objectives. These objectives are set forth in articles 2 and 5 of the Agreement. Article 2 states that 'the objective of this Agreement is to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks ….'

Article 5 declares that coastal States and fishing States, in giving effect to their duty to cooperate in accordance with the LOS Convention, are to adopt measures to ensure the long-term sustainability of these resources and *promote the objective of their optimum utilization*. The overall approach to resource management is to be an ecosystem one in which the precautionary approach is employed.

If RFMOs are to be the key mechanism for achieving cooperation in the management of straddling and highly migratory stocks, then one must first ask, what are the consequences of non-cooperation, of an RFMO proving to be a cooperative resource management arrangement in name only? If the negative consequences of ineffective cooperation are minor, one need not worry unduly about the possibility of RFMO members being unable to fulfil their duty to cooperate. If, on the other hand, the consequences of non-cooperation are severe, then one must immediately raise a second question: what conditions must prevail if an RFMO cooperative resource management arrangement is to prove to be stable over the long run? This chapter will address both of these key questions.

Before these questions are addressed, however, two prior issues must be raised. What is meant by the 'optimum utilization' of fishery resources, and is this optimum utilization in conflict with the goals of conservation of resources and their sustainable use? These issues lead into the realm of economics.

Optimum utilization of fishery resources; optimum utilization vs conservation and sustainable use

From an economic perspective, 'optimum utilization' of fishery resources implies managing them in such a manner as to ensure that they provide the maximum flow of net economic benefits to society *over time*. The emphasis is on the flow of net economic benefits to society, not just to the fishing industry. Following from this, the definition of 'net economic benefits' to be used is a broad one, and is emphatically not restricted to commercial benefits. Non-market benefits are to be included. If, for example, the members of society derive ongoing satisfaction from knowing that the fishery resources are safe from destruction – what economists call existence value – then this must be counted in the flow of benefits.

The question of a possible conflict of conservation and sustainable use with optimal utilization goes to the heart of modern fisheries economics. Central to the discussion is the concept of 'real' (as opposed to financial) capital. Capital is any good or asset capable of yielding a stream of economic returns to society over time, in contrast to a consumption good or service. All natural resources fall

under this definition of capital. It is now common for ecologists, as well as economists, to talk of 'natural' capital (as opposed to human-made capital).

Society builds up its stock of real capital (natural and human-made) through positive investment, which entails making sacrifices today through reduced consumption in the hope of a reward in the future in the form of higher levels of output and consumption. The reverse, negative investment (disinvestment), in which society depletes its stock of capital, is also possible.

In discussions of natural resources, a distinction is made between renewable and non-renewable resources, with the distinction resting upon whether the resource is or is not capable of growth. In the case of non-renewable resources, for example minerals and hydrocarbons, society has a choice between a policy of zero investment, ignoring the resource, and one of disinvestment, that is depleting the resource, commonly referred to as mining.

In the case of renewable resources, the investment options are broader. One can invest in the resource by ensuring that the harvest rate falls below the net natural growth rate. Disinvestment occurs when the opposite happens. A zero rate of investment in the resource implies not ignoring the resource but essentially skimming off the net natural growth – what is referred to as exploiting the resource on a sustainable basis. Fishery resources provide the quintessential example of renewable resources.

Renewable resource conservation, in its strongest sense, implies the building up (or rebuilding – restoration) of the resource. In economic terms, this building up of the resource is (positive) resource investment. This point was made succinctly with respect to fishery resources by one of the pioneers of modern fisheries economics, H. Scott Gordon, at an FAO conference over half a century ago.

> The economic justification of conservation is the same as that of any capital investment – by postponing utilisation we hope to increase the quantity available for use at a future date. In the fishing industry we may allow our fish to grow and to reproduce so that the stock at a future date will be greater than it would be if we attempted to catch as much as possible at the present time … (Gordon, 1956).

In order to achieve optimum utilization of the resource, a programme of positive investment may be necessary. An example is provided by the East Atlantic bluefin tuna fishery, under ICCAT governance. Economists undertaking empirical studies of fisheries management employ bioeconomic models, which are a fusion of biological and economic models. Recent bioeconomic modelling of the East Atlantic bluefin tuna fishery reveals that if the maximum economic benefit from the resource is to be achieved over time, the resource biomass will have to be increased from its current level of 150,000 tonnes to somewhere between 500,000 and 800,000 tonnes. Optimal economic management of the resource thus calls for a massive resource investment programme (Bjørndal and Brasão, 2006). Thus conservation and sustainable use are not really in conflict with optimum utilization.

That there has been widespread overexploitation of world capture fishery resources (excessive resource disinvestment) and that the utilization of those resources has been decidedly suboptimal have become increasingly evident. A recent study undertaken for the FAO and the World Bank estimates that the net contribution of world capture fisheries to the world economy is negligible. If, on the other hand, these fisheries were being optimally managed, their net contribution to the world economy would be some $50 billion per annum (Arnason, 2006).

RFMOs and the consequences of ineffective cooperation

Now the first of the two key questions raised above can be addressed. What are the consequences, if any, of non-cooperative management of fishery resources?

A fundamental feature of the management of straddling and highly migratory stocks is the fact that, with few exceptions, there will be a strategic interaction between and among the States exploiting these stocks. Consider, for example, a straddling stock being exploited by one coastal State only and by a single distant water fishing State (DWFS). The harvesting activities of the DWFS will, except under unusual circumstances, have an impact upon the harvesting opportunities available to the coastal State, and vice versa. Both States, if rational, will recognize this impact and take them into account in their planning, thus the strategic interaction.

Economists learned 30 years ago that they could make no progress in analysing the economics of the management of fishery resources unless they took this strategic interaction into account explicitly. To do this, they had to incorporate in their analyses the theory of strategic interaction, or interactive decision theory, more commonly known as game theory. (Economists studying other shared resources, such as water and the atmosphere, have been forced to exactly the same conclusion.)

Game theory is now used widely in many branches of economics and in many fields outside economics, such as political science, international relations and evolutionary biology. So prominent has it become in economics that the Nobel Prize in Economic Sciences has been awarded twice to game theorists since the mid-1990s. The press release announcing the awarding of the Prize for 2005 to laureates Robert Aumann and Thomas Schelling reads: 'Why do some groups of individuals, organizations and countries succeed in promoting cooperation while others suffer from conflict? The work of Robert Aumann and Thomas Schelling has established game theory – or interactive decision theory – as the dominant approach to this age-old question' (http://www/Nobelprize.org.2005). This 'age-old question' is precisely the one to be addressed in the context of fisheries.

Recognition of the value of game theory as applied to fisheries extends far beyond the realm of academia. Willock and Cartwright in their study of allocation issues in the Western and Central Pacific Fisheries Commission (WCPFC) write that 'a number of economists and other parties have indicated that "game theory" offers prospects for examining the nature of cooperative and non-cooperative approaches to allocation' (Willock and Cartwright, 2006, p. 5).

Game theory is divided into two broad parts: the theory of non-cooperative, or competitive, games and the theory of cooperative games. The latter is essentially a theory of bargaining. The answer to the question about the consequences of non-cooperation lies clearly in the theory of non-cooperative games.

When applied to fisheries, this theory predicts that non-cooperation carries the risk of what is known as the 'prisoner's dilemma' outcome. The term comes from a story developed to illustrate the point that, under conditions of non-cooperation, the participants ('players') will be inexorably driven to adopt strategies that they know will produce inferior results (see Munro, Van Houtte and Willmann, 2004, Appendix).

This outcome can be illustrated with ease in the context of transboundary fish stocks, a class of shared stocks that are generally far less difficult to manage than straddling or highly migratory

ones. Consider a transboundary stock shared by two coastal States, A and B. They do not engage in cooperative management, and each manages its share of the stock to the best of its ability. If A should undertake to restrict harvests in order to 'invest' in the resource, the benefits from this action will not be enjoyed by A alone; they will be shared with B. What assurance does A have that B will also undertake to conserve the resource? As there is no cooperation, the answer is none. It is quite possible that B would be content to 'free-ride' on A's resource investment efforts. In these circumstances, A is likely conclude that the return on its resource investment will be less than its cost and that its best course of action ('strategy') is to do nothing. B might be expected to come to the same conclusion.

Worse, A has to allow for the possibility that B might deliberately deplete the resource. If A seriously believes this, then it might decide that its best strategy is to take this measure first. Once again, B might follow the same line of reasoning.

An example is provided by Pacific salmon, shared by the United States and Canada. After many years of arduous negotiations, the two coastal States signed a treaty in 1985 on cooperative management of Pacific salmon resources from northern California to the Gulf of Alaska. One of the factors that had encouraged the negotiators to press on despite difficulties was the belief that both countries had the opportunity to invest in salmon resources through enhancement projects on major salmon rivers, such as the Fraser River in Canada and the Columbia River in the United States, and that the mutual benefits from the projects would be impressive. There is clear evidence that before signing the treaty, both States deliberately held back from such projects, for fear that the other would free-ride on its efforts (Munro, McDorman and McKelvey, 1998).

Indeed, before the conclusion of the negotiations, there were Pacific salmon 'fish wars', which were defined as the deliberate overexploitation of the fishery resource for the purpose of denying harvest opportunities to the other party (Jensen, 1986). After the treaty was signed, an American legal expert remarked that it could best be described as a 'peace treaty memorializing the end of the Pacific salmon war' (Jensen, 1986, p. 372).

It was noted in Chapter 1 that the articles of the LOS Convention pertaining to the high seas are far-reaching. Nonetheless, these articles were criticized for being opaque in the sense that they leave unclear the rights, duties and obligations of coastal States to the high seas portions of straddling and highly migratory stocks, as opposed to those of DWFSs (Munro, Van Houtte and Willmann, 2004). This lack of clarity made it very difficult, prior to UNFSA, to bring about effective cooperative management of these stocks. The 'prisoner's dilemma' played itself out with a vengeance.

A notable example is the straddling stock Alaska pollock, which is found in the zones of Russia and the United States and in a high seas enclave called the 'Doughnut Hole'. The resource was managed non-cooperatively before the 1990s. The FAO comments that the Alaska pollock resources in the 'Doughnut Hole' were more than overexploited; they were plundered (FAO, 1994). Munro, Van Houtte and Willmann state that 'the overexploitation of straddling/highly migratory stocks worldwide, which provided the rationale for the UN Fish Stocks Conference, bears powerful testimony to the predictive power of the economic analysis of the non-cooperative management of such resources' (2004, p. 45). Thus, effective cooperation does indeed matter if the objectives of UNFSA are to be realized.

Some basic conditions for the long-term stability of RFMOs

In looking at the second essential question raised above, the conditions that must be met if cooperative resource management arrangements are to be stable over time, it is appropriate to ask what insights can be gained from the part of game theory dealing with cooperative games. The cardinal assumption underlying this theory is that the players are coldly rational: altruism has no role. If a player agrees to cooperate, this is because it has become convinced that it will be better off by cooperating than it would be by competing.

The theory would lead one to predict that the difficulty of achieving a stable cooperative management regime will increase, almost exponentially, with the number of participants (players). Beside the obvious fact that compliance becomes more difficult to achieve as the number of participants increases, one has to take into account that once the number of participants in a cooperative game goes beyond two, it is no longer sufficient to think in terms of individual players and whether they as individuals are satisfied. One must now allow for the possibility of coalitions. In game theory parlance, all the players together in a cooperative game with many players constitute the 'grand coalition'. Within the grand coalition, sub-coalitions may form. For example, the grand coalition that is the WCPFC consists of all its members, but Pacific island country (PIC) members of the South Pacific Forum Fisheries Agency (FFA) can reasonably be thought of as a sub-coalition. Stability demands, *inter alia*, that no sub-coalition has an incentive to compete against the rest.

The prediction of the theory concerning the number of players and the difficulty of achieving stability now has some empirical validation. A recent empirical study of world capture fisheries demonstrates that the greater the extent to which a fishery resource is shared, the higher is the probability that the resource will be overexploited (McWhinnie, 2006).

The typical RFMO, unlike the usual cooperative resource management arrangement for a strictly transboundary stock, must deal with its many members. But it must also contend with two special problems. The first arises from the threat of unregulated fishing in areas of the high seas under RFMO governance. The second can be termed the 'new member' problem.

To begin with, as Chapter 4 emphasizes, the RFMO membership must include all relevant coastal States in the RFMO's area of competence and obviously relevant DWFSs if it is to have any chance of achieving stability. But a DWFS that is not an obvious candidate for 'charter' membership in the RFMO could over time develop a legitimate 'real interest' in the resource or resources under the RFMO's governance and could then ask to join the RFMO. UNFSA makes it clear that the RFMO must be prepared to consider accommodating prospective new members (see articles 10 and 11).

The insight provided by the theory of cooperative games points to two fundamental conditions that must be met if a cooperative resource management arrangement for any class of shared fish stock is to be stable over time. Both seem patent, once stated, but are often ignored in practice. (These conditions are discussed in the *Report of the Norway-FAO Expert Consultation on the Management of Shared Fish Stocks* (FAO, 2002), without game theory terminology.)

The first condition, sometimes referred to as the 'individual and sub-coalition rationality constraint', is simply that each individual participant, and each sub-coalition, must be assured now and in the future of an economic return from cooperation at least as great as it would receive by acting competitively

(FAO, 2002, para. 47). An essential requirement is of course that the allocation issue, discussed in detail in Chapter 4, must be resolved satisfactorily. All must see the allocations as equitable.

However, the individual and sub-coalition rationality constraint involves much more than this. Take as an example the two banes of cooperative management arrangements: non-compliance and free-riding. Let non-compliance be defined as a participant's wilful violation of the terms of a cooperative arrangement, and let 'free-riding' be defined as a non-participant's enjoyment of the benefits arising from a cooperative arrangement. Of course, the boundary between non-compliance and 'free-riding' may lack sharpness and clarity.

In any event, consider a participant, a 'player', contemplating entering into a cooperative resource management arrangement. The participant is confident that it will receive a 'fair' allocation but has no confidence in the enforcement mechanism or no confidence that free-riding will be curbed effectively. It might well calculate that its actual economic benefits from cooperation will be less than if it played competitively. With its individual rationality constraint not met, the player's incentive to cooperate would vanish.

The questions of how to address non-compliance by RFMO member vessels and what has been called here free-riding will be discussed further in Chapter 5. The latter will be considered again later in this chapter.

With respect to non-compliant member vessels, the first responsibility lies with the flag State. The question then becomes how to deal with flag State RFMO members which prove to be lax in carrying out their policing duties. Chapters 5 and 6 discuss this problem in detail.

The second fundamental condition for a stable cooperative resource management arrangement that it is resilient over time (FAO, 2002). It is almost inevitable that the arrangement will be subject to unpredictable shocks, political, economic or environmental; and if the arrangement lacks the flexibility to absorb those shocks, it may founder. Individual participants and/or sub-coalitions whose rationality constraints had been satisfied may find that they are not any more.

An example is provided by the Norwegian spring spawning herring, which migrates between Norway and Iceland. It is managed cooperatively by Norway, Iceland, Russia, the Faroe Islands and the EU, and the NEAFC serves as the RFMO. This arrangement, established in the late 1990s under the framework of UNFSA, was hailed as a model of cooperative resource management (Munro, 2000). However, it went through a period of difficulty between 2003 and late 2006.

The harvest allocations in this cooperative management arrangement are based, more or less, on the zonal attachments of the resource, which are determined by both the amount of the resource and the time spent by it in each participant's zone during its migration. Within the five-player grand coalition, Norway and Russia can be seen as constituting a sub-coalition. There has been a history of close fisheries cooperation between the two states. Russia, for example, agrees not to harvest juvenile herring in its zone, in exchange for the right to harvest adult herring in the Norwegian zone (T. Bjørndal, personal communication). The Norway–Russia sub-coalition, as a result of either unexpected shifts in resource migratory patterns or faulty earlier biological research, claimed in 2002 that its share fell far short of what its zonal attachment dictated. It showed signs that its sub-coalition rationality constraint was not being satisfied. Norway, for example, had granted several members of the cooperative arrangement the right to take some of their allocations within the Norwegian zone, a

policy which made excellent economic sense. After 2002, Norway barred all such members from its zone, save Russia (T. Bjørndal, personal communication). The issue, after several years of tension and discord, was resolved at the end of 2006. One must nonetheless conclude that the cooperative resource management arrangement did not display the hoped-for resiliency in the face of uncertainty. The period of cooperation paralysis had been dangerously long.

The *Norway-FAO Expert Consultation on the Management of Shared Fish Stocks* maintains that in order to achieve resiliency, the cooperative resource management agreement underpinning the RFMO should have built into it mechanisms for dealing with the above-mentioned shocks. The Consultation goes on to state that insofar as those mechanisms consist of provisions prescribing that a specific change will result in specific amendments to the agreement, an important element of the mechanism must be a common understanding of how to measure the pre-agreed parameters that will constitute the change in question (FAO, 2002, para. 48).

Broadening the scope for cooperation

Cooperative resource management involves a process of bargaining among the participants in an arrangement. (As noted, the theory of cooperative games is in essence about bargaining.) Bargaining will take place, for example, about the division of the economic returns from the relevant fishery or fisheries and possibly about resource management strategies.

One conclusion arising from cooperative game theory with immediate appeal to common sense is that if one wishes to ensure the stability of the bargaining outcome, it is very important to keep the scope for bargaining as broad as possible. The *Report of the Norway-FAO Expert Consultation on the Management of Shared Fish Stocks* talks in terms of employing 'negotiation facilitators', and goes on to state that, in a fisheries context, negotiations over allocations among cooperating states should not be confined to shares of total allowable catch (TAC) alone. Cooperation can be facilitated, the *Report* argues, by supplementing such allocations with, *inter alia*, access arrangements and quota trading (FAO, 2002, para. 46).

Let us return to the example of two coastal States, A and B, sharing a single transboundary fishery resource, and suppose that they have entered into a cooperative resource management arrangement. If its terms are such that A's economic returns from the shared fishery are to be determined solely by the harvests of A's fleet within its exclusive economic zone (EEZ) and that B's economic returns from the fishery are to be determined in a like manner, then the scope for bargaining will be restricted. There is the risk of conditions arising that would lead A or B to decide that it is no better off under cooperation than it would be under competition.

A case in point is the Canada-US Pacific Salmon Treaty of 1985, discussed above. Canadian fishers inevitably 'intercept' (harvest) US-produced salmon; US fishers inevitably 'intercept' Canadian-produced salmon (some American-produced salmon travel through Canadian waters and vice versa). Under the original terms of the treaty, the division of the economic returns from the fisheries was to be determined by Canadian and American fleets operating wholly within their respective home waters and by Canadian 'interceptions' being carefully balanced against American 'interceptions' – what was popularly referred to at the time as the 'fish for fish rule' (Miller et al., 2001). In retrospect, the scope for bargaining under these terms proved to be too narrow. A shift in environmental conditions

upset the 'interception' balance, and the treaty effectively seized up in 1993 and continued in a state of paralysis until 1999. In this six-year period, the 'prisoner's dilemma' returned in full force as the 'fish wars' resumed (Miller et al., 2001).

A counter-example is provided by the case of the North Pacific fur seal fishery, referred to in Chapter 1. The fishery was managed cooperatively by Canada, Japan, Russia and the United States from 1911 to 1984, with a lengthy hiatus commencing in 1941 as a consequence of the Second World War (Barrett, 2003). Cooperation commenced among the four in 1911 after a lengthy period of non-cooperative management that had resulted in severe resource overexploitation – a textbook example of the 'prisoner's dilemma'.

The Americans and the Russians harvested the seals on land while the Canadians and the Japanese harvested them at sea. The Canadian and Japanese harvesting costs were of course higher than those of the Americans and the Russians. If the net economic returns from the fishery were to be maximized, then ideally all the harvesting should have been done by the Americans and the Russians. Under the terms of the 1911 North Pacific Fur Seal Treaty (Convention for the Preservation and Protection of Fur Seals, 1911), which established a cooperative resource management arrangement, this is exactly what happened. The harvest allocations to the Canadian and Japanese sealing fleets were set at zero. Canada and Japan were compensated by receiving annually fixed percentage shares of the harvested sealskins (Barrett, 2003).

Maximizing the economic net benefits from the fishery also involved an extensive resource investment programme. It is estimated that between 1911 and 1941, the seal herds increased eighteenfold (FAO, 1992).

More current examples are provided by a precursor arrangement to the WCPFC and by the WCPFC itself. In 1979, the Pacific island countries undertook cooperative management of their shared EEZ tuna resources through the FFA. The tuna resources tend to concentrate around the equator and thus are not shared equally throughout the region. As a reflection of this fact, two sub-coalitions emerged: the so-called Nauru Group, PICs close to the equator, and the rest. We can refer to the two sub-coalitions loosely as the 'haves' and the 'have-nots'.

In 1987, the members of the FFA signed a treaty with the United States, one of the two leading DWFSs in the region. Under the terms of the treaty, American payments for fishing rights were to go into a central fund administered by the FFA. In a subsidiary agreement, the PICs agreed that 75 per cent of the funds would be distributed among them on the basis of the estimated American harvests in their respective EEZs. The remaining 25 per cent would be distributed equally. As a result, the 'have-not' sub-coalition would receive more than would have been the case had the funds been distributed solely on the basis of anticipated American zonal harvests (Agreement, 1988) – an example of what the FAO refers to as 'negotiation facilitators'. The objective was to ensure that the 'have-nots' shared equitably in the economic returns from the treaty with the US, thereby strengthening their commitment to cooperation.

To digress briefly, it was pointed out above that the difficulty of achieving stability in a cooperative game increases exponentially with the number of players. The experience of the PICs demonstrates that achieving stability with large numbers can nonetheless be achieved. When the FFA was established in 1979 and the PICs undertook to manage their intra-EEZ tuna resources cooperatively, many commentators expressed deep pessimism about the future of the cooperative endeavour

(see, for example, Munro, 1982). There were 14 participants, several of which were at a low level of development. Once the two sub-coalitions were formed, however, stability was achieved, in part through ensuring an equitable distribution of the economic benefits from cooperation. The cooperative resource management arrangement became a remarkable success, and continues to influence the development of the WCPFC (Munro, Van Houtte and Willmann, 2004).

The second example, from the WCPFC itself, is about the problem of tuna allocations. The Marine Resources Assessment Group (MRAG) has undertaken an exhaustive study of alternative tuna allocation schemes for the WCPFC Secretariat (MRAG, 2006). The study gives much emphasis to the importance of participants having 'some ability to transfer [lease] fishing rights or allocations between areas and between [participants]' (MRAG, 2006, p. 57). To expand upon the study's conclusions, one could argue that if, for example, coastal States could be given allocations of TACs covering the resources in the high seas and if they had the authority to lease those allocations, they could then look forward to sharing in the economic returns arising from the high seas fisheries. And they could do so even though they themselves lack the fleet capacity to exploit the resources. All this has a strong flavour of 'negotiation facilitators', the use of which is strengthened by Andrew Serdy's argument that the trading of fishing rights, that is allocations, is entirely consistent with international law (Serdy, in press).

Unregulated fishing and the new member problem

The issues of unregulated fishing and the new member problem are linked by the threat of 'free-riding'. This arises from unregulated fishing for obvious reasons. The new member problem can give rise to implicit 'free-riding'.

Consider an RFMO, which, upon being established, undertakes to rebuild overexploited stocks. After the 'charter' members have rebuilt the stocks and are in a position to enjoy the fruits of their investment, prospective DWFS new members appear. They agree to abide by the established resource management regime but demand pro rata shares of the net economic benefit from the RFMO fisheries. If their demands are acceded to, the new members will be 'free-riders': they will share in the fruits of the resource investment without having borne any of the investment costs. This implicit 'free-riding' can undermine the cooperative resource management arrangement just as effectively as the more explicit kind (Kaitala and Munro, 1997).

RFMOs ordinarily accommodate new members by increasing the TAC rather than reducing the allocations to 'charter' members. But this solves nothing. Although increasing the TAC might temporarily mask the cost to 'charter' members of accommodating new members, the former, if rational, will soon recognize that this practice will reduce their expected economic returns over time from the RFMO fisheries. If the practice is pushed far enough, some of them might conclude that it is no longer in their best interests to cooperate – the individual rationality constraint yet again.

As an aside, one approach that is very likely to exacerbate the 'free-rider' problem is that of treating prospective new members not as full new members but as cooperating non-members. The implication is that cooperating non-members will enjoy some of the benefits of the 'club' without being called upon to undertake the obligations and costs of membership. This problem can be ameliorated to some extent if non-members are called upon to give unilateral but binding undertakings to abide by the RFMO's rules. Indeed, this is the correct view of the nature of the duty to cooperate that lies with cooperating non-members.

What is to be done? The answer is basically that unless vigorous steps are taken to eliminate unregulated fishing, the problem may prove to be intractable. It has been recognized, and in recent years, RFMOs have developed a range of measures to reduce the potential for unregulated fishing, including trade- and market-related initiatives and measures by port States. These are discussed in Chapter 5. But because unregulated fishing can never be eliminated entirely, the underlying conceptual problem remains.

One approach to dealing with prospective new members has been used in the past by both NAFO and NEAFC. This is to welcome new members but to warn them that the stocks currently managed are fully allocated and that fishing opportunities are likely to be limited to new fisheries or to the 'Others' category (Munro, Van Houtte and Willmann, 2004). This approach is aptly described as 'effectively closing the door on New Members …' (Willock and Lack, 2006, p. 27). It does of course provide a powerful incentive for prospective new members to engage in unregulated fishing regardless of the UNFSA and the measures being adopted to curb it.

The alternative approach is to grant meaningful allocations to new members in the hope of dissuading them from engaging in unregulated fishing. A dilemma then arises, however. If the allocations to the new members are too generous, the incentive for the 'charter' members to cooperate may be undermined. If the allocations are seen by the prospective new members as insufficiently generous, they may be encouraged to engage in explicit 'free-riding', UNFSA notwithstanding.

Two European economists at the cutting edge of applying game theory to fisheries have addressed this very issue. Their conclusion is that if restrictions on unregulated fishing are ineffective, there will be instances in which no resolution of the dilemma is possible, regardless of how ingenious the allocation scheme might be (Pintassilgo, 2003; Pintassilgo and Lindroos, 2006). For this reason, addressing the problem of unregulated fishing is critical in attempting to establish a stable RFMO regime.

A possible resolution of the dilemma involves (non-coastal State) new members in effect buying their way into the RFMO. This was discussed at the 2002 Norway-FAO Expert Consultation on Shared Fish Stock Management. Its *Report* states that 'if … it were possible for prospective New Members to purchase quotas from existing members of RFMOs, this would serve to ease the problem of quota allocation to New Members' (FAO, 2002, para. 63).

Andrew Serdy gives strong support for this approach, arguing that

> transferability of national quota could itself help to induce the missing element of limitation of entry; the more elaborate the system the RFMO creates, the higher it can (legitimately) ratchet up the bar for non-member new entrants in discharging their duty of cooperation. This will tend to hasten the parallel crystallization of the customary rule of cooperation in international fisheries law into a requirement that non-members abide by the RFMO's rules in order to fish, as long as these are non-discriminatory (Serdy, in press).

Cooperation among RFMOs

RFMOs are established in order to facilitate cooperation in the management of fishery resources within regional sub-areas. Their ability to achieve the goal of effective fishery resource conservation and management will be increased if they are prepared to cooperate between and among themselves.

The first need for inter-RFMO cooperation lies in the fact that some species are so wide-ranging that they are found in the areas of governance of two or more RFMOs. An example is the pelagic redfish species *sebastes mentalla*. Initially, it had been under the governance of NEAFC alone. By the end of the 1990s, evidence began emerging that the species was found within NAFO waters as well as NEAFC waters. There was speculation that it had begun migrating westwards (Thompson, 2003).

In any event, it became clear that the presence of the resource in both RFMOs' areas could not be ignored if it were to be managed effectively. In February 2001, NEAFC and NAFO held a joint workshop designed to explore means of co-managing the resource, and their cooperative management of the fish has evolved since then (Thompson, 2003).

The second imperative for inter-RFMO cooperation is the suppression of illegal and unregulated fishing. Vessels engaged in this practice are likely to be found operating in the areas governed by several RFMOs. This demands joint RFMO cooperation. Once again, NEAFC and NAFO have shown the way by adopting a common blacklist (see Chapter 5). A vessel blacklisted by NAFO members will find itself automatically blacklisted by NEAFC members, and vice versa. The goal should be to establish a vessel blacklist that is common to all RFMOs. Every vessel that continues to engage in IUU fishing would not be able to escape its shame.

Evolving cooperation among RFMOs holds out the possibility that their nature could change over time. For example, neighbouring RFMOs engaging in extensive cooperation might find that they could better achieve their goals by merging some or all of their functions, particularly those that demand intensive financial and human resources such as scientific advice and monitoring, control and surveillance.

Some conclusions

We can draw some conclusions from the preceding discussion. The first conclusion is that, as society has learned painfully over the past several decades, the freedom to fish on the high seas is now incompatible with the goals of conservation, sustainable use and optimum utilization of the world's capture fishery resources. The emergence of the RFMO regime can be seen as the continuation of a 60-year process to curb the freedom to fish these resources.

The second conclusion is that cooperation does matter, and is indeed critical, for the conservation and sustainable use of straddling and highly migratory fish stocks. A breakdown in the cooperative management of these resources could be as disastrous as the consequences of open access, unregulated fishing. The predictive power of the economist's model of non-cooperative management of those stocks has proved to be brutally strong.

RFMO cooperative resource management regimes, typically involving large numbers of participants, are inherently fragile. If an RFMO is to be stable over time, then the allocation issue must be addressed effectively. But it will not be until the problems of intra-RFMO compliance, unregulated fishing and new members have been resolved. And even if all these problems and issues have been dealt with effectively, there remains the threat of unpredictable shocks. RFMOs without resilience are likely to founder.

Finally, it is clear that if RFMOs are to achieve maximum effectiveness in meeting their goals, they must be prepared to cooperate with one another. The need for cooperation is particularly great in combating the scourge of IUU fishing.

3

Conservation and Management

The conservation and management objectives of RFMOs vary a great deal, largely reflecting the issues and expectations of fishery management when the RFMO was established. Most were established with a strong focus on the target species and on maintaining or developing the fisheries that utilized those species.

Over the past several decades, there have been many changes in the expectations of fishery management. Some of these changes have been reflected in 'hard' law, for example UNFSA. Other changes have been manifest in 'soft' law, examples of which are the FAO's Code of Conduct for Responsible Fisheries (FAO, 1995a; 1997) and international guidance documents on the precautionary approach to fisheries (FAO, 1995b), responsible fisheries (FAO, 1997) and the ecosystem approach to fisheries (FAO, 2003). These reaffirm the goal of the optimal utilization of fishery resources and promote the responsible fishing practices that have been found to be necessary in order to achieve both resource sustainability and human benefits. The international impetus to realize sustainable fishing has also been strongly reinforced by the World Summit on Sustainable Development in 2002 and by UN General Assembly Resolutions in 2005 (A/Res/59/25) and 2006 (A/Res/60/31). These call for responsible governments and RFMOs to prevent overfishing and to restore overfished stocks, to reduce or eliminate bycatch, to protect endangered species and to protect vulnerable marine ecosystems and seabed habitats. The UN General Assembly will review progress in 2009.

UNFSA provides principles for the management of highly migratory and straddling stocks beyond national jurisdiction. These principles are wide-ranging and include use of the precautionary approach and conservation and management measures. The Agreement also requires that the principles relating to these measures should be applied consistently and compatibly to highly migratory and straddling fish stocks under national jurisdiction. Furthermore, the 2006 UNFSA Review Conference agreed that these principles should apply to discrete stocks in the high seas. Thus the principles of precaution, conservation and management established by UNFSA have very wide applicability to fish stocks on the high seas and within national jurisdiction.

The principles provided by UNFSA in relation to the precautionary approach and conservation and management measures stipulate the requirement to:

- adopt measures to ensure long-term sustainability;
- ensure that such measures are based on the best scientific evidence available and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield;
- apply the precautionary approach;
- assess the impacts of fishing on target stocks and species belonging to the same ecosystem;
- adopt conservation and management measures for species belonging to the same ecosystem;
- protect marine biodiversity;

- ensure that levels of fishing capacity and fishing effort do not exceed those commensurate with the sustainable use of fishery resources;
- collect and share in a timely manner complete and accurate data concerning fishing activities;
- promote and conduct scientific research in support of conservation and management; and
- implement and enforce conservation and management measures through effective monitoring, control and surveillance.

UNFSA also includes more detailed guidance on the implementation of the precautionary approach and conservation and management measures:

- Management shall be more cautious when information is uncertain, unreliable or inadequate.
- Precautionary target and limit reference points shall be established for stocks. Fishery management strategies shall ensure that the risk of exceeding a limit is very low. A minimum standard for a limit reference point is the fishing mortality giving maximum sustainable yield, and the biomass giving maximum sustainable yield is an appropriate target for recovering overfished stocks.
- When reference points are approached, they will not be exceeded; and if they are exceeded, there will be action without delay to restore the stocks.
- New or exploratory fisheries shall use cautious conservation and management measures until there are sufficient data to allow the identification of measures for the long-term sustainability and gradual development of the fisheries.
- If natural phenomena have a significant adverse impact on the stocks, conservation and management measures shall be adopted to ensure that fishing activity does not exacerbate that impact.
- It will be ensured that fisheries do not have a harmful impact on living marine resources as a whole.

The changed expectations of fishery management in recent decades as reflected by these 'hard' and 'soft' law agreements are very significant, especially when compared with the simpler and target species-focused objectives of most RFMOs. The more recent expectations have changed the previously accepted level of depletion of the target species. They extend management responsibility to the impacts of fishing on the structure and process of the broader ecosystem (the ecosystem-based approach to fisheries management) and require the application of a precautionary approach when information or understanding is insufficient for scientific certainty about the effects of fishing. The ecosystem-based approach to fisheries management emphasizes that a whole ecosystem perspective is needed, not just a focus on the species directly utilized. This aims to maintain healthy ecosystems so as to support fishery production and other human activities, to minimize the risk of irreversible or very slowly reversible change, to attain high long-term benefits and to maintain future options for use and development.

RFMOs have responded variously to the challenge of these changed expectations. Mooney-Seus and Rosenberg (2007) provide an extensive review of the way in which different RFMOs are addressing ecosystem-based management and implementing the precautionary approach to fishery management (see Appendix 1, in which Table A1 summarizes RFMOs' general progress).

Most RFMOs have taken steps to incorporate ecosystem-based management and the precautionary approach to fishery management in their management practices. Several RFMOs have actually adopted precautionary approach measures for some of their managed species. Some organizations stand out for firmly embracing precautionary approach measures in the effective management of their fisheries, for example the CCAMLR, IPHC and NAFO apropos of yellowtail flounder. Most RFMOs recognize the value of collecting bycatch data, and have made progress in adopting various measures to decrease bycatch through gear modifications, imposing minimum size limits and mesh requirements and adopting bycatch limits that, when reached, result in the closure of fishing areas or a relocation of fishing effort. A number of organizations are collecting data on associated and dependent species and are investing in the development of broader ecosystem models for defining future catch rates. The most notable among these is the CCAMLR. Many RFMOs, such as the CCAMLR, ICCAT and IATTC, are making a strong commitment to assess and address IUU fishing, particularly by non-contracting parties. A few RFMOs, notably the GFCM and NASCO, have recognized the importance of developing socio-economic indicators and incorporating socio-economic data in their management policies. Some RFMOs have focused explicitly on the fishing capacity that is commensurate with optimal utilization and have adopted capacity-reduction schemes. Among them are the GFCM, IATTC and the CCAMLR. There are a few cases in which explicit management measures have been taken in order to address habitats and broader ecosystem function, including the modification of reference points and decision rules for designated key prey species – one case is the CCAMLR – and the protection of sensitive deep sea habitats such as seamounts and cold water corals – notable are NAFO, NEAFC and SEAFO.

Despite the limited application of ecosystem-based management and the precautionary approach to fishery management in some areas, it is possible to derive 'best practices' by comparing progress across various RFMOs. Together, these best practices provide a framework for enhanced high seas governance and a model for more effective RFMO management. It is noteworthy that most progress has been made by RFMOs that have explicit ecosystem and precautionary responsibilities in their original or revised objectives.

This chapter provides a checklist of practices for a model RFMO so as to address the key elements of UNFSA, the FAO Code of Conduct for Responsible Fishing and the ecosystem-based management and the precautionary approach to fishery management. The great majority of these practices are in the current practice of some RFMOs.

The overarching objectives

The best current practice is for the RFMO to have explicit, overarching objectives that address the full range of outcomes and management approaches in hard and soft law agreements relating to sustainable fishing. The objectives explicitly include optimum and sustainable long-term utilization, the recovery of overfished stocks, the control of fishing capacity and fishing effort commensurate with the long-term yield, adequate data collection and sharing, use of the best available science and the application of the precautionary approach and the ecosystem approach in decision-making.

Management of target species and other elements of the ecosystem

In current practice, the ecosystem approach to fisheries is addressed by the management of ecological elements more or less separately. The selection of elements for focus and the objectives of their

management are informed by known or expected ecological processes and interactions. All these elements are considered explicitly by the RFMO. There are objectives and operational targets or limits for each element, based on explicit conceptual and/or mathematical models of the relevant ecosystem, and management strategies are developed for each.

Target and commercially retained species

Target and commercially retained species are species that are either frequently or occasionally targeted, species that are opportunistically retained when caught but not necessarily targeted and species of which only parts are commercially retained, for example shark fins.

Best practice RFMOs set *target and limit reference points* for fishing mortality and population size for all target and commercially retained species and stocks (where stocks are known or reasonably expected to exist). And to achieve this, population assessments and predictions include *all sources of mortality*: non-fishery mortality and fishing mortality owing to retained catch, discarded catch, deaths that do not involve capture, fisheries managed under other jurisdictions and illegal, unreported and unregulated (IUU) fishing. *Target reference points* are consistent with achieving long-term optimal utilization and maintaining the ecological properties and role of the target species, for example a key prey species. They have a low probability of violating the limit reference point in the context of the information available and the management arrangements in place. *Key prey species* affected by fishing are identified and the reference points are modified to take into account the needs of dependent predators as well as the fishery. In the absence of detailed understanding of feeding dependencies and of animals low in the food chain, the target biomass reference point should be greater than B_{msy} (where B = biomass and msy = maximum sustainable yield), consistent with a precautionary approach. For instance, it might be 75 per cent of the unfished level, as applied by CCAMLR. The *limit reference point for fishing mortality* is no greater than the mortality giving maximum long-term sustainable yield, as specified in UNFSA. The *limit reference point for stock size* is the size below which it is known or expected that there is a greater probability of significantly reduced recruitment but at which the probability of significantly reduced low recruitment is still small. The limit reference point for stock size might be at a size that has been historically shown to be safe and/or below which stock dynamics are unknown.

Specifically, best current practice is:

- Catches of target and commercially retained species are monitored and reported, with verification or quality assurance. For this purpose, catches include retained catch of the species and discarded catch, catch of the same species and stock taken by fisheries under different jurisdictions, mortality from lost or discarded fishing gear and illegal, unreported and unregulated catch.
- All sources of catch and mortality are included in an assessment of the status of the target and commercially retained species.
- Target and limit reference points for both fishing mortality and biomass are established for all target and other commercially retained species. Targets and limits are established separately for stocks within these species that are known or reasonably suspected to exist.
- The limit reference point for fishing mortality (F) is no greater than F_{msy}, the constant fishing mortality that gives the maximum long-term yield. The limit reference point for biomass is B_{lim}. Below B_{lim}, there is a substantial increase in the probability of significantly reduced recruitment, but at B_{lim} the probability of significantly reduced recruitment is still small. Alternatively, B_{lim} is the biomass below which the stock dynamics are unknown or is the biomass that has historically

been demonstrated to be safe. There are cases in which an RFMO has set B_{lim} equal to B_{msy}, the biomass associated with taking the maximum long-term yield, which is expected to easily meet the requirements of B_{lim}.

- Target reference points are selected to achieve a high long-term yield rather than a high short-term yield. They are selected to have a scientifically demonstrated low probability of violating the limit reference point in the context of the information available and the management strategy being applied.
- The fishing mortality that is selected and applied at any time decreases with increasing uncertainty about present and predicted stock status and decreases as a limit reference point is approached.
- The fishing mortality that is selected and applied at any time has a low probability (0.1) of violating the limit reference point and a balanced probability (0.5) of being either above or below the target reference point over an extended period, for example 20 years, but for at least one generation time of the species.
- Fishing mortality is controlled spatially so as to avoid local depletion where it is known or suspected that the stock structure or the spatial dynamics of the species could be vulnerable to local depletion.
- There are active measures to minimize the discarding of commercially targeted or retained species. This can include gear restrictions/requirements, time/area restrictions and economic incentives, such as catch quotas that include discards.
- Recovery plans are developed and implemented for stocks at or below a limit reference point. The target for stock rebuilding is no lower than B_{msy}. Recovery plans have a scientifically demonstrated high chance of achieving the target in a specified timeframe, for instance 10–30 years.
- The catching capacity authorized for the fishery is commensurate with the long-term yield available and the target fishing mortality.

Bycatch (including discarded and incidentally caught species)

Best practice RFMOs identify limits of acceptable impact on key non-target species (both fish and non-fish species), including associated or dependent species and especially protected or endangered species, and for bycatch of non-target species as a whole. These limits are intended to ensure that populations and stocks are not excessively depleted, that wastage is avoided, that protected or endangered species are minimally affected and that the functional ecosystem of which fisheries are a part is maintained. All FAO international plans of action for relevant bycatch are implemented. Measures to ensure that limits are not exceeded, and to minimize bycatch generally, include:

- a risk-based impact assessment of the effect of fishing activities on non-target species, followed by explicit analytical assessments and/or action where risk is determined to be high;
- bycatch limits or caps for species and species groups;
- shifting fishing from times or areas with high and/or significant bycatch;
- a preference for use of fishing gear, including mesh sizes and types, that reduces bycatch;
- the use of practices and equipment to reduce interactions and bycatch, for example night fishing, tori poles, hook design, excluder devices, controlled or zero offal discharge and acoustic deterrents; and

- the release of captured animals alive and unharmed wherever possible.

Specifically, best current practice is:

- Bycatch is monitored and reported with verification or quality assurance sufficient to reliably characterize the quantity of bycatch at an appropriate taxonomic level, which is usually the species level.
- There are explicit limit reference points for the impacts of fishing on key bycatch species and for the quantity of bycatch as a whole. The species-specific limit reference points have the same intent and basis as those for target species. In the absence of detailed assessments, the reference points are precautionary default values based on general understanding and expectations.
- The catch limits established for bycatch, at an appropriate taxonomic level, are scientifically justified as being unlikely to deplete the bycatch species excessively. Although the same principles and reference points are applied as for target species, the methods of assessment may be different because of lack of data. In the absence of information on the status and productivity of populations, the catch level that is set is highly cautious, for example a limit of 50 tonnes per year per species or species group, divided among sub-areas as appropriate.
- There are active measures to minimize bycatch. This can include the use of gear restrictions/requirements, time/area restrictions, catch limits on bycatch linked to target species quotas and 'move on' provisions that require a relocation of fishing if the bycatch is greater than a nominated percentage of the catch or absolute amount. Examples of these measures would be:
  - fishing must move more than five miles if the bycatch is more than five per cent of or more than one tonne in any fishing operation, and it cannot resume within that five-mile radius for 48 hours and
  - gear restrictions/requirements that are known to be effective in reducing bycatch are required. Among these are a moratorium on gear types with high bycatch and mesh size requirements, hook design and bycatch excluder grids in shrimp trawlers.

Protected or threatened species

- The bycatch of protected or threatened species is monitored and reported with verification or quality assurance sufficient to characterize the catch reliably at an appropriate taxonomic level – usually the species level but sometimes the stock level.
- The ultimate objective is the elimination of the bycatch of protected or threatened species.
- Interim maximum catch limits or catch rate limits are identified for each species/stock so that fishery impacts at that limit do not significantly reduce the rate of recovery of the species/stock. The limit is reviewed periodically and is revised in the context of the status of the populations and the management options available to further reduce the bycatch.
- There are economic incentives to meet or to improve on the interim limits for the catch or catch rate of protected or threatened species, for example the closure of fisheries or fishing areas if the limit is exceeded.
- There are serious efforts to release captured animals alive and unharmed whenever possible.
- Active measures to avoid and minimize bycatch are taken with the aims of eliminating it and ensuring that it is below the interim acceptable limits. Among these measures are:

- developing new fishing and avoidance technologies;
- requiring the use of bycatch reduction devices, for example for seabird interactions with longlines, the use of tori poles, night setting, reduced soak times, eliminated offal discharge or no discharge while setting and retrieving, increased sink rates of gear and live release; and
- setting limitations to area and time of fishing operations.

Habitats

Although habitats are recognized to be central to the productivity and size of populations and to biodiversity in the ecosystem more broadly, relatively little attention is given to the management of fishery impacts on them by current fishery management arrangements. This is a significant gap in the development of an ecosystem approach to fishery management.

In best practice RFMOs, the measures used to manage and limit the impacts of fishing on habitats include:

- a risk-based impact assessment of the effect of fishing activities on habitats, followed by explicit analytical assessments and/or action where the risk is determined to be high;
- restrictions on fishing in certain areas and/or at certain times (time/area closures);
- restrictions on gear types that could affect the habitat;
- establishing other area-based management measures such as marine protected areas in order to protect and conserve habitats of special concern;
- moratoria or other restrictions on new fisheries in sensitive habitats until adequate management measures can be identified; and
- appropriate engagement in the management of land-based pollution and coastal development.

Specifically, best current practice is:

- Habitats are described and mapped and are monitored and reported on.
- Moratoria or other restrictions on fishery access and impact are placed on the development of new fisheries that are expected to have a significant impact on sensitive habitats, and these are maintained until there is adequate assessment of the impacts and development of appropriate management measures. Examples of this are NAFO's prohibition of bottom trawling on seamount habitats until fishing impacts are better understood and the CCAMLR's procedure for the authorization of new and exploratory fisheries.
- Protected areas are established in representative and/or key habitats, and gear types that could have an impact on those habitats are not permitted in those areas. An example of this is the GFCM's prohibition of bottom trawling on certain seamount habitats, deepwater coral habitats and deepwater hydrocarbon seeps.
- Undertake active protection and rehabilitation of habitats, where this is possible, both by direct management action and through influence on other management authorities. Examples are:
  - rehabilitating river systems for salmon breeding through influence on other management authorities;
  - preventing the discarding of plastics and other debris from fishing operations; and
  - reducing land-based pollution through influence on other management authorities.

Although there are no examples in best current practice, a model RFMO would also have limit reference points for the impacts of fishing on habitats. The reference points would be designed and selected to maintain habitat functionality in the ecosystem for the target species and for biodiversity more generally. In the absence of detailed assessments, the reference points would be precautionary default values based on general understanding and expectations.

Similarly, a model RFMO would have explicit strategies for managing impacts on the fishery in order to meet the reference points relating to habitats. Those strategies would be appropriate to the information and understanding available. They would range from simple, precautionary and predetermined rules that apply as defaults in the absence of detailed assessment to rules that make use of increasingly sophisticated and information-rich estimates of stock and ecosystem status.

Trophic relationships

Trophic relationships are fundamental to fishery production and to ecosystem functions more broadly. However, relatively little attention is given to the management of fishery impacts on them by current fishery management arrangements. This is a significant gap in the development of an ecosystem approach to fishery management.

Best practice RFMOs have programmes to understand the trophic interactions and dependencies involving species that are affected by fishing, and they take account of them in setting reference points, catch levels and other fishery management measures.

Specifically, best current practice is:

- Undertake studies and monitoring in order to understand and describe the trophic structures and interactions that involve the species impacted by fishing, including the likely effects of fishing on dependent predators.
- Monitor the status of dependent predator populations, including predatory fish populations that are themselves fishery targets, to detect any effects of fishing caused by the depletion of prey species that are harvested.
- Identify key prey species and modify the reference points for those species so as to meet the needs of dependent predators as well as the fishery. For example, the CCAMLR modifies the reference points for designated key prey species so that
    - the median abundance of populations of key prey species is not less than 75 per cent of the unfished population biomass for unfished predator population levels;
    - the median abundance of age classes of key prey species is not less than 75 per cent of the unfished level.

Although there are no examples in best current practice, a model RFMO would have limit reference points for the impacts of fishing on key predators and prey in the ecosystem. The reference points would be designed and selected to maintain trophic relationships and interdependencies. In the absence of detailed assessments, the reference points would be precautionary default values based on general understanding and expectations.

Similarly, a model RFMO would have explicit management strategies for managing the impacts of the fishery in order to meet the reference points relating to key predators and prey. The strategies would be appropriate to the information and understanding available. They would range from simple,

precautionary and predetermined rules that apply as defaults in the absence of detailed assessment to rules that make use of increasingly sophisticated and information-rich estimates of stock and ecosystem status.

Management strategies and decision rules

A management strategy in the above context is the combination of monitoring, methods for scientific analysis of the monitoring data for input to management decision-making, selection of management measures from the results of scientific analysis and any other considerations (for example, a decision rule relating estimated current stock status to the permitted fishing mortality or catch) and implementation of the selected management measures. In current fishery management arrangements, relatively little attention is given to management strategies for the impacts of fisheries on broader ecological elements such as bycatch, habitats and food webs. This is a significant gap in the development of an ecosystem approach to fishery management.

In best practice RFMOs, there are agreed *management strategies or decision rules* to determine the catch, the level of fishing or other management measures that will be applied depending on the status of the stock and the information available. These are:

- The management strategy is demonstrated to deliver in the long term a balanced probability of the stock being above or below the target and a very low probability of the stock violating the limit reference point;
- The strategy has a high chance of success both in view of the information realistically expected to be available to assess stock status and for a reasonable range of stock and ecosystem productivity and variability; and
- The fishing mortality caused by the strategy decreases with increasing uncertainty about the present or predicted stock status and also decreases as a limit reference point is approached.

As a part of the overall management strategy, there is a pre-agreed *rebuilding plan* that is triggered for stocks at or below a biomass limit reference point. This plan has a very high chance of rebuilding the stock to a recovery target in a specified timeframe, for example 10–30 years or one to two fish generation times. The recovery target is the stock size giving the maximum long-term yield as specified in UNFSA. Targeted fishing is very low or ceases below a biomass limit reference point, and any catches permitted for monitoring below the limit reference point do not significantly reduce recovery time.

Another part of the general management strategy is a pre-agreement on the *fishing mortality reduction* to be triggered if fishing mortality is greater than its limit reference point. The fishing mortality may be higher than the limit reference point for an agreed period if it is a part of a planned reduction of biomass in order to attain the target biomass.

There is an agreed strategy for the *development of new or exploratory fisheries* that affect the species or ecosystems in ways that have not been fully assessed previously. An example would be fisheries that target new species, use significantly modified gear or operate in new areas.

These strategies ensure that fishery expansion does not outpace the information needed to determine the management measures for optimal and sustainable use. The general management strategy provides cautious conservation and management measures until there is sufficient information to

allow the identification of appropriate measures for incremental development and/or long-term utilization. The strategy includes:

- notification of new or exploratory fisheries;
- precautionary limits on the catch, the fishing effort and the number of operators, further defined for particular sub-areas as appropriate;
- requirements for information collection and assessment;
- specification of how this information and assessment is used to trigger decisions about subsequent fishery development.

Specifically, best current practice is as follows:

General management strategies

- There is an explicit and agreed management strategy for key issues so as to achieve objectives, including the management of target species, protected/endangered species and bycatch species. The strategy is agreed to be followed in all but exceptional circumstances. A model RFMO would also have these reference points and strategies for fishery impacts on habitats and trophic interactions.
- The management strategy is scientifically demonstrated to have a low probability of violating the limit reference points and a high probability of achieving the target reference points. The strategy delivers this performance
  - across a reasonable range of uncertainties about the productivity and dynamics of the species and the ecosystem;
  - with the kind and amount of data that are realistically available for the monitoring programmes.
- Management strategies for target species include an explicit decision rule to calculate the catch from the stock status and information available. The catch decision rule
  - maintains the stock in the vicinity of the target and avoids the limit reference points with high probability;
  - gives more cautious management measures when stock status and/or predictions are less certain;
  - reduces the applied fishing mortality (F) as the estimated fishing mortality increases from the vicinity of the target towards F_{lim} and/or as the estimated biomass decreases from the vicinity of the target towards B_{lim};
  - has a complexity appropriate to data available, from simple predetermined rules to apply as defaults in the absence of detailed assessment to rules that make use of increasingly sophisticated and information-rich estimates of stock and ecosystem status.

Rebuilding strategies

- There are explicit and agreed strategies for recovering stocks that are overfished (i.e. their biomass is below the limit reference point) or that are suffering from overfishing (i.e. fishing mortality is above the limit reference point).

- The biomass target of the recovery plan is B_{msy}, and the recovery plan is applied until that target is reached.
- The recovery plan has a high chance of restoring the stock in a specified timeframe. This timeframe is related to the rebuilding capacity of the stock involved (i.e. it should be short for more productive species). For all stocks, the timeframe should allow for recovery within one to three generations.
- If fishing mortality is above F_{lim}, the rebuilding strategy requires that fishing mortality should be reduced to a predetermined level that in high probability is below F_{lim}.
- Targeted fishing ceases below a biomass limit reference point, and any catches permitted for monitoring below the limit reference point do not significantly reduce recovery time.

New and exploratory fisheries

- New and exploratory fisheries include species not previously targeted, areas or depths not previously fished and gear or significant gear modifications not previously used.
- A key objective in managing new or exploratory fisheries is to ensure that fishery expansion does not outpace the information needed to ensure the rational development and sustainable management of the fishery. Cautious management measures are used until there are sufficient data to allow the identification of measures for long-term sustainability and the further development of the fisheries.
- Prior authorization is required for new or exploratory fisheries.
- New or exploratory fisheries have explicit management plans that:
  - use default reference points (targets and limits) that can be specified in the absence of detailed information and that are adjusted as required as further information becomes available;
  - use initial catch limits, access and other conditions that are highly cautious and that have a low probability of having a harmful impact on the target species, bycatch species and the ecosystem more generally;
  - require collection of information in order to allow an assessment of the new resources and the setting of reference points for sustainable harvesting;
  - have a strategy for how the management measures, including the permitted catch, will be changed as more information becomes available while maintaining a high probability of maintaining the resources near targets and avoiding limits.

Application of the precautionary approach

The precautionary approach is an essential method for managing the risks from uncertainty, avoiding the tendency to address problems after they have caused undesirable losses and promoting a more equitable balance between short-term and longer-term considerations. This approach is applied in all management activities, including new fishery development, the selection of reference points, the characteristics of management strategies and the types and intensity of fishing activity. Consequently, aspects of the precautionary approach are included in the treatment above of reference points and management strategies, for example in the use of default strategies and reference points, based on a cautious reference to general experience or similar situations, when there is insufficient information

from a particular fishery to develop fishery-specific approaches. This is particularly relevant for developing fisheries and for poorly understood ecosystem elements such as bycatch, habitats and trophic relationships.

Best practice in the use of the precautionary approach includes:

- *More cautious management measures for situations of more uncertainty*.
  This principle is applied widely in the consideration of all elements of the fishery management system and management strategies.

  There is clear demonstration, through scientific explanation or models, that fishery management has a high probability of adequately managing the risks of undesirable impacts (for instance violation of the limit reference points) with the information available.

  The levels of fishing activity and their potential impacts are constrained at below limit reference points until information is available to inform and develop strategies that can adequately manage the risks of higher levels of activity and impact.

- *More cautious management measures for more uncertainty situations – precautionary reference points*.
  Precautionary or buffer reference points are used to account for uncertainties in estimation and to ensure that intended reference points are achieved. If, for example, the management intent is to avoid depletion below B_{lim}, a precautionary reference point B_{pa} is set at a higher biomass level so that if the biomass is estimated from the information available to be at or above B_{pa}, then there is a very low probability that the true biomass is below B_{lim}. Thus B_{pa} becomes the operational reference point for estimation and management decisions so as to achieve the management intention of not violating B_{lim}. The same is applied to fishing mortality reference points.

- *More cautious management measures for situations of more uncertainty – decision rules*.
  Decision rules are scientifically demonstrated to have a high probability of achieving targets and avoiding limits with the kind and reliability of data and understanding that is available.

  Decision rules automatically account for changes in the reliability of data and the precision of estimates. For example, the twentieth percentile rather than the median of biomass estimates is used to calculate catch limits.

  Models and estimates used in decision rules are appropriate for the data available; and where very simple models and general information are used, this is accompanied by conservative or cautious decisions.

- *Stocks and spatial structure likely to cause local depletion*.
  Spatial controls in the fishery are adequate to prevent excessive depletion of stocks and to avoid excessive depletion of the local abundance of more widespread stocks resulting, for example, from low fish exchange rates. Where stock structure and/or limiting spatial dynamics are suspected but uncertain, the default assumption is that this structure exists and is to be managed accordingly, as through the management of sub-areas.

Data collection and sharing

Best practice RFMOs have effective provisions and mechanisms for the collection and reporting to them of data that are necessary for the monitoring and management of fishery operations and the status of the resources and ecosystems.

- There are quality-assurance and verification mechanisms to ensure that the data are sufficiently accurate and reliable, so as to ensure optimal and sustainable utilization of the resources and the ecosystem;
- Economic and social information is collected that is relevant to allocation decisions, measuring economic efficiency and management for optimal utilization;
- The provisions and mechanisms meet the requirements of UNFSA Annex I;
- Scientific observer programmes are used as appropriate, and particularly to gather information on the impact of the fishery non-target species and habitats;
- There is coordinated data collection and sharing between RFMOs and coastal States, and between RFMOs, and there is management responsibility for relevant shared fisheries and/or ecosystem elements;
- Data are shared through recognized international data management arrangements; and
- The RFMO reports to the relevant agencies, in particular the FAO, on its activities and the status of the resources and ecosystem that it is responsible for fishing.

Specifically, best current practice is:

- Data collection and exchange are consistent with UNFSA Annex I. That is:
  - the information required for assessment and management of the fishery is collected, verified and made available in a timely manner and in an agreed format;
  - the data include meaningful catch and effort statistics by fishery and fleet, catch by species for target and non-target species, discards by species, the time and location of fishing and at-sea transhipment. The data include vessel identification and the characteristics of the capacity and gear of vessels. As appropriate, the data also contain more detailed information on the catch and fishing effort and the results of relevant fishery independent research;
  - data verification for the location of fishing effort is by vessel monitoring systems; and for other data reporting, it is by at-sea scientific observer programmes and port sampling.
- There is coordinated data sharing and collection with other RFMOs or management entities (for example coastal States) and there is relevant ecological or fishery connectivity and/or overlapping management responsibilities.
- Data are made available through recognized data management arrangements, such as the FAO's Fishery Resources Monitoring System.

Scientific advice

Best practice RFMOs have a scientific body with appropriate technical expertise that is commissioned to:

- understand and assess issues related to the target species and the broader ecological benefits and impacts of fishing;
- understand and assess issues related to any non-ecological objectives of the fishing, including, as appropriate, economic and socio-economic benefits and the impacts of fishing;
- design and implement monitoring and research programmes;
- design appropriate reference points and management strategies;
- provide stock and broader ecosystem status reports; and
- assess and report on the probability of achieving management goals, for example achieving targets and avoiding limits, by the application of management options suggested from any source.

- There is periodic independent advice and peer review of the assessments, reference points and management strategies. This advice and review is provided directly to both the scientific body and the decision-making body of the RFMO, and they are publicly available.
- The advice of the scientific body is publicly available, and includes performance reporting against the target and limit reference points.
- The decisions of the RFMO follow the advice of the scientific body; and when that advice is not followed, explicit reasons are given.

The structure of scientific advisory bodies

Traditionally, the technical methodology of fisheries science has always been kept separate from activities relating to enforcement, economics and management. Fisheries science involves the collection, analysis and interpretation of factual statistical and biological data in order to assess the effects of exploitation and the environment on the abundance and distribution of stocks. Collection of scientific data relies heavily on the willing cooperation of the fishing industry. To ensure the flow of these data, fisheries scientists have the responsibility to maintain such data in conditions of the strictest confidence, so as not to identify individual operators and so as to prevent misuse for political or economic reasons. The corollary of this is that scientific advice based on such data should be impartial and independent.

How to achieve this level of impartiality has been the subject of much debate in RFMOs. At one extreme, RFMOs such as IATTC employ a full scientific staff, under the supervision of a director of investigations, to carry out all scientific research and analysis on behalf of the Commission. At the other extreme, RFMOs such as ICCAT employ a small scientific staff but rely on panels or committee formed of national representatives to provide scientific analysis. There are pros and cons to both approaches. The danger of using national representatives is that science becomes politicized. Also, inevitably, some member countries have much greater expertise than others at the national level. Some developing countries may have no expertise at all, which makes it very difficult for them to participate in any meaningful way in scientific research and analysis. On the other hand, for every RFMO to employ a full scientific staff would be enormously costly and resource-intensive.

There are at least two possible compromise solutions. One is to seek greater economies of scale. For example, there is no reason why the five tuna RFMOs could not, between them, employ a single scientific staff to carry out the basic research needed for tuna species. Such cooperation would also benefit developing countries which simply do not have enough qualified scientists to service all the meetings of RFMOs. Another solution is modelled on the scientific structure of WCPFC. This RFMO has a scientific committee, composed of national representatives, but also employs independent scientific experts – answerable to the scientific committee – to provide the basic impartial scientific data and advice that are considered by the scientific committee.

Monitoring and accounting for illegal, unreported and unregulated fishing

Best practice RFMOs are aware of IUU fishing activities, take measures to estimate it and incorporate knowledge of IUU fishing into management measures.

Specifically, best current practice is:

- Estimates of IUU catch and effort, and their likely limitations accounting for potential biases and imprecision, are routinely made.
- IUU and total catch estimates are supported and cross-checked by independent measures of regional and global trade, including by:
  - comparisons of trade information from different sources;
  - sampling in markets, to determine the quantities, species and likely origin of products, and comparison of these estimates with reported quantities, species and origin of products;
  - use of catch documentation systems;
  - comparisons and meta-analysis in order to estimate likely catch, including bycatch.
- Data useful to the understanding and estimation of IUU fishing activities, including catch and bycatch, are shared, as appropriate, through common database structures.
- IUU catch, including bycatch, and effort are accounted for in scientific assessments of the status of fisheries and their associated ecosystems and in scientific predictions of the future status under proposed management measures.

4

The Allocation of Rights

An RFMO's definition and allocation of rights, and the impact of this both on the fishery and on equity among its members, is integral to its general effectiveness. It is one thing to determine how much fish is available for harvest, but quite another – and far more difficult – task to determine who gets what share. Chapter 2 discusses the economic theory behind the need for cooperative management and the inherent threat to the stability of RFMO regimes owing to failure to deal with the issue of allocation. This failure is also inextricably linked with many of the difficulties RFMOs experience in preventing the overfishing of key stocks and with other problems driven by overcapacity, including detrimental impacts on non-target, associated and dependent species.

Unlike most of its other activities, the negotiation of an RFMO's allocation of participatory rights, and the outcome, is subjective and highly politicized. There are few quantifiable guiding principles for decisions about allocation, and the effectiveness of those decisions is measured largely by secondary means. The status of stocks is measured by biomass estimates, the success of compliance measures by estimated levels of compliance, bycatch mitigation by numbers of interactions and so on. The success or otherwise of an allocation process has the potential to permeate almost all other decisions taken by an RFMO, and thus has the potential either to secure or to undermine the primary conservation regime, but it remains one of the least objectively analysed and structured elements of an RFMO's functions.

As indicated in Chapter 2, a key element in promoting agreement on allocations is to ensure that no one is worse off in acting cooperatively than in acting individually. This condition is difficult enough to satisfy in an initial allocation of participatory rights, and has proved to be particularly challenging to maintain over time in view of changes in the nature of fishing activities, changes in stock status and the potential entry of new members into the area covered by an RFMO.

The allocation of participatory rights and the mechanisms used to assimilate the dynamics of both the fisheries themselves and the broader geopolitical landscape invariably result from a negotiated outcome between sovereign States. This is especially the case about agreeing to an initial allocation: it is not in a State's interest to agree until any outstanding grievances it has about allocation are resolved. As discussed below, this problem may be ameliorated in some possible scenarios by future quota transfers, but the experience to date has been that allocation is invariably a political decision. For this reason, it is not possible to identify a single scheme that will deliver an effective result over time. This is understandable when we consider the high level of diversity among RFMOs in number and composition of membership, the nature of the stocks managed, the area over which the organization exercises its mandate and its historical foundations. What is possible is to identify the main components, constraints and supporting elements that a model RFMO should have in order to increase the chances of successful allocation in the short term and further into the future.

RFMOs that post-date UNFSA, including SEAFO and the WCPFC, explicitly include guidance on

allocation in their constituent instrument. In both cases, this guidance has been drawn from article 11 of UNFSA, which deals with the participatory rights of new members. But in both their conventions, UNFSA's criteria have been modified and broadened in order to apply to the allocation of participatory rights among the existing membership as well as to new members. Both conventions also include a number of additional criteria designed to address the specific characteristics of the RFMO's region and membership. Interestingly, neither UNFSA nor any of the regional agreements contain provisions about the initial allocation or distribution of rights between 'charter members'. We shall explore the significance of this below. The draft agreement for the proposed South Pacific RFMO (SPRFMO) also contains (as of May 2007) a specific, detailed article on the basis for allocating total allowable catches or total allowable effort in target fisheries. And the importance of allocation was highlighted right from the outset of the negotiations for the WCPFC. For example, the Chair's report from the second negotiating session on establishing the new convention stated that the Conference considered the allocation of allowable catch or levels of fishing effort to be 'inextricably linked to the basic principles of conservation and management' (Anon., 1997).

Although older RFMO conventions are not as explicit about allocation as agreements that post-date UNFSA, problems relating to the allocation of fishing opportunities and quotas by an RFMO are certainly not new. NAFO, ICCAT, NEAFC, IATTC and the CCSBT have all dealt extensively with these problems in the past decades.

The main difficulties RFMOs encounter that influence the stability of allocations are an inability to agree an overall catch limit because of the concomitant limits this would impose on national fishing activities, an unwillingness to accommodate new members within existing allocation regimes and non-compliance with national allocations owing to perceived inequities. All these factors have potentially significant implications for the performance of the RFMO, and particularly for the conservation status of the resources being managed. These implications are examined below.

Examples of effective allocation by international fisheries bodies are relatively few. And when there have been successes, they have often followed disputes and negotiations lasting many years during which the resources have become depleted. There have been difficulties in moving beyond lowest common denominator agreements, which have not delivered effective conservation and management outcomes. Even so, this experience has helped in identifying the elements that must be addressed in moving towards a best practice approach in the allocation of participatory rights.

Accommodating new members

One of the major impediments to RFMOs securing stable and effective allocation regimes is the problem of how to accommodate the interests of new members, including cooperating non-members. UNFSA requires States to give effect to their duty to cooperate with each other by joining the relevant RFMO or agreeing to apply its conservation measures. As long as the newcomer is prepared, by taking one of these steps, to accept the conditions that apply to existing members, they cannot, consistent with article 8(3) of UNFSA, deny the newcomer's right to participate. But conversely, as Chapter 1 notes, the right under article 87 of the LOS Convention for any State to fish on the high seas must be regarded as conditional, and includes the duty to cooperate with and not undermine the conservation measures determined by an RFMO.

To date, RFMOs have adopted a range of responses to the problem of accommodating new members, with varying degrees of success. Arguably, no RFMO has fully succeeded yet in balancing the rights of new members with the rights of its existing membership while maintaining the integrity of its conservation and management measures.

When faced with a choice of either reducing the allocation to existing members or increasing the catch of a stock in order to accommodate new members, a number of RFMOs have chosen the latter approach, regardless of the status of the resource and whether access is already fully subscribed. For example, the CCSBT contended with this issue over a number of years before agreeing to allow the Republic of Korea and Taiwan (Chinese Taipei) to join the Extended Commission with national allocations in addition to the existing total allowable catch rather than reducing the allocations of the three charter members. This decision was taken despite scientific advice that the spawning biomass of southern bluefin tuna has been reduced to a small fraction of its original biomass.

One possible benefit of the approach taken by the CCSBT is that it overcomes the 'initial allocation' problem. By accommodating all current interests, both existing and new, a more stable environment is created that allows for future decisions to be taken to address stock status effectively. With a full role in the decision-making process, each 'player' is likely to feel more confident about an equitable outcome. However, it is unclear whether this approach has been taken with this goal in mind. It may simply reflect a general willingness for the resource to bear the risks rather than to reduce catches and thereby harm members' short-term fishing interests. But, as noted in Chapter 2, this approach can have severe long-term consequences.

Conversely, the approach used by NAFO with respect to prospective new members has been to agree a resolution advising aspiring new members that 'stocks managed by NAFO are fully allocated, and fishing opportunities for new members are likely to be limited, for instance, to new fisheries (stocks not currently allocated by TAC/quota or effort control), and the "Others" category under the NAFO Quota Allocation Table' (NAFO, 1999). The advantage to NAFO of this approach is that its membership already includes all relevant coastal States, and so the potential for new members is limited to DWFSs. However, the approach may prove to be problematic in other regions where not all coastal States are members of the organization. It is worth repeating here that RFMO membership must include all relevant coastal States in the RFMO's area of competence if the regime is to have any chance of achieving stability. This is demonstrated by the experiences of ICCAT, IATTC and the CCSBT, in which not all relevant coastal States were members of the RFMO when quotas were originally allocated. The process of bringing these States into the regime, in the absence of pre-agreed mechanisms to accommodate their interests, resulted in short- to medium-term instability. NAFO's approach may also come under scrutiny if it is applied in a way that fails to recognize the legitimate expectations of developing countries (see the discussion below and in Chapter 10).

Trading national allocations

An approach to new members, discussed briefly in Chapter 2, that is receiving increasing attention and is likely to be tested by RFMOs is for fishing opportunities to be traded. The utility of having participatory rights that can be traded or leased may be relevant not only as a way to respond to new members but also as a means to cope with circumstances in which the target resources are highly mobile between areas, particularly between waters under the jurisdiction of coastal States and the high

seas. Trading in national allocations between contracting parties has already occurred in a number of RFMOs, for example ICCAT, NAFO, NEAFC and the former (now defunct) International Baltic Sea Fisheries Commission (IBSFC)(Serdy, in press). This approach has also received preliminary consideration by the CCSBT and WCPFC (MRAG, 2006). The idea of tradable allocations for facilitating the entry of new members to a fishery is not new; it has been a fundamental element of many national fisheries management schemes for decades. Serdy (in press) provides a detailed summary of the maturity of RFMOs in moving towards a form of tradability of national allocations and concludes that transferability may provide an opportunity for new entrants to 'discharge their duty of cooperation'.

There would appear to be no obstacle in international law to the trading of quotas in RFMOs. The treaty regimes of most RFMOs would not require significant amendment. Some sort of administrative arrangement would be necessary to support the trading system, including rigorous systems of accounting for catches as well as a reliable register of rights and transactions. These systems are far from novel. Variants of them have been applied successfully in the multilateral treaty between the United States and certain Pacific island countries as well as in the regional management arrangements of the South Pacific Forum Fisheries Agency (the Palau Arrangement and the Federated States of Micronesia Arrangement on Reciprocal Fisheries Access). These successful instances imply that arrangements for trading quotas would need to be interdisciplinary in nature, involving scientists, lawyers and economists. However, the key to the efficacy of trading quotas remains the matter of the initial allocation, upon which all subsequent trades would be based.

In the case of the WCPFC, a main factor that could enable its early adoption of a trading scheme to facilitate the entry of new members is that all significant coastal States, as well as those States fishing for highly migratory fish stocks in the Convention area, are already members or cooperating non-members of the Commission or they are becoming members. Further, the Commission has determined conservation and management measures for the fully fished species, including yellowfin tuna and bigeye tuna, that effectively cap each member's catch and level of effort for the main target stocks in the short term, thereby creating *de facto* allocations. These factors, combined with the fact that future accession to the regime is subject to mandatory consensus on the part of the contracting parties, may increase the prospect of an early resolution of the issue of participatory rights and also give a firm signal to prospective new members about the intentions of the existing membership on this issue.

RFMOs' practical experience of allocation is relatively limited, but to date, particularly with reference to ICCAT, it would suggest that the following issues will be important:

- If there are crucial gaps in the membership, the integrity of the conservation and management regime is likely to suffer; and in those circumstances, any allocation will be inherently unstable. Therefore, membership should include all relevant coastal States in the RFMO's area of competence and existing DWFS (including fishing entities) before allocation;
- The status of the main target stocks. Fully fished or overfished stocks clearly offer no scope for a general increase in fishing effort. Reductions in catches by existing members in order to accommodate new members are likely to have a destabilizing effect on already agreed allocations;
- Where the trading of allocations in order to accommodate new members is being considered,

particularly for fully subscribed or oversubscribed stocks, it will be important to ensure that existing fishing interests are taken into account in the initial allocation. In addition, the question of how the fishing interests of future new members will be accommodated should be addressed when the initial allocations are being determined; and

- The effectiveness and scope of compliance measures to prevent and deter IUU fishing. If compliant fishing is made dependent on either access agreements with coastal States or the transfer of quota from an existing member, effective compliance measures are essential.

Attempts by RFMOs to limit or to restrict access to resources by new members, cooperating non-members or non-cooperating parties commonly result in IUU fishing. Most RFMOs have implemented measures to combat IUU fishing (see Chapter 5 for details). In some cases, this has resulted in a previously non-compliant flag State seeking to become a member of the RFMO and obtain a quota allocation.

Accounting for the aspirations of developing States

Developing countries form a specific subset in any allocation regime. One of the impediments to progress in RFMOs has been a failure to properly recognize or take into account the aspirations of developing countries, especially coastal States in the relevant region. The allocation of fishing opportunities or quotas among members has generally been based on historical catch, which has meant that States not actively fishing over the relevant period did not receive an allocation. In many cases, this approach failed to recognize either the nature of the sovereign rights over resources in a country's exclusive economic zone or the dynamic nature of flag State activities on the high seas.

One of UNFSA's major contributions is its specific articulation of the special requirements of developing States and the nature of the obligation on States to recognize and take these requirements into account. UNFSA sets out a range of obligations towards developing States, such as assisting them to develop their own fisheries for highly migratory and straddling stocks and to access those stocks on the high seas. Article 11 of UNFSA also establishes that the 'interests of developing States from the subregion or region in whose areas of national jurisdiction the stocks also occur' should be considered as a criterion in determining participatory rights for new members.

The stability of a number of RFMOs has suffered because the historical approach to determining access rights preceded the articulation of the rights of developing States and also those of coastal States. For example, both IATTC (1949) and ICCAT (1969) pre-date the conclusion of the LOS Convention and acceptance of the EEZ regime. In ICCAT, the absence of provision for the interests of developing coastal States in the initial allocation process resulted in a long period of disagreement about general catch levels and led to serious over-harvesting of already depleted stocks. Both ICCAT and IATTC have since taken steps to address this situation in their allocation regimes. Their efforts have been directed mainly towards recognition of the rights of the coastal States, which in both Commissions consist mostly of developing countries. More recently formed RFMOs, among them SEAFO and the WCPFC, contain extensive reference to the special requirements of developing States and the factors to be taken into account in the allocation of participatory rights. In both organizations, these considerations include specific criteria relating to developing States. The operation of these criteria, including how they might be quantified and weighted, has yet to be tested.

Although UNFSA provides for addressing the special requirements of developing States, how this is done must be balanced not only with the conservation status of the stocks but also with other participants' shares. Moves by developing countries to, for example, increase their national allocations or to insulate them from a need to reduce the total catch are likely to destroy any equilibrium reached in an initial allocation process among parties. There will come a point at which individual States may reconsider whether they are indeed relatively better off in complying with their allocation after a redistribution of rights driven by developing States' claims.

Chapter 10 provides further discussion of this issue, and examines how allocation processes may link with a general recognition of the special requirements of developing States.

Non-compliance with allocations

Non-compliance with allocations is a problem experienced by many RFMOs. The Ministerial Declaration of the 2005 St John's Conference on the Governance of High Seas Fisheries made specific mention of this issue, calling upon members of RFMOs to 'ensure that their fishing effort does not result in catches that exceed their fishing possibilities' (Anon., 2005).

Many mechanisms are used to avoid compliance with allocations, including any available opt-out procedures. In NAFO, for example, the most common objection has been about the level of quota allocation, with the objecting member establishing a unilateral quota. On average 10 objections per year were filed against NAFO decisions in the late 1980s and the early 1990s, although this has dropped more recently to between two and four objections per year (DFO, 2004).

In the experience of other RFMOs, the consequence of providing members and cooperating non-members with inadequate quotas is that they are simply not adhered to. Over-quota catches are routinely reported or are uncovered at a later time. With so much at stake for individual States on the outcome of allocation processes, perceived inequities in those outcomes are key drivers of States' non-compliance with national allocations.

The absence in RFMOs of an effective monitoring and reporting regime to ensure that members maintain catches within quotas is also problematic. Ineffective monitoring and reporting regimes, as well as a lack of appropriate sanctions against members to ensure the integrity of national allocations, has been a difficulty in a number of RFMOs. For example, evidence has emerged in both ICCAT and the CCSBT that some members have systematically misreported their catches and significantly over-caught their national allocation. In ICCAT, catches taken in the Atlantic Ocean were misreported as having been taken in the Indian Ocean, where no quota limits apply (ICCAT, 2005). In the CCSBT, a lack of rigour and transparency in the Commission's trade-related measures meant that over-catch by some members went undetected for many years (CCSBT, 2006). Both RFMOs have since moved to address these deficiencies in their respective compliance regimes and have penalized over-quota members by a reduction in their future allocations.

Chapter 5 provides an extensive account of the various compliance tools used by RFMOs. Many of them, particularly port and market State measures, are intended to prevent IUU-caught product from entering the trade chain and thereby to deny financial benefits to the operators of IUU fishing vessels. These measures could be very effective against fishing vessels owned and operated by multinational

companies with little interest in securing longer-term fishing opportunities. As for flag States that exercise limited or weak control over their vessels but may have an interest in participating in regional regimes, the use of records of compliance as a leading criterion in future allocation could be a strong deterrent and also a chief motivating factor pushing them towards compliance.

An effective compliance regime that provides for transparency in accounting for catch or effort against national allocations, combined with sanctions and penalties for over-fishing, is clearly an essential ingredient in ensuring the integrity (and therefore stability) of allocation regimes under RFMOs.

Timeliness in decision-making

There is enormous pressure on States to maintain their fishing opportunities, with the interests of the domestic industry often of paramount concern. Pressure from several member States to gain a portion of diminishing TACs has led to attempts by individual States to offset the impact of declining stocks by trying to force changes in the status quo on allocations. At some time, most RFMOs appear to have experienced either a paralysis in decision-making about responding to overfished stocks or significant non-compliance with national quotas by members.

In some cases, the absence of a pre-agreed formula on how any reductions in TAC would be shared by the members has impeded reaching agreement on the TAC. In the CCSBT, for example, national allocations were originally agreed as tonnages rather than percentages of the TAC, and so the subsequent impact of a reduced TAC on these allocations has required separate agreement, which has proved to be difficult to achieve.

The allocation of participatory rights should be easier when the individual proportions equate to current catch levels rather than when agreement on allocation is delayed until stocks are at low levels and proportions may be well below current catches. For new RFMOs or in RFMOs where underexploited target stocks remain, best practice suggests that early consideration should be given to determining participatory rights.

In the case of the WCPFC, external advice has been commissioned in an effort to address the issue of allocation. Although the allocation of participatory rights will of course be a negotiated outcome between its member countries, the WCPFC's early recognition of the potentially important role of external organizations, including independent experts and academics, is a positive sign. As noted in Chapter 7 of this study, on decision-making, articles 28 and 29 of UNFSA provide for the prompt resolution of technical disputes by ad hoc expert panels. Willock and Cartwright (2006) have suggested that the option of creating an advisory panel of external experts to help facilitate the allocation process may offer the best chance of an early resolution of the allocation issue by the WCPFC.

Decisions on the allocation of participatory rights generally require mandatory consensus, even in those RFMOs that provide for recourse to voting when efforts to reach consensus have failed. This raises the prospect of one or more members blocking a decision and thus exercising an effective veto against participatory rights ever being determined. Best practice would suggest the presence of some form of 'circuit breaker', and some RFMOs have moved in this direction. For example, although

not specific to decisions on participatory rights, article 20 (4) of the WCPF Convention provides for the possibility of appointing a conciliator to reconcile differences on issues subject to mandatory consensus. Both the CCAMLR and SEAFO provide for the possibility of a member joining the consensus but then seeking the review of a decision by a panel. Given the crucial importance of resolving allocation issues, it remains questionable whether requiring mandatory consensus is best practice or whether a combination of recourse to voting, review procedures, dispute settlement and regular review of allocations would provide a more effective approach.

Negative consequences of the historical catch criterion

The only reasonably well-agreed method of allocation is based on the historical fishing record, in part because it can be readily quantified. But a simple analysis will show that this basis for allocation is inherently unstable because it forces existing and new members to block decision-making until such time as they have developed a capacity to participate in the fishery that matches their aspirations. Further, it forces the general fishing effort beyond sustainable limits while this positioning takes place, with the result that negotiations on relative allocation must take place at the same time as negotiations on reductions of fishing effort.

Recent experience with some stocks, for example North-East Atlantic blue whiting and southern bluefin tuna, has shown that States with aspirations to participate in the fishery will avoid allocation discussions or will defer joining an organization until their fishing activity has increased to a point at which they perceive that the allocation formula will give them a fair share. This delay in reaching an allocation decision has resulted in a severe decline in stock and is a critical point of potential failure of RFMOs.

As pointed out above, timely decision-making is obviously essential, but it clearly needs to take into account the changing aspirations of members if delays are to be avoided. There are several possible solutions, which involve departures from relying wholly or mainly on the historical catch record. These include reserving a set-aside (20 or 30 per cent of the TAC) at the time of negotiation, allowing tradability and allowing for other negotiation facilitators and arrangements. Depending on the geographical configuration of the region in question, another possibility (for straddling stocks and highly migratory stocks) is the partially allocated quota (PAQ) system, whereby quotas are assigned to coastal States in direct proportion to the concentration of the resources in their EEZs (Joseph, 1983). A more advanced variation of this theory would involve the establishment of an international licensing system whereby access to highly migratory species is permitted regardless of jurisdictional boundaries in return for a participation fee which is then distributed to littoral States on the basis of catch.

Transparency in the process

One aspect of RFMOs' allocation of participatory rights that must be improved is the transparency of the process by which allocations are determined or affected. Political sensitivities, side payments and trade-offs clearly have a central role to play in reaching an agreement on allocations (and, in some circumstances, reaching agreement is likely to benefit from closed discussions), but there is nevertheless a need for greater transparency in discussions about allocations. The recent review of

the performance of the NEAFC identified the process of quota allocation, along with setting TACs, as a critical area for greater transparency (NEAFC, 2006). This concern is unlikely to be unique to the NEAFC.

Of primary importance is that the consideration of TACs or levels of general fishing effort should not be subverted by unstated concerns about allocation issues. In some RFMOs, disagreements within commissions or their scientific committees over advice on stock status seem to be motivated more by the perceived subsequent impact on members' fishing opportunities than by scientific advice about the conservation status of the stock. This undermines the level of confidence in scientific advice, either deliberately or unintentionally, and is likely to result in poor conservation and management decisions.

The experience of RFMOs to date strongly suggests that at the time a decision is taken on allocation an explicit review process should also be agreed. As discussed in the recent independent report to the WCPFC, a periodic review of allocations would enable a changing membership, members' changing aspirations, shifting management priorities and compliance issues to be taken into account (MRAG, 2006). A periodic review would also assist in increasing the degree of transparency associated with allocations.

Changing fisheries dynamics

Experience of quota allocations in a domestic setting indicates that it is important to give attention to changes in fishing dynamics over time, including those in response to quota allocations. In certain circumstances, the allocation of quota may result in changes to the distribution of catch and fishing effort from areas of higher productivity to less desirable fishing methods or to juvenile portions of the stock. This situation is not unique to domestic fisheries, and should be anticipated by allocation regimes in RFMOs. For example, it is clear that some highly mobile fleets fish extensively in different oceans during a year, while other less mobile fleets restrict their activities to more regional patterns. In determining the shares of the potential harvest in a particular region, one important consideration should be whether the fleet in question operates in other regions as well. If they do, this should be taken into account in determining an allocation formula.

Options to increase the flexibility of quotas in RFMOs, including those for accommodating new members, may result in unanticipated changes to fishing dynamics. Thus, in a number of the international tuna fisheries, juvenile bluefin tuna are harvested for growing out in farming operations while adults are targeted in longline operations. Were quota transfer or trading to result in a flow of effort into either sector, the impacts on the stocks would need to be considered and, in some circumstances, measures might need to be implemented in order to mitigate those impacts.

Similarly, the fishing methods of individual States and their fishing practices vary markedly, resulting in differing levels of bycatch. For example, some purse seine fleets rely more heavily on associated sets (that is, setting on fish aggregating devices) than others. The former attract much higher levels of bycatch of juvenile bigeye tuna and potentially vulnerable species such as sharks.

Clearly, a simple allocation of a tonnage quota of fish may not give the same level of fishing mortality if the stock is taken by two different methods. The effects of changes to fishing practices and their impacts

must be monitored; and, if necessary, allocations may need to be adjusted or controls implemented on the manner in which allocations can be fished so as to take these changes into account.

Conclusions

RFMOs' experience shows that the allocation of fishing opportunities to members is a vital component in securing effective conservation and responsible fishing. However, their experience also reveals that obtaining agreement about the basis for allocations, gaining acceptance of the outcomes of an allocation process and then controlling the resulting impacts on the fishery is extremely difficult, with potentially negative consequences for target species, non-target species and the broader marine environment.

Clearly, allocations in and of themselves will not deliver the required conservation outcomes or stability for the fishery. If the integrity of the allocations is not supported by well-developed monitoring, control and surveillance measures, non-compliance will probably be high and there will be negative impacts on the resource. The ability to impose some form of severe sanction or penalty for non-compliance with quotas, or indeed reductions in quota, should be regarded as an integral component of any allocation of participatory rights. Cooperative arrangements will only succeed if there are strong negative and positive incentives to comply.

Lists of criteria in convention texts and guidance with respect to the treatment of new members are likely to be useful. To date, criteria enumerated in texts have been largely qualitative in nature and wide-ranging, resulting in an overemphasis on historical catch. Attempts must be made to add quantitative substance and, as necessary, weighting to particular criteria. Although any allocation of participatory rights by an RFMO will almost invariably represent a negotiated outcome between members, there is a potentially important role for external organizations, including independent experts and academics, in driving debate forward. Independent experts are already commonly used by RFMOs in areas such as review and input to stock assessments and analysis, and recommendations concerning certain monitoring, control and surveillance (MCS) measures and different management options. The WCPFC has already commissioned an external study of allocation options. But regardless of whether or not an RFMO decides to call on independent advice in order to help facilitate decisions on allocations, it is important for discussions on allocation to be explicit, transparent and separate from those about other conservation and management measures, including setting overall limits on catches or effort.

The commercially valuable target stocks are almost invariably the basis of the allocated rights under RFMOs and in domestic fisheries. If there is a high level of uncertainty about continuous access to the economic benefits arising from these target stocks, this diminishes the likelihood that conservation and management measures relating to broader ecosystem-based concerns will be addressed. Experience in domestic fisheries indicates that industry is far more willing to bear additional costs, for example those imposed by mitigation measures for threatened species, when they have secure and steady access to the main commercial species. Stability in quota allocations under RFMOs is therefore essential not only to secure the long-term flow of benefits from the target stocks but also to underwrite the conservation and management measures required to pursue an ecosystem-based approach to fisheries management.

5

Compliance and Enforcement

In order to achieve the objectives of long-term conservation and sustainable use of fish stocks, measures agreed by RFMOs must be implemented by their members and complied with by individual fishing vessels. Compliance with and effective enforcement of agreed conservation and management measures, supported by adequate monitoring, control and surveillance (MCS), are crucial to implementation.

All RFMOs have adopted specific and detailed measures that place obligations on flag States, such as the recording and timely reporting of fisheries data and cooperation in MCS, including vessel monitoring systems (VMS) and observer programmes. RFMOs have also agreed on procedures to deal with infringements by their members, among them required follow-up actions and reporting. In addition, some RFMOs have established specific measures concerning the transhipment and landing of catches and have put into effect trade- and market-related measures. Some of these measures, particularly those relating to port States and trade, extend to non-members of the RFMOs concerned. In an attempt to widen the scope of compliance and enforcement measures, the concept of the 'cooperating non-member' of an RFMO has been developed in recent years. This is a status that increasingly carries rights and obligations. As part of its work, the Panel commissioned a review and brief analysis of the current practice of RFMOs relating to cooperating non-members (Owen, 2007). Some of the main conclusions of that review are referred to in this chapter.

This chapter reviews and assesses best practice with respect to (1) monitoring, control and surveillance; (2) regulation of transhipment; (3) port State measures; (4) the application of trade- and market-related measures; (5) additional actions against non-compliance by members; (6) measures against non-members; and (7) measures to regulate member nationals. Because of its fundamental importance, the issue of flag State duties and their enforcement is dealt with in more detail in Chapter 6.

Monitoring, control and surveillance

The main objective of MCS systems in RFMOs is to strengthen the effective exercise of flag States' responsibility for fishing vessels flying their flags. Apart from conventional (and costly) MCS by surveillance aircraft and patrol vessels, commonly used MCS tools are vessel registers, VMS, observer programmes and inspections. The purpose is to make certain that parties effectively discharge their obligations under relevant legal instruments so as to ensure compliance with conservation and management measures adopted by the RFMO. The various elements of an MCS system cannot be seen in isolation; they are all important parts of the total system.

Vessel registers

All fisheries instruments adopted over the past decade or so emphasize vessel registration as a fundamental tool with which to control the activities of fishing vessels, whether nationally, regionally or globally.

Most RFMOs have established vessel registers or records (lists) of authorized vessels in their secretariat. The amount of information that must be submitted varies substantially. Some RFMOs require the flag State to submit only basic information, such as vessel name, radio call sign, external registration number, owner name and vessel capacity, length and power. Others ask for additional information, such as details of the vessel's previous name(s) and flag(s) and photographs of it. This information is either put into formally established registers, as for most of the tuna RFMOs, NAFO and SEAFO, or listed on the RFMO's website, as for CCAMLR and NEAFC.

Most of the RFMOs managing tuna and tuna-like species have used their respective registers to establish 'positive lists' or 'whitelists'. ICCAT was the first RFMO to adopt such a measure, by establishing a record of large-scale fishing vessels authorized to operate within its area of competence. This record is based on information submitted by parties and cooperating non-parties. Importantly, vessels *not* entered into the record are deemed to be unauthorized to fish for, retain on board, tranship or land tuna and tuna-like species. Parties to ICCAT are required to take a number of measures, among them prohibiting the transhipment and landing of tuna and tuna-like species by large-scale fishing vessels that are not entered into its record. The CCSBT, IATTC and IOTC have adopted similar measures. In NAFO, the regulation about its register specifies that fishing vessels not entered into the register are deemed to be unauthorized to fish in the NAFO area. The measures adopted by SEAFO and the WCPFC are even clearer: unregistered vessels are considered to be conducting IUU fishing.

In 2005, ICCAT went a step further and adopted a programme for transhipment by large-scale longline fishing vessels which includes the establishment of a record of vessels authorized to receive transhipment in the ICCAT area. Carrier vessels not entered on the record are deemed to be unauthorized to receive tuna or tuna-like species in transhipment operations. In 2006, IATTC and IOTC established similar transhipment programmes, which include the establishment of a record of carrier vessels.

Although most RFMOs have registers or positive lists in place, some obstacles remain that prevent their fullest use. As they have been developed separately, many of the current lists hold different and inconsistent pieces of information, often in incompatible data formats. This can make it extremely difficult to establish linkages from one register to another or from one region to another. Further, it is challenging to keep track of a fishing vessel because its flag, name and radio call sign might change from time to time. Indeed, 'flag-hopping' is a well-known tactic used by IUU vessel operators to avoid compliance, but vessels can change names and flags for legitimate reasons as well, for example sale or transfer. One way to overcome the possibility of duplication is to assign a unique reference number to each fishing vessel, such as an International Maritime Organization number (currently not compulsory for all fishing vessels but available on request). An additional obstacle is that many registers or lists are not easy to access: the requirements of confidentiality seem to preclude transparency.

A significant development in this regard was the establishment in 2006 of a combined list of all vessels included on the authorized lists of the five tuna RFMOs and its publication on the Internet. The list is maintained by the coordinator of tuna-org.org (http://tuna-org.org/), which is an informal, web-based framework for sharing information from tuna RFMOs. It includes information from the authorized lists maintained by the CCSBT, IATTC, ICCAT and IOTC, and will eventually include the WCPFC's authorized list. In addition, the website contains links to the IUU vessel lists of each RFMO. The combined list is an important first step towards an effective global register and a good example of inter-RFMO cooperation. However, its coordinators concede that because of the

difficulties highlighted above, it is likely that some vessels may have duplicate entries on the list and thus that the number of entries on the combined list exceeds the actual number of authorized vessels. Another problem is that the authorized list is not necessarily indicative of the actual number of vessels active in a particular ocean. After the fact information may also be available from logsheets, although there are significant gaps in logsheet coverage. Full implementation of a VMS, at least for vessels of less than 24 metres, will go some way towards addressing these shortcomings.

In recognition of the need for a reliable source of information on the size and scale of the global fishing fleet and the ownership and control of fishing vessels, there have been several attempts in recent years to establish global registers of vessels authorized to operate on the high seas. The FAO Compliance Agreement, adopted in 1993, was designed to fulfil this purpose. Under the Agreement, States are required to maintain domestic records and to transmit to the FAO detailed information about the vessels on those records. In turn, the FAO is mandated to maintain a register called the High Seas Vessel Authorization Record (HSVAR). Unfortunately, the number of parties to the FAO Compliance Agreement is low (35 as of 31 May 2007[1]), leading to a situation in which vessel information from important fishing States is often not included in the HSVAR. Further, the record is not reliable because the information submitted by parties is often incomplete and outdated.

The FAO's Committee on Fisheries agreed in March 2007 to take steps to begin the development of a global record of fishing vessels, which should overcome some of the above difficulties. This initiative is based on a proposal developed by the High Seas Task Force to establish an international database of information on the global high seas fishing fleet by compiling existing fisheries-related information on high seas fishing vessels. To be effective, this record would clearly need to be linked in some way to the registers and records currently maintained by RFMOs. For this reason, cooperation with and between RFMOs in the establishment and maintenance of the record would be essential to ensure its success.

Vessel monitoring systems

Among the MCS measures to be taken by flag States under article 18 of UNFSA is the development and implementation of VMS in accordance with such programmes as might have been agreed regionally or globally. There are no examples so far of global VMS programmes, but RFMOs are increasingly taking a regional approach to VMS.

The purpose of VMS is to provide a flag State or an RFMO with information on the position of a fishing vessel at regular intervals. Some VMS also allow for the transmission of catch and effort data from the fishing vessel to the flag State or the RFMO in near real time. VMS may activate traditional means of MCS measures, for example inspections at sea or in port, as a follow-up of information received by VMS.

All RFMOs have introduced or are about to introduce mandatory VMS for vessels operating within their area of competence. NAFO was the first to do so: a pilot project was agreed in 1996. VMS became mandatory in 2002, and include an obligation to submit VMS data to the RFMO's secretariat. The NEAFC was the first RFMO to establish a fully-fledged VMS – a system was operational from

[1] It should be noted, however, that the European Community accepted the FAO Compliance Agreement on behalf of all 27 member States of the European Union. Thus the reality is that the Agreement is binding on some 61 States (almost as many as have signed UNFSA).

1998 – and this became mandatory on 1 January 2000 for all vessels fishing in the NEAFC area. In 1998, the CCAMLR introduced VMS for the toothfish fishery. The measure was later extended to cover all finfish fisheries, and now allows for real-time, direct reporting of vessel positions as well as entry and exit reporting for the CCAMLR area. The VMS is linked to inspection platforms operating in the CCAMLR area and to the means of verification of the validity of catch documents for toothfish. As of 2005, IATTC requires parties to establish VMS where possible. ICCAT adopted a recommendation requiring parties to implement VMS on vessels above 24 metres in length by no later than 1 July 2005 (later extended to 1 November 2005 and now implemented) and on vessels above 15 metres fishing for bluefin tuna from 1 January 2010. IOTC passed a resolution in 2002 for the establishment of a pilot programme to implement VMS on 10 per cent of the fishing vessels operating in the Convention area. SEAFO agreed on a VMS in 2005 to come into effect as of March 2007. The CCSBT agreed in principle in 2006 to introduce VMS, and work will be undertaken in 2007 towards refining and implementing such a system. The WCPFC Convention includes very detailed provisions for the establishment of a system. These provisions have been elaborated further in the Commission's conservation and management measure CMM 2006-06.

There are also systems in RFMOs that allow for both indirect and direct reporting of VMS data. Indirect reporting means that VMS data are relayed to a fishing monitoring centre of the vessel's flag State, which then relays the data to the relevant RFMO secretariat. In direct reporting, both the RFMO and the flag State simultaneously receive the data directly from the vessel in near real time. The development of two systems is mainly because the security of VMS data has been a major issue for the fishing industry. On the other hand, questions have also been raised, particularly by NGOs, as to whether some flag States manipulate VMS before they are forwarded to the relevant RFMO.

From a monitoring perspective, it seems manifest that direct reporting is the most effective system, especially where VMS data are used by inspection platforms or to verify compliance, for example with trade-related documents (as in the CCAMLR). Moreover, concern about confidentiality seems to have been addressed adequately since VMS technology was introduced.

Observer programmes

Observer programmes have long been regarded as an essential component of fisheries MCS. Thus article 62 (4) (g) of the LOS Convention recognizes the 'placing of observers' on board fishing vessels as one of the terms and conditions for access to the exclusive economic zone(EEZ) that may be legitimately established by a coastal State.

The role of observer programmes, both national and those adopted through RFMOs, in relation to the conservation and management of straddling fish stocks and highly migratory fish stocks is elaborated further in UNFSA. Article 18, under the heading 'Duties of the Flag State', clearly establishes participation in national, subregional and regional observer programmes as an integral part of flag State responsibility and MCS, stating in relevant part as follows:

> 1. A State whose vessels fish on the high seas shall take such measures as may be necessary to ensure that vessels flying its flag comply with regional and subregional conservation and management measures and that such vessels do not engage in any activity which undermines the effectiveness of such measures.
> …

> 3. Measures to be taken by a State in respect of vessels flying its flag shall include:
> …
> (f) requirements for verifying the catch of target and non-target species through such means as observer programmes, inspection schemes, unloading reports, supervision of transhipment and monitoring of landed catches and market statistics;
> (g) monitoring, control and surveillance of such vessels, their fishing operations and related activities by, inter alia:
> (ii) the implementation of national observer programmes and subregional and regional observer programmes in which the flag State is a participant, including requirements for such vessels to permit access by observers from other States to carry out the functions agreed under the programmes;
> …
> 4. Where there is a subregionally, regionally or globally agreed system of monitoring, control and surveillance in effect, States shall ensure that the measures they impose on vessels flying their flag are compatible with that system.

Further, Annex I of UNFSA notes that 'scientific observer programmes to monitor catch, effort, catch composition (target and non-target) and other details of fishing operations' are one of the mechanisms to be employed for verifying fishery data.

The provisions of UNFSA are reinforced by the FAO Code of Conduct. For example:

> Article 7, Fisheries Management
>
> 7.7.3 States, in conformity with their national laws, should implement effective fisheries monitoring, control, surveillance and law enforcement measures including, where appropriate, observer programmes, inspection schemes and vessel monitoring systems. Such measures should be promoted and, where appropriate, implemented by subregional or regional fisheries management organizations and arrangements in accordance with procedures agreed by such organizations or arrangements.
>
> Article 8, Fishing Operations
>
> 8.1.4 States should, in accordance with international law, within the framework of subregional or regional fisheries management organizations or arrangements, cooperate to establish systems for monitoring, control and surveillance and enforcement of applicable measures with respect to fishing operations and related activities in waters outside their national jurisdiction.
>
> 8.4.3 States should, as far as possible, establish programmes, such as observer and inspection schemes, in order to promote compliance with applicable measures.

The provisions of the Code of Conduct are supplemented by the International Plan of Action to prevent, deter and eliminate illegal, unreported and unregulated fishing (IPOA-IUU) and by associated technical guidelines on its implementation. These guidelines also refer to the use of observer programmes as one of a suite of measures aimed at stopping IUU fishing.

Most current observer programmes in RFMOs are designed primarily for the collection of scientific

information. Increasingly, however, there is a role too for the monitoring of compliance with conservation and management measures, and the functions may be combined. Thus, an additional function of scientific observers under the CCAMLR's Scheme of International Scientific Observation is to report any irregularities while on board the vessel and factual data on other vessels sighted in the CCAMLR area. The CCAMLR programme requires full coverage on all fishing vessels except those fishing only for krill. (Some CCAMLR parties have voluntarily put observers on krill fishing vessels.) Further, the CCAMLR has mandated masters of licensed fishing vessels to report vessel sightings to the CCAMLR secretariat (via the flag State) as soon as possible, and these reports are to be used in compiling estimates of IUU activities. IATTC has adopted a sighting and reporting system for vessels operating in its area of competence.

NAFO established a compliance-based observer programme in 1998 that requires all vessels to carry at least one observer. Save for the requirement that observers should carry out such scientific work as requested (based on the advice of the Scientific Council), the NAFO scheme is exceptional: the observers' other functions pertain to compliance and enforcement or to support of the operation of the satellite tracking system (monitoring its functioning, reporting any interference with it and maintaining a daily report, which may be compared with the data from the satellite tracking system). The duties of NAFO observers are, among others, to monitor a vessel's compliance with relevant conservation and management measures and, when an infringement is identified, to report within 24 hours to an inspection vessel. In parallel, NAFO has for the past three or four years run a pilot project on the real-time electronic submission of data from the fishing grounds combined with a withdrawal of observers from some of the fishing vessels. After an evaluation in 2006, several NAFO parties were of the opinion that the pilot scheme had proved to be less costly and more efficient than the previous observer-only programme. Consequently, it was agreed to give parties the option either to continue to implement the current programme or to change to 25 per cent coverage by observers while introducing more detailed and frequent electronic reporting.

Both the SEAFO Convention and the WCPFC Convention envisage the introduction of observer programmes, but specific schemes are still being established. SEAFO has agreed, however, that all vessels fishing in the SEAFO area shall as of 1 January 2006 carry scientific observers for the collection of information to support stock assessment.

As mentioned above, in addressing the challenge of controlling transhipments at sea, ICCAT established in 2005 a regional observer programme that requires its secretariat to appoint and place observers on board carrier vessels during every transhipment operation involving large-scale tuna longline fishing vessels. The programme requires the observer to have completed a training course, not to be a national of the flag State of the carrier vessel and not to be a crew member of a large-scale tuna fishing vessel or an employee of a company owning such a vessel. It puts additional specific obligations on the observer such as recording, observation, verification, certification and reporting. The flag State of the carrier vessel is required to ensure that observers are granted adequate access to personnel, gear and equipment and to cover the cost of implementing the programme.

For vessels fishing for bluefin tuna, ICCAT has a special observer programme that requires at least 20 per cent coverage of vessels not involved in transhipment, with actual coverage depending on the party. Observers' tasks are monitoring, recording and reporting compliance as well as observation, estimation and verification of logbook entries. IATTC requires 100 per cent coverage on large-scale purse seine vessels; 70 per cent of observers must be employed by the RFMO and the remainder

must be supplied by its parties. Both the CCSBT and IOTC encourage their members to implement national observer programmes, with a suggested coverage of 10 per cent.

Recently, the CCSBT, IATTC and IOTC have also introduced obligations, similar to those developed by ICCAT, for parties to have observers on board and to monitor whether transhipped quantities are consistent with the data in the required declaration.

Two particular 'best practice' issues arise concerning observer programmes. First is the need for a review and assessment of their effectiveness. It is suggested that this function should be carried out by RFMOs on a regular basis.

The second issue is the legal status, powers and duties of observers on foreign fishing vessels. Observers spend a long time on board fishing vessels and are particularly vulnerable, especially if they are of a different nationality from that of the crew of the vessel and do not speak the same language. In considering the legal status of observers on fishing vessels, a number of issues arise. Their status may, at various times, be defined by their relationship to (a) the flag State of the vessel, (b) the State of the contracting party placing the observer and (c) the master of the vessel. The implications of this shifting status are considered in the following paragraphs.

In general, although observers are not, strictly speaking, crew members, their status may sometimes be assimilated to that of a crew member, especially where relevant legal provisions refer to 'any person on board' a fishing vessel. For example, the international legal obligations of flag States to observe maritime safety extend to all persons on board vessels, including observers and passengers. Similarly, it is a basic proposition of maritime law that the flag State has exclusive jurisdiction over the vessel and persons on board in penal matters on the high seas. The master of the vessel is in charge, and all persons on board are under a duty to comply with his orders relating to safety and not to hinder lawful operations on board. On the other hand, it is also necessary to ensure that observers are able to carry out their duties free of hindrance and threat and that they are given access to the facilities they require in order to carry out those duties.

Regional observer programmes adopted by RFMOs should strike an appropriate balance between these concerns by clearly setting out the respective rights and duties of observers and masters of vessels. A good example of the sort of provision that might be considered is EU Council Regulation 3069/95 (implementing the NAFO observer programme). This goes into some detail about the relationship between the observer and the master of the vessel. With respect to the master, the Regulation states, *inter alia*, that:

> the master of the vessel designated to receive an observer on board shall take all reasonable steps to facilitate the arrival and departure of the said observer. While on board the designated observer shall be offered appropriate and adequate accommodation and working facilities. The master of the vessel shall permit the observer to have access to the vessel's documents (logbook, capacity plan, production logbook or stowage plan) and to different parts of the vessel, including, as required, to the retained catch and catch which is intended to be discarded, in order to facilitate the discharge of the observer's duties.

With respect to observers, the Regulation states that:

> the assigned observers shall take all appropriate steps to ensure that their presence on board fishing vessels does not hinder or interfere with the proper functioning of the vessels including fishing activities;
>
> the observer shall respect the property and equipment on board the fishing vessels including the confidentiality of all documents pertaining to the said vessels …

Notwithstanding these provisions, obstruction of observers is bound to occur. In such cases, the relevant observer programme should include provisions treating obstruction as a serious infringement and setting out the consequences. For example, when under the NAFO scheme a vessel is specified for obstruction of an observer, the contracting party of the vessel is required to ensure that the vessel is inspected within 72 hours by one of its own inspectors. In serious cases, the vessel may be required to proceed to port for inspection. The scheme also requires that the contracting party of the vessel shall take prompt action to conduct the investigations necessary to obtain evidence and shall take prompt administrative or judicial action as would be the case when dealing with apparent infringements of fisheries regulations in national waters.

Inspections at sea

It is often argued that an efficient and effective inspection system is necessary both to ensure compliance by members of RFMOs and to be a means to monitor and discourage illegal activities by non-members of the relevant RFMO. One of the most important and innovative features of UNFSA is the establishment of a cooperative scheme for the enforcement of regional conservation and management measures. Article 21 provides that in any high seas area covered by an RFMO, an UNFSA party which is a member of that RFMO may board and inspect fishing vessels flying the flag of another UNFSA party, whether or not that party is also a member of the RFMO concerned. The basic procedures for boarding and inspection are set out in Article 22.

These UNFSA provisions were contentious at their conception, and remain so. The Agreement therefore contains a further provision to ameliorate the effect of article 21, to the effect that members of an RFMO may agree to limit the application of the boarding and inspection provisions between themselves if they have established an alternative mechanism in their organization that allows them to discharge their obligations under UNFSA effectively. Some RFMOs have established these alternative mechanisms. At-sea boarding and inspection schemes have been adopted by the CCAMLR, ICCAT, NAFO and NEAFC. The SEAFO Convention provides for an at-sea inspection scheme that has yet to be established. Pending the operationalization of its high seas boarding and inspection scheme, the WCPFC agreed to apply articles 21 and 22 of UNFSA in its convention area as of mid-2006.

The CCAMLR relies on a nationally operated system of inspection. This was adopted prior to UNFSA, and is not the same as what is specified by UNFSA articles 21 and 22. Inspectors designated by national authorities have the competence to board vessels of other parties and to inspect catch, fishing gear and records concerning any fishing activity. They may take photographs or video footage, document infringements and seal illegal gear, and they must be given appropriate assistance by the master of the vessel and have access to communication equipment. Inspectors shall complete an inspection report, which shall be provided to the CCAMLR via the designating party and to the flag State of the fishing vessel. The flag State is responsible for prosecuting and imposing sanctions for any violation of CCAMLR measures and for reporting to the CCAMLR on actions taken in this respect. The sanctions applied shall be sufficiently severe to discourage violations in the future and to

deprive offenders of the economic benefit accruing from IUU fishing. The CCAMLR has agreed to examine whether the system has to be strengthened, and some intersessional work will be undertaken before its annual meeting in 2007.

NAFO has also established a joint at-sea inspection and surveillance scheme, which provides for reciprocal boarding and inspection. Designated inspectors operating from designated platforms carry out inspections. If there are 15 or more vessels flying the flag of a particular member State involved in fishing operations in the NAFO regulatory area, that party is obliged to have an inspector present. A general rule is that the inspection time shall not exceed three hours (this does not apply if the net has not been hauled in and inspected or if a serious violation has been detected). The inspector has the authority to examine all relevant areas, catch, gear and other equipment as well as documents needed to verify compliance. The scheme distinguishes between infringements, serious infringements and certain serious infringements. The category 'serious infringements' more or less mirrors the definition contained in UNFSA. If a serious infringement is detected, the flag State of the vessel must be notified. It is obliged to inspect the vessel within 72 hours, and the inspection must be by either a flag State inspector or an inspector authorized by the flag State. While awaiting actions by the flag State, the inspector may remain on board and secure evidence. The flag State may require the vessel to proceed to a designated port for inspection by the flag State authority and in the presence of other NAFO inspectors who wish to participate. If a vessel suspected of committing a serious infringement is not called to port, the flag State must provide due justification for failing to do so. In 2006, NAFO amended the scheme by introducing enhanced follow-up to certain serious infringements (fishing directed at stocks under moratorium, the misrecording of catches and repetition of a serious infringement). Under the new provisions, the vessel must cease its fishing operations, and the flag State shall require the vessel to proceed immediately to a port where an investigation can be initiated.

The NEAFC has adopted a similar joint scheme, and it is foreseen that such schemes shall be established elsewhere in accordance with both the SEAFO Convention and the WCPFC Convention.

Regulation of transhipment

Enhanced international cooperation is necessary for transhipments at sea, where monitoring is extremely difficult. The regulation of transhipment has become an important tool in the fight against IUU fishing and for collecting and verifying data. Many IUU operators tranship at sea as a way to reduce the chance of detection. By transferring catches to reefers, IUU fishing vessels can avoid entering ports in order to land their fish. On reefers, IUU catches are often laundered by mixing them with legally caught fish. Further, reefers are often used to transport the fish from the RFMO area where the fish were harvested to ports of non-members of a particular RFMO.

Consequently, some RFMOs have established specific measures for the supervision of transhipment, for example detailed reporting requirements and the restriction of transhipments to members of the RFMO concerned.

As mentioned above, ICCAT has agreed to a programme concerning transhipment, which includes establishing a record of authorized carrier vessels. At-sea transhipments are allowed only if the fishing vessel (donor vessel) has obtained prior authorization from its flag State and also obligations

of notification for the master to fulfil, which include identifying the fishing vessel and the carrier vessel, the quantities and products to be transhipped, the date and location of the transhipment and the geographical location of catches. The master of the receiving vessel shall, within 24 hours, complete and transmit a declaration to the ICCAT secretariat and the flag State of the donor vessel and shall transmit a declaration to the port State 48 hours before landing. As of 31 March 2007, there is an obligation to have on board observers to monitor that the transhipped quantities are consistent with the declaration. The ICCAT programme has also established a linkage to species covered by a statistical documentation programme (SDP). There is an obligation for the flag State of the donor vessel to validate the statistical documents for the transhipped fish. Members of ICCAT must require species covered by the SDP imported into their territories to be accompanied by validated statistical documents and a copy of the transhipment declaration. In addition, ICCAT has agreed that transhipment can take place in designated ports provided that a vessel notifies the port State 48 hours in advance of its arrival and gives information on the quantities on board, the geographical area of catches and the names of the fishing and receiving vessels. There are also obligations to report similar information to the flag State of the fishing vessel.

In 2006, IATTC and IOTC established programmes on transhipment similar to that adopted by ICCAT. They involve the establishment of a record of carrier vessels and of conditions for at-sea transhipment such as flag State authorization, notification procedures and regional observer programmes. But the IATTC and IOTC programmes extend beyond longline vessels and apply to transhipments by all large-scale fishing vessels. Both programmes enter into force on 1 July 2008. The CCSBT has adopted a similar programme, for which work on refinement and implementation is being undertaken in 2007.

NAFO and NEAFC require that only authorized vessels may engage in transhipment operations. The NEAFC has further agreed not to allow transhipment to vessels flying the flag of non-contracting parties which have not been granted cooperating status. In addition, it is prohibited for a vessel that receives catch by a transhipment operation to be involved in other activities, for example fishing, on the same trip. NAFO and NEAFC have adopted almost identical rules for the reporting of transhipment operations. The fishing vessel (donor vessel) is required to report at least 24 hours in advance of each transhipment the vessel's identification, the date, time and geographical position of the transhipment and the quantities to be offloaded. The receiving vessel is obliged to give similar information about the transhipment operation and information as well on the total catch on board after the transhipment, the total weight to be landed and the port and time of landing. This must be done at least 24 hours in advance of any landing.

SEAFO agreed in 2006 to prohibit transhipments at sea by vessels flying the flags of contracting parties. Fishing vessels are, as a result, allowed to tranship only in ports of contracting parties after authorization by both the flag State and the port State. Further, its regulation includes specific notification requirements for the fishing vessel and for the receiving vessel as well as follow-up obligations on the part of contracting parties.

The CCAMLR has not established specific regulations on transhipments *per se*, but the measures in its catch documentation scheme include the requirement to document transhipments as part of that system. Moreover, vessels that have supported identified IUU vessels will themselves be designated as involved in IUU fishing. All RFMOs that blacklist IUU vessels have similar provisions.

The WCPFC Convention contains provisions on transhipment, encouraging it to take place in ports of the parties and imposing terms and conditions for transhipment at sea beyond areas under national jurisdiction.

Port State measures

In recent years, RFMOs have recognized the importance of coordinated port State measures, both because all harvested fish must be landed at some point and because the use of such measures does not require substantial resources compared to other measures, for instance inspection at sea. The active use of port State jurisdiction can be a particularly effective weapon against IUU fishing operations. Enhanced port State controls can act as a disincentive to IUU operators by increasing the cost of their operations (for example by forcing them to seek out more remote and thus more costly ports). The key is to ensure that port State controls are applied widely and consistently, in order to avoid the development of 'ports of convenience'. Once a vessel is in one of its ports, the port State must be able to act decisively and effectively. This means that there must be in place the necessary domestic legislation and the cooperative mechanisms for coordinating action with other port States, flag States and market States. A regionally or globally harmonized and coordinated approach to port State control can help to overcome the practical limitations of action by individual States, for example when IUU operators rapidly shift operations from one port to another or tranship at sea.

Port State control has a well-established track record in the area of merchant shipping, and has had a very significant impact on the problem of substandard shipping. Port State regimes are generally intended to ensure mandatory inspection of vessels when they enter ports. They are tied to internationally agreed rules and standards for shipping, especially those developed through the International Maritime Organization and the International Labour Organization. In recent years, there has been increased interest in the possibility of applying similar regimes to internationally or regionally agreed standards for fisheries.

The wide discretion of States in exercising jurisdiction over vessels voluntarily present in their ports is recognized in article 23 of UNFSA. This acknowledges that a port State 'has the right and the duty' to take non-discriminatory measures in order to 'promote the effectiveness of sub-regional, regional and global conservation and management measures'. The same principle is reflected in the IPOA-IUU and, increasingly, in State practice.

Examples of enforcement measures that might be applied by port States are:

- Denial of access to ports altogether (ad hoc or by banning);
- Prohibiting the landing, transhipment or processing of catch;
- Prohibiting the use of other port services, such as refuelling, other forms of re-supplying (water, food, equipment, bait), making repairs etc.; and
- Punitive or corrective action in case of violations of the domestic legislation of the port State.

A State should grant foreign fishing vessels access to its ports only when it can verify that the catch has not been caught illegally. Port State controls can include port inspections, to ensure that catch has been caught in accordance with relevant conservation and management measures; catch documentation requirements; and VMS data, to verify catch documentation. A port State can also

ensure the authenticity of paperwork before vessels enter its ports by requiring advance notice of port access, which allows authorities to check licences and vessels' history before arrival, thereby preventing access where suspicion exists. The use of electronic catch documentation would assist greatly in this area.

In order to ensure consistency with international trade law, it is critical that all port State enforcement actions are taken in a transparent manner that avoids unjustifiable discrimination between foreign vessels and between national vessels and foreign vessels (Molenaar, 2005). This is in fact fully compliant with the general LOS Convention requirement of non-discrimination (articles 119 (3) and 227) and is also reflected in paragraph 52 of the IPOA-IUU. The latter stipulates that port State measures 'should be implemented in a fair, transparent and non-discriminatory manner'. What is to be avoided is unjustifiable discrimination. Denial of access to ports or services to a vessel flying the flag of a State that is not a member or cooperating non-member of a relevant RFMO and is unable to establish that its catch was taken in a manner consistent with the RFMO's conservation and management measures is a form of discrimination, but one that can be justified. This currently occurs in various port States that cooperate with the CCAMLR on its catch documentation scheme for toothfish. A good example of the sort of conditions that port States might apply in order to combat IUU fishing is found in Chile's policy for the use of national ports by foreign fishing vessels.[2] This requires, *inter alia*, all foreign fishing vessels to comply fully with applicable conservation and management measures and to use a vessel monitoring system.

A final comment can be made about vessels without nationality, or stateless vessels. The LOS Convention does not provide a definition of stateless vessels, but stipulates in article 92 (2) that 'A ship which sails under the flags of two or more States, using them according to convenience, … may be assimilated to a ship without nationality.' The consequences of statelessness are not spelt out in the Convention. However, a growing number of RFMOs have adopted measures that require their members to board, search, arrest and prosecute a stateless vessel if it has been fishing in a manner that undermines the RFMO's conservation and management measures. Although such an action is most likely to take place on the high seas, it is certainly possible that IUU vessels that try to land or tranship catch in ports are at that moment without registration. Some States have enacted laws allowing them to treat stateless vessels as though they were vessels flying their own flag, and thus to take enforcement action against them.

Port State regimes for fishing vessels have been developed by a number of RFMOs. Some of them are outlined below. There are close linkages between an increased use of port State measures and other compliance and enforcement measures. For example, coordinated port State controls may be used to increase the effectiveness of trade and market place measures such as catch documentation schemes and controls over transhipment at sea.

[2] *Aprueba politica de uso de puertos nacionales por naves pesqueras de bandera extranjera que pescan en el alta mar adyacente*, D.S. No. 123, Santiago, 3 May 2004. The question of the impact of international trade law on the discretion of port States observing the international law of the sea is very complex. In 2000, the European Community invoked articles V (3) and XI of the 1994 General Agreement on Tariffs and Trade (which refer to the freedom of transit and the prohibition of quantitative restrictions) when it instituted a World Trade Organization dispute settlement procedure against Chile in relation to Chile's prohibition of landings of swordfish by Spanish fishing vessels in Chilean ports. Shortly thereafter, Chile instituted a dispute settlement procedure against the Community under the Law of the Sea Convention. However, both proceedings were suspended in 2001, and there has been no definitive ruling on the matter. Given that non-discrimination is such an important rule of international trade law, the only clear determination that can be made is to emphasize the importance of applying measures in conformity with the general LOS Convention requirement of non-discrimination.

RFMO port State schemes

ICCAT has established a port inspection scheme with some minimum standards that guide inspectors as they monitor landings and transhipments, check compliance with ICCAT management measures, including quotas, and collect data and other information. Under ICCAT Recommendation 98-11 (3), landings and transhipments of all fish from vessels of non-parties are prohibited if an inspection has revealed that the vessel has on board species subject to ICCAT conservation measures unless the vessel can show that the fish were caught outside the Convention area. Parties are encouraged to enter into bilateral agreements or arrangements that provide for an inspector exchange programme designed to promote cooperation, share information and educate each party's inspectors on strategies and operations that promote compliance with ICCAT's management measures. For transhipments in ports, ICCAT has agreed on specific measures that involve designation of ports, detailed requirements for prior notification of the port State and an obligation on the port State to inspect the receiving vessel on arrival and check the cargo and documentation related to the transhipment operation.

The IOTC has also established a programme of inspection in port, instructing members to inspect documents, fishing gear and catch on board fishing vessels and to adopt regulations in accordance with international law to prohibit landings and transhipments by non-party vessels. This programme was superseded in 2005 by another programme putting more specific obligations on parties, for example follow-up actions against a flag State of IUU vessels detected during port inspections and the submission of landing information to the IOTC secretariat.

NAFO has established measures for port inspection procedures that oblige port States to inspect vessels landing fish from the NAFO area. Inspection involves verification of the species and quantities caught; cross-checking with the quantities recorded in logbooks, in catch reports on exit from the NAFO area and in reports of any other inspections carried out; and also verification of the mesh size of nets on board and the size of fish retained on board.

Trade-related measures, such as import bans, and IUU vessel lists, which require vessels to be subjected to additional inspection or even denied entry into ports, also entail obligations for port States.

In 2006, the NEAFC adopted an extended scheme of port State control for the Northeast Atlantic region. The scheme, which entered into force in May 2007, is based in part upon the FAO Model Scheme (see below). All other provisions of the scheme apply only to areas beyond national jurisdiction and to 'regulated resources', but the provisions for port State control have a much broader scope: they apply to the whole Convention area, which includes the EEZs of NEAFC parties, and to all fishery resources in that area. However, the scheme is limited to frozen catches. Parties to the NEAFC must designate a limited number of ports where landings and transhipment operations are permitted. Prior notice of entry into port is required at least three working days in advance, and it must include at least the vessel's name, external identification number, international radio call sign and flag State. The catch information must include total catch on board and catch to be landed (by species, live weight in kilos and area of capture). Authorization to land or to tranship shall be given only if the flag State of the vessel confirms in writing to the port State that the vessel has caught the fish within a sufficient quota, that the quantities have been duly reported, that the vessel was authorized to fish in the area of capture and that its presence in that area has been verified by VMS data. NEAFC parties are required to carry out a full inspection of at least 15 per cent of the landings or transhipments. There are also suggested provisions concerning the qualifications of inspectors, inspection procedures, the

obligations of the master of the vessel and inspection reports, which are based on the FAO Model Scheme. The NEAFC scheme also contains detailed procedures for infringements, which cover violations detected both at sea and in port.

The WCPFC Convention contains a specific provision on measures to be taken by the port State that uses article 23 of UNFSA as a blueprint. Work has been initiated to develop a harmonized port State scheme in the WCPFC that uses the FAO Model Scheme as its basis.

The FAO Model Scheme on Port State measures to combat illegal, unregulated and unreported fishing

In 2004, the FAO's Committee on Fisheries adopted the Port State Model Scheme (FAO, 2004). Its purpose is to describe basic and minimum port State measures to be applied through the adoption of regional memoranda of understanding, by RFMOs or by individual port States. When the Model Scheme was adopted, it was emphasized that concerted action by RFMOs in its implementation should be encouraged and that its guidelines do not prevent the adoption of additional and eventually stricter measures.

The FAO Model Scheme includes information to be required by a port State prior to allowing access to a foreign fishing vessel, designation of ports where landing might take place, port inspection procedures, result indicators of port inspections, elements of training programmes for port State inspectors and an outline of an information system on port State inspections. Importantly, it provides that 'all measures provided for under this Model Scheme should be implemented in a fair, transparent and non-discriminatory manner.' It sets out three grounds for taking enforcement measures (short of punitive or corrective action):

- When the vessel is flying the flag of a State that is not a member or a cooperating non-member of a relevant RFMO and is unable to establish that the catch was taken in a manner consistent with that RFMO's conservation and management measures;
- When there are clear grounds for believing that the vessel has engaged in or supported high seas IUU fishing; and
- When the vessel is listed on a blacklist or an IUU vessel list of an RFMO.

A study prepared for the High Seas Task Force in February 2006 found that, in general, RFMOs had made good progress towards implementation of the FAO Model Scheme but that much remained to be done, particularly in terms of making port State control mandatory and establishing procedures for denial of port access (High Seas Task Force, 2006). Nevertheless, it was agreed at the March 2007 session of the FAO Committee on Fisheries to embark upon the negotiation under FAO auspices of a legally binding agreement on port State measures, with a view to having it ready for consideration in 2009.

Trade- and market-related measures

Over the past decade, there has been a marked increase in the use of trade- and market-related measures by RFMOs. In general, trade- and market-related measures are designed to achieve one or all of the following objectives:

- To reduce the opportunities and incentives for IUU fishing by:
  - precluding or impeding access to markets for IUU product, thereby reducing profitability and, ultimately, the economic incentive for IUU fishing;
  - tracing the movements of fish products in order to identify those involved in catching, transhipping and marketing illegally caught product as a basis for imposing sanctions on them;
  - monitoring changes in the pattern of trade in order to identify flag, port and market States that can contribute to the effective implementation of conservation and management measures; and
- To improve information on fishing mortality by verifying landings by members within and outside the RFMO's area of competence and by detecting IUU-caught product.

One type of trade- or market-related measure – blacklisting vessels as a basis for imposing restrictions on the access of vessels to ports and port services – has already been considered above in relation to members of RFMOs and is considered further below in relation to non-members. Other developments include schemes that require documentation to accompany product in order to authenticate its legitimacy (catch documentation schemes) and trade bans on particular States or entities considered to have failed to cooperate in the implementation of the RFMO's conservation and management measures.

Trade-restrictive measures

The CCSBT, IATTC, ICCAT and IOTC have each adopted framework provisions enabling trade-restrictive measures to be taken against individual States. Only the CCSBT's provisions apply exclusively to non-members. In practice, the only RFMO ever to have adopted trade-restrictive measures against an individual State is ICCAT. It currently has import bans in place against two States, Bolivia and Georgia, neither of which is a member of ICCAT. It should be added that a CCAMLR provision also enables the taking of trade-restrictive measures against individual States, specifically in respect of toothfish. To date, the CCAMLR has not adopted any such measure.

In ICCAT, the decision to apply non-discriminatory trade-restrictive measures is taken only when other actions either have proved to be unsuccessful or would not be effective, and after due process. That process involves the use of measures to track imports of tuna or products of tuna and the submission of import and landings data to the ICCAT secretariat. Based on this information, ICCAT will annually identify States (parties and non-parties) that have failed to comply with relevant obligations, having taken into account the history, nature, circumstances, extent and gravity of the act or omission. These States are given an opportunity to respond, and their response is examined by the compliance committee of ICCAT. The committee may then propose the adoption of non-discriminatory trade-restrictive measures.

Catch documentation schemes

The CCSBT, ICCAT, IATTC and IOTC have all implemented catch, statistical or trade documentation schemes. The CCAMLR has established a catch documentation scheme specifically for Patagonian toothfish.

Catch documentation usually has the objective of certifying a catch at the point of landing by

verifying its origin, weight and species composition as well as whether it was taken in accordance with the conservation management regime in force. A landing that fails the certification process is then dealt with at national, regional or global level according to policies identified for IUU catches. Trade documents usually aim to track the trade cycle of fish landed in full accordance with the catch certification process, and also strive to prohibit the entry of any uncertified fish or fish product into the world market.

The CCSBT's trade information scheme requires a statistical document to be completed for all imports of southern bluefin tuna. Trade documents will not be validated and catch will not be accepted if vessels do not appear on the CCSBT's positive vessel list. ICCAT has introduced a statistical documentation programme for Atlantic bluefin tuna, bigeye tuna and swordfish, and may, as a consequence, take trade-restrictive measures against parties undermining the effectiveness of conservation measures. IATTC has introduced an SDP for bigeye tuna. This requires all bigeye imported into the territory of a party to be accompanied by a statistical document that must be validated by the flag State. The IOTC has agreed on an SDP for frozen bigeye tuna, which is required together with prior authorization for at-sea or in-port transhipments.

The CCAMLR has established a catch documentation scheme (CDS) designed to track the landings and trade flows of Patagonian toothfish caught in its area and to restrict access to markets for toothfish caught by IUU fishing. The scheme enables the Commission to identify the origin of toothfish entering the markets of all parties to the scheme and helps to determine whether the fish are caught in a manner consistent with CCAMLR provisions. The system requires specific control by port States. A fishing vessel must provide prior notification of its intention to enter port, including a declaration that it has not engaged in IUU fishing. This declaration shall also be confirmed by the flag State of the vessel, and those vessels failing to make a declaration shall be denied port access. If there is evidence that the vessel has fished in contravention of CCAMLR conservation measures, the catch shall not be allowed to be landed or transhipped. The CCSBT adopted a CDS in principle at its annual meeting in 2006.

The range of trade-related measures in place and the way they are applied continues to evolve rapidly. Given the range of factors affecting estimates of IUU fishing and the lack of reliable trend data, it is difficult to be definite about the impact of trade-related measures on IUU fishing. However, there is some evidence that where such measures have been used systematically and in conjunction with other MCS measures, there has been a reduction in estimated IUU catch. A number of recommendations of the 2006 UNFSA Review Conference supported the strengthening of trade- and market-related measures, particularly in relation to addressing IUU fishing.

RFMOs' experience to date offers three key lessons about the most effective way to apply trade- and market-related measures.

First, it is evident that an integrated approach, within and between RFMOs and including coastal, port and market States, is necessary. Cooperation will be facilitated by harmonizing measures across RFMOs or by species (for example, across the tuna RFMOs) and by broadening RFMO membership so as to accommodate all relevant flag, port and coastal States. States with cooperating non-member status should be seen as at an interim stage towards full membership. RFMOs should also ensure that there is no technical obstacle to the full membership of port and market States. Harmonization of schemes between RFMOs will facilitate the cooperation of port and market States

and their cost-effective implementation of those schemes. The need to move towards harmonization was emphasized by the first meeting of the Regional Fishery Body Secretariats Network (RSN), held under FAO auspices in March 2007. The Network acknowledged the efforts that had been made towards greater harmonization and agreed to ensure that schemes adopted by RFMOs are complementary and that information is broadly shared between RFMOs.

Second, it is essential that fish and fish products being targeted can be categorically and unequivocally defined in order to ensure that there is consistent treatment through the trade cycle. This may require that tariff codes be adjusted so that they are universal or at least recognized by all parties involved in the trade of a particular fish species or product.

Third, continuous monitoring of the patterns of trade is desirable in order to ensure that any gaps in the coverage and implementation of documentation schemes are addressed. This may mean that members and cooperating non-members are required not only to implement species-specific and product-specific trade codes but also to report more trade data to the RFMO.

Additional actions against non-compliance by members

The primary duty to implement decisions by RFMOs and to ensure that flagged vessels comply with RFMO measures lies with the flag State. The implications of this for flag States are discussed further in Chapter 6.

Article 19 of UNFSA places a series of obligations on flag States with regard to compliance and enforcement. These are an immediate and full investigation of alleged violations, prompt reporting on the progress and outcome of the investigation to the relevant RFMO and, if a serious violation has been proved, the requirement not to allow the vessel to fish on the high seas until the sanctions imposed by the flag State have been complied with. Further, the flag State must ensure that applicable sanctions are sufficiently adequate in severity to secure compliance, to discourage violations and to deprive offenders of the benefits of IUU fishing.

The provisions of article 19 have been broadly implemented by most RFMOs. It is common to find a requirement for members to take appropriate enforcement action against a vessel that has committed a serious violation of conservation measures. This action may, depending on the gravity of the offence, include fines, seizure of illegal fishing gear and catches, sequestration of the vessel, suspension or withdrawal of the authorization to fish and reduction or withdrawal of fishing quota.

In order to ensure that flag States assume responsibility and to evaluate compliance, several RFMOs have established procedures for following up on violations detected through MCS. These procedures relate, *inter alia*, to standards of investigation, reporting procedures, notification of proceedings and sanctions, and other enforcement actions.

For example, the CCAMLR, NAFO and NEAFC have established inspection and enforcement schemes that also contain regulations covering the response expected from parties whose vessels are alleged to have violated the relevant conservation and management measures. The NAFO and NEAFC schemes have procedures to deal with infringements and serious infringements, which are treated in different ways, and a requirement to follow up on all infringements by a flag State. All three schemes put clear obligations on flag States to institute proceedings, to impose adequate sanctions and

to report to the RFMO concerned on developments or conclusions. The NAFO scheme has a new element: to prescribe interim measures to be taken for certain specific offences. Actions taken (or not taken) by flag States are examined annually by the compliance committees of the respective RFMOs, and a case will remain on a committee's agenda until it is satisfied with the flag State's response. In the CCAMLR, reports on alleged infringements of conservation measures made in accordance with its system of inspection will first be forwarded to the flag State for comments. Reports and associated comments from flag States and members are considered annually, as are reports on investigations conducted by flag States and reports of any prosecutions initiated and sanctions imposed.

The most serious sanctions that can be applied collectively by the members of an RFMO are blacklisting of member vessels and quota reductions. These have been applied to a limited extent.

Blacklisting of member vessels

The CCAMLR, IATTC, ICCAT and SEAFO have each introduced systems for blacklisting vessels flying the flags of members that have been engaged in IUU fishing, but only the CCAMLR has used the system to any extent. This is in contrast to the blacklisting of non-member vessels (IUU lists), which has become a widespread practice.

As far as vessels of RFMO members are concerned, the CCAMLR's regulation contains a list of activities that are regarded as IUU fishing, such as fishing without or in contravention of a licence, unreported or misreported catches (or false declarations), fishing during closed seasons or in closed areas, using prohibited gear, transhipping or participating in joint fishing operations with or supporting or resupplying blacklisted vessels. CCAMLR parties shall take all necessary measures against listed vessels in order to prohibit the issuance of a licence to fish in waters under their jurisdiction, to refuse to grant their flag, to deny port access, to prohibit chartering and to ensure that fishing, support, bunkering and cargo vessels and mother ships flying their flag do not participate in any transhipment or joint fishing operations, support or resupply. In addition, there are specific measures concerning trade, in particular that of Patagonian toothfish. CCAMLR parties shall encourage importers, transporters and other sectors concerned to refrain from dealing with and transhipping fish caught by listed vessels, to prohibit imports, exports and re-exports of Patagonian toothfish from such vessels and to refuse to certify a shipment of Patagonian toothfish declared to have been caught by a listed vessel.

Quota reductions

When allocating quotas for future years, the CCSBT agreed in 2006 that illegal fishing by members should be taken into account. The extent to which non-compliance can undermine management measures is demonstrated by the fact that one party, identified to have been involved in substantial levels of IUU fishing over an extended period of several years, took up the whole reduction of the TAC (about 3,000 tonnes of tuna) set for the years 2007–9. The catch allocation will be reviewed in 2011, and the stock situation, new compliance measures agreed by the CCSBT and whether the party concerned has taken action deemed sufficient to ensure that all unreported catches are eliminated will be taken into account. In ICCAT, actions such as reducing existing quotas or catch limits may be implemented to the extent possible before the application of trade-restrictive measures is considered. NAFO's article 8 also permits quota adjustment, although this has never been done.

Measures by RFMOs against non-members

Many measures adopted by RFMOs can have an impact on non-members by affecting the operation of their vessels.[3] These measures include those described elsewhere in this chapter relating to, *inter alia*, port inspections, the regulation of transhipment, of chartering and of nationals and the establishment of so-called positive lists. As noted above, several RFMOs have adopted framework provisions enabling trade-restrictive measures against individual States, including non-members. In addition, many RFMOs have established regulations that provide for refusal of the landing catches by non-parties. These measures can be taken by any State individually and do not require collective action. They are included in schemes directed at non-party vessels engaged in fishing activities in the area of competence of a particular RFMO. It is presumed that a non-party vessel observed fishing in that area is undermining conservation and management measures. These vessels must be inspected before they are allowed to unload. No landings or transhipments are permitted in the port of a party unless vessels can establish that the fish were caught outside the area of application or in conformity with relevant conservation and management measures. In some RFMOs, an obligation is placed upon the vessels of members to report any sightings of vessels flying the flag of non-members in the RFMO's area of competence.

Blacklisting of non-member vessels

All RFMOs except the CCSBT and SIOFA have adopted framework provisions on the establishment of an IUU list. In all cases, the provisions are similar in structure. The list proceeds through one, two or three precursors to a confirmed list. At that point, members (and sometimes cooperating non-members) are required to impose a variety of sanctions against the listed vessels. However, there is variation in practice between RFMOs at almost every stage of the process.

There is also subtle variation in the types of activity that can lead to a vessel being placed on the precursor IUU list and in the types of action to be taken by members (and by cooperating non-members, depending on the RFMO) against listed vessels. For example, one of the activities that can lead to inclusion on the precursor list is interacting with vessels already on the IUU list. The precise type of interaction referred to varies among RFMOs. Thus the WCPFC, CCAMLR and SEAFO refer to transhipment, joint fishing operations with such vessels and the support and resupply of them. The IATTC and GFCM refer just to transhipment. ICCAT and IOTC refer to transhipment and joint operations such as resupply or refuelling.

In general, the sorts of activity that lead to possible inclusion on blacklists are consistent with those regarded as 'serious violations' under UNFSA. These include being seen engaged in illegal fishing activity; fishing with a vessel not registered on a required register; landing after being denied port access, landing or transhipment pursuant to relevant measures; fishing without quota, catch limit or effort allocation; failing to report or to record catches (or making false reports); fishing during closed seasons or in closed areas; using prohibited fishing gear transhipping to vessels on the IUU vessel list; and being without nationality. This is not an exhaustive list. In many cases, there is a catch-all of 'engagement in fishing activities contrary to any other conservation and management measures'.

The CCAMLR was the first RFMO to adopt a blacklist scheme. This sets out procedures for the establishment and maintenance of lists of fishing vessels found to have engaged in fishing activities

[3] The material in this section is largely from Owen (2007).

that have diminished the effectiveness of CCAMLR measures. IATTC, ICCAT, IOTC, NAFO, NEAFC, SEAFO and WCPFC have established similar systems, and these currently involve 85 parties to various RFMOs.

There is considerable commonality among RFMOs in terms of the actions that should be taken against vessels appearing on their lists. These measures consist of prohibiting the issuance of a licence to fish in waters under their jurisdiction; refusing to grant a flag; denying port access; prohibiting chartering; and ensuring that fishing, support, bunkering and cargo vessels and mother ships flying their flag do not participate in any transhipment or joint fishing operations, support or resupply. In addition, there are specific measures concerning trade, as discussed above.

All RFMOs have established a policy of transmitting their lists to other RFMOs, and these are put on their respective websites. One particular innovation, adopted so far only by the NEAFC and NAFO, is for vessels added to or deleted from the IUU list of one RFMO to be added to or deleted from the IUU list of the other RFMOs. In the case of NEAFC and NAFO, the NAFO measures provide for this 'unless any Contracting Party objects [on specified grounds]'. By contrast, the NEAFC measures are silent about the effect of a party objecting.

Listing of flag States

The CCAMLR has adopted a resolution on flags of non-compliance (FONC) implying that CCAMLR parties should prohibit landings and transhipments of fish and fish products from vessels flying a FONC. This suggests that all fishing vessels flying a FONC would be regarded as IUU vessels when operating in the CCAMLR area. At its annual meeting in 2006, the CCAMLR discussed the possibility of turning this into a binding measure and also strengthening its content by, for example, taking action against all vessels flying a FONC similar to those outlined above concerning individual non-party vessels. No agreement was reached, but the issue will be reviewed at the annual meeting in 2007.

Positive measures applied to non-members

The emphasis to date in most RFMOs has been on the development of measures that, in the language of article 20(7) of UNFSA, are designed to 'deter [the activities of] vessels which have engaged in activities which undermine the effectiveness of or otherwise violate the conservation and management measures' of the RFMO, pending enforcement action by the flag State. However, an equally effective strategy to secure cooperation by non-members may be to establish a range of positive incentives. It is worth noting that article 17 of UNFSA, as well as authorizing deterrent action (article 17(4)), places a concurrent obligation on non-members to cooperate with the members of the RFMO (article 17(2)). Incentives towards cooperation may be provided by the offer of substantive benefits or by policies aimed at encouraging participation.

Currently, most framework provisions on cooperation do not refer to any substantive benefits for the cooperating State or entity. This is the case with the framework provisions of the IATTC, ICCAT, IOTC, CCAMLR and GFCM. By contrast, the framework provisions of the CCSBT and NEAFC expressly foresee the possibility of cooperation quota. The WCPFC's framework provisions imply participation in the fishery.

In some cases, the treaty establishing the RFMO refers to benefits from cooperation. Thus both the WCPFC Convention and the SEAFO Convention state that cooperating non-parties 'shall enjoy

benefits from participation in the fishery commensurate with their commitment to comply with … conservation and management measures in respect of the relevant stocks'. The WCPFC Convention adds that the benefits must also be commensurate with the cooperating non-parties' 'record of compliance' with the conservation and management measures.

In practice, the CCSBT, IATTC, ICCAT, IOTC, WCPFC and NEAFC have established quota, or at least imply fishing opportunities, for one or more cooperating States, regional economic integration organizations (REIOs) or other entities. In three of these cases (IATTC, ICCAT, IOTC), the framework provisions on cooperation are, by contrast, silent on substantive benefits. The CCSBT is notable in that it also provides a relatively large catch allocation to Indonesia, which has observer status rather than cooperating non-member status.

Benefits need not arise only in the form of fishing opportunities. Cooperating non-members may be given advantages over other non-members in the application of measures generating sanctions. That is the case with certain framework provisions on trade-restrictive measures (IATTC, ICCAT, IOTC) and on the establishment of IUU lists (IOTC and GFCM). In both instances, cooperating non-members enjoy the same advantages as members. Advantages for cooperating non-members may also be created by measures establishing prohibitions (by way of example, see the measures established by ICCAT and NEAFC mentioned below).

For some States, REIOs or fishing entities, the benefit of cooperating status may come less from the allocation of fishing opportunities than from an opportunity to participate elsewhere in the supply chain, for example as a flag State to vessels involved in transhipment or resupply or as a State exporting or re-exporting fish. In the CCAMLR, for example, trade benefits may arise from participating in the CDS, but formal cooperating status is not required for that. That status may also be useful for accessing funding from the CDS Fund and being included in the list of 'States that are fully implementing the CDS' (and thus more likely to receive landings from contracting party vessels). More generally, benefits may arise in the form of technical cooperation pursuant to the CCAMLR Cooperation Enhancement Programme. This focuses on capacity-building as a means of tackling IUU fishing in certain States.

In addition, the CCAMLR has established a policy to enhance cooperation between it and non-parties. States considered to have been implicated in IUU fishing or trade are encouraged to accede to the CCAMLR Convention, to comply with their obligations as flag States and to take other appropriate actions to deter IUU fishing in the CCAMLR area.

Other RFMOs, such as NAFO and NEAFC, have by way of letters from their presidents approached the governments of vessels involved in IUU fishing. They have expressed concern about this activity and referred to the management regimes in place, including possible consequences for IUU vessels on their negative lists. Several States have also, individually or jointly, delivered letters to non-contracting parties involved in IUU fishing as diplomatic *démarches*.

Regulation of member nationals

Fishing is carried out by individuals, not by vessels. UNFSA recognizes this by encouraging States to introduce laws to prohibit their nationals from engaging in IUU fishing, even if it takes place on board a foreign vessel on the high seas or in waters under the jurisdiction of a foreign state. This is

elaborated further in the IPOA-IUU (paragraphs 18 and 19), which requires States to 'ensure that nationals subject to their jurisdiction do not support or engage in IUU fishing' and to cooperate to 'identify those nationals who are the operators or beneficial owners of vessels involved in IUU fishing'. Some RFMOs have recognized that legal or natural persons of their members operate and control IUU fishing vessels flying the flags of non-parties. It is sometimes the case too that masters and crew on those vessels are nationals of members of the RFMO and that operators under the jurisdiction of members of the RFMO are trading in illegally caught fish.

Both the CCAMLR and ICCAT addressed this problem in 2006, adopting similar schemes to promote compliance with their respective conservation measures, applicable from 1 July 2008. Under these schemes, the parties shall take measures to ensure that persons (natural and legal persons subject to their jurisdiction or operating from their territory) do not support or participate in IUU activities as described in the relevant blacklisting schemes, including by trading IUU catches or taking employment on board vessels engaged in such IUU activities, and take appropriate actions if those activities are established.

Ultimately, the extent to which RFMOs can address these issues may be limited by jurisdictional concerns. However, some States have taken action to make it a violation of their domestic laws for their nationals to engage in activities that conflict with the fisheries laws of other countries. A particularly powerful example is the Lacey Act in the United States.[4] The Lacey Act is a US statute directed at illicit trade in illegally caught fish and wildlife. The Act makes it unlawful for any person subject to the jurisdiction of the United States to 'import, export, transport, sell, receive, acquire, or purchase … any fish or wildlife taken, possessed, transported or sold in violation of any law or regulation of any State or in violation of any foreign law'. Both criminal and civil sanctions are available under the Act, as well as forfeiture of the illegally caught fish. United States prosecutors have used the Lacey Act's provisions extensively to deal with importations of illegally caught fish. In Guam and American Samoa, important ports for offloading tuna, the Lacey Act has been used to deal with violations of the laws of a number of Pacific island states.[5]

The Lacey Act approach might well be adapted to support the enforcement of internationally agreed conservation and management measures. It is easy to conceive of reciprocal regimes adopted by RFMOs whereby members of several RFMOs agree to apply similar legislative measures among themselves. On this possibility, see the model legislation prepared for the High Seas Task Force (Ortiz, 2005).

Evaluation of compliance

If MCS is to be effective, it is important that the quality of compliance should be evaluated on a regular basis. Most RFMOs have established compliance committees to review, analyse and assess the implementation of relevant conservation and management measures and to provide advice. Some RFMOs, for example the CCAMLR, NAFO and WCPFC, have developed or are in the process of

[4] 16 United States Code Section 3371 *et seq*. Originally enacted in 1900 to deal with interstate trafficking in illegally caught wildlife, the Lacey Act was supplemented in 1926 by the Black Bass Act. The two acts were joined in 1981, creating the current statute, the Lacey Act Amendments of 1981. See also Brack (2007).

[5] Provisions along the lines of the Lacey Act have been enacted by a number of other countries, including Papua New Guinea, Nauru and the Federated States of Micronesia.

developing specific systems for evaluating compliance performance. Best practice suggests that, at the very least, RFMOs should develop procedures to review and assess the effectiveness of compliance and enforcement measures on a regular basis.

International MCS Network

The International MCS Network[6] was formed in 2001 on the initiative of a small group of national enforcement agencies with a view to trying to improve the efficiency and effectiveness of MCS activities through enhanced cooperation, coordination and information collection and exchange among national bodies.

The Network has an informal, operational focus. It is not intended to replace formal government-to-government arrangements. Like Interpol and the World Customs Organization, it provides a forum for professionals to meet and discuss current MCS issues. From small beginnings, it has grown to include agencies from more than 50 countries. Some of the intended benefits from the Network include intelligence sharing, access to databases of relevant information, access to experts in a range of disciplines, access to information on fishing vessels and rapid personal contact with officers in other countries during investigations. Most importantly, the International MCS Network maintains a database of contact points for each member country and also information on domestic management arrangements and legislation.

One of the principal proposals of the High Seas Task Force was to significantly enhance the effectiveness of the International MCS Network by giving it dedicated resources and a measure of independent functioning in addition to a more sophisticated analytical capability. In this way, the Network would be able to act as a communications hub for the exchange of information between national enforcement authorities and additionally as a reference point for the collection and analysis of intelligence. Moreover, the provision of training and technical support to enforcement authorities in developing countries would dramatically improve the reach and scope of the Network. RFMOs have an important role to play in the enhanced MCS Network, both as providers of information and intelligence and as focal points for the dissemination of data and training.

[6] The International Network for the Cooperation and Coordination of Fisheries-related Monitoring, Control and Surveillance Activities.

6

Flag State Duties and their Enforcement

The primary obligation of a flag State member of an RFMO is to ensure that vessels flying its flag comply with RFMO conservation and management measures and do not undermine their effectiveness. To this end, a flag State should not authorize its vessels to fish unless it is able to exercise effectively its responsibilities towards those vessels according to the LOS Convention, UNFSA and relevant RFMO obligations. The general duties of Flag States are laid down in article 94 of the LOS Convention. Article 217 sets out specific duties in relation to pollution from vessels, and articles 117–19 lay down some general duties in regard to fishing vessels, including the duty to cooperate with other States in taking measures for the conservation of the living resources of the high seas.

These general duties have been supplemented by more detailed duties in two subsequent global treaties. First, article III of the FAO Compliance Agreement of 1993 lays down the duty to ensure that flag vessels do not undermine international conservation measures. Second, article 17 of UNFSA deals with the status of flag States that are not members of an RFMO; article 18 contains a detailed list of the duties of flag States in regard to their vessels; and article 19 requires the flag State to ensure that its vessels comply with regional conservation and management measures for straddling and highly migratory fish stocks. This duty is supplemented by article 20 (7), which authorizes members of an RFMO to take action to deter vessels that have undermined its conservation and management measures pending enforcement action by the flag State. Duties similar to those elaborated in UNFSA are also set out in article 8 of the FAO Code of Conduct for Responsible Fisheries.

RFMOs are implementing the above provisions of UNFSA progressively. The details are set out in Chapter 5, on compliance and enforcement. Many of the conservation and enforcement measures established by RFMOs put clear obligations on parties as flag States. Common phrases are 'Each Contracting Party shall ensure that vessels flying its flag …' or 'Contracting Parties shall require their vessels to…'. But there are also some measures directed at masters of fishing vessels, or even the fishing vessel itself. Typical examples are regulations for bycatch, minimum fish sizes and time and area restrictions. NAFO measures about bycatch requirements state that 'Masters shall not conduct directed fisheries for which bycatch limits apply' and NAFO measures concerning minimum fish size requirements state that 'vessels shall not retain on board …'. Another example, which applies to all RFMOs with joint inspection schemes, is the body of obligations put on masters of vessels during inspection procedures. Ultimately, however, it is the flag State that is responsible to the relevant RFMO for any failure to ensure that its measures are implemented and for the resulting violations of those measures by that State's vessels.

Under all RFMO regimes, the member flag State is required to take measures to control its vessels by means of licences, authorizations or permits and to adopt regulations that include the prohibition of fishing on the high seas without authorization and the prohibition of fishing in contravention of the terms of the licences or permits. ICCAT, NAFO and NEAFC have, for example, agreed that parties shall authorize the use of fishing vessels only if they are able to exercise effectively their

responsibilities in respect of such vessels and to ensure that their vessels comply with applicable measures adopted under the respective conventions. The SEAFO and WCPFC Conventions contain specific provisions on flag State duties that to a considerable extent comprise those duties set out in article 18 of UNFSA. NAFO is in the process of amending its Convention in order to incorporate the general flag State responsibilities as indicated in UNFSA. These are important developments: they represent widespread acceptance of article 18 of UNFSA as the benchmark for flag State responsibility.

Even though the majority of RFMOs seem to have appropriate measures in place that set out the obligations of their members as flag States, it is not always easy to judge whether or not those duties are being complied with. In particular, problems persist over the general failure of certain flag States to exercise effective jurisdiction and control over their vessels. These States include both members and non-members of RFMOs.

The existence of problems concerning flag State enforcement was noted in 2001, when the FAO IPOA-IUU mentioned the following:

> When a State fails to ensure that fishing vessels entitled to fly its flag, or, to the greatest extent possible, its nationals, do not engage in IUU fishing activities that affect fish stocks…, the member States, acting through [the RFMO] should draw the problem to the attention of that State. If the problem is not rectified, members of the organization may agree to adopt appropriate measures, through agreed procedures, in accordance with international law (FAO, 2001, para. 84).[1]

The High Seas Task Force included in its recommendations Proposal 5, to '[a]dopt and promote guidelines on flag State performance' (Ministerially-led Task Force on IUU Fishing on the High Seas, 2006). This call was repeated by the 2006 Review Conference of UNFSA in the form of a recommendation that there be developed 'appropriate processes to assess flag State performance with respect to implementing the obligations regarding fishing vessels flying its flag set out in the Agreement and other relevant international instruments …'.[2] These calls indicate that there are problems over performance – or rather the lack of performance in some instances.

In the case of *members*, political and diplomatic pressure can be applied during the regular meetings of an RFMO. If a member fails to perform its duties as a flag State under the RFMO's constitutive instruments and remains unresponsive to calls for compliance with its obligations, it may be possible for other members, preferably as a last resort, to institute proceedings before an international court or tribunal under the terms of those instruments concerning the peaceful settlement of disputes. A failure to heed calls for compliance could, under the terms of the constitutive instruments, create a legal dispute between the State concerned and the RFMO's other members.

In the case of *non-members*, the RFMO's dispute settlement arrangements would not be applicable. In a normal situation, they would not confer rights or impose obligations on non-members as third States. All too often, non-members have flagged vessels without a genuine link to the State concerned and have also given them permission to fish in an entire ocean, including the regulatory area of

[1] No examples were given of possible measures or procedures.
[2] UN Doc. A/CONF.210/2006/15, Annex, paragraph 61.

more than one RFMO, usually as part of a long-term licence.[3] In the past, the members of an RFMO have mandated the President-in-office or the Secretary-General to make a diplomatic *démarche* in the capital of the non-member State concerned on their behalf, seeking deregistration of offending vessels and a promise of no repetition. A range of trade sanctions may be available. These may have been the sort of measure contemplated in the International Plan of Action.[4]

A further possibility may exist if the flag State concerned is a party to the LOS Convention. This would be for one or more members of an RFMO which are also parties to that Convention to seek to invoke the procedures in its Part XV, sections 1 and 2. The grounds for the invocation would be that the conduct of the flag State in failing to exercise effective jurisdiction and control over its vessel(s) is considered by the applicant member(s) of the RFMO to be inconsistent with the duties of the flag State as defined in articles 94, 117, 118 and 119.[5] Article 94 requires the flag State to exercise effective jurisdiction and control over vessels flying its flag. Articles 117–19 set out the duty to cooperate over high seas fisheries and the conservation of living resources. Article 17(1) of UNFSA makes clear that a non-member of an RFMO 'is not discharged from the duty to cooperate, in accordance with the Convention and this Agreement, in the conservation and management of the … stocks …'. A maritime administration's issuance of fishing permits for an extensive area that includes an RFMO's regulatory area may be considered as a failure to cooperate with the members of the RFMO. This is because unauthorized fishing in the latter area undermines the Organization's conservation and management measures. Should the flag State invoke the freedom of fishing on the high seas under article 87(1) of the LOS Convention as part of its response to the complaint, note should be taken of article 87(2), which requires all freedoms to be exercised 'with due regard to the interests of other States in their exercise of the freedom of the high seas …'. The members of the RFMO have shown their interests by adopting the measures, and an impartial body is unlikely to consider undermining the measures to be exercising 'due regard to the interests of other States' that are members of the RFMO. Moreover, article 17(2) of UNFSA provides that a non-member of an RFMO is not to 'authorize vessels flying its flag to engage in fishing operations for the … stocks … which are subject to the conservation and management measures established by such organization …'. At bottom, of course, the case would turn upon its precise facts.

Litigation involves risks for both parties, and a decision against a flag State would damage its reputation and could make its flag less attractive. More broadly, it might amount to a precedent and strengthen the arguments of RFMOs when making diplomatic representations to other flag States.

[3] See, for example, the fishing licence for 'international waters' in the South Atlantic issued by Panama to the *Camouco* for four years. Camouco case (Panama v France), Case No. 5, ITLOS Reports 2000, p. 10, paragraph 26. When arrested, the vessel was far from the South Atlantic.

[4] See fn. 2.

[5] UNFSA also contains in Part VIII dispute settlement provisions that apply as between its States Parties. The duties of flag States are defined in articles 18 and 19 in particular. The jurisdiction of an international court or tribunal may also exist on the basis of treaties in force, including acceptances under the 'Optional Clause' of the ICJ's Statute. The FAO Compliance Agreement requires the consent of all parties to a dispute to be given after the dispute has arisen for reference of the dispute to the ICJ or ITLOS. In the case of the LOS Convention and UNFSA, consent to jurisdiction is conferred by ratification, subject to the qualifications in each treaty.

7
Decision-making

This chapter reviews the best practices in making all types of decision in RFMOs.

The different types of decision

Decisions about administrative, budgetary and procedural questions require relatively little attention here: they should be based on the constitutive instruments and rules of procedure of the regional fisheries management organization. As with other intergovernmental organizations, these types of organizational decision may take the form of resolutions, recommendations and the like. They produce legal effects, for example budget appropriations, contracts and appointments, for both the organization and its members.

By contrast, decisions about conservation and management measures are at the heart of the work of RFMOs. Their subjects vary from technical conservation and management measures, such as mesh sizes, seasons and reporting, to monitoring, enforcement and, most sensitive of all, establishing total catch limits and allocating fishing opportunities. These last decisions raise much more complex issues. It suffices to keep in mind that decisions on the size of the total allowable catch and on allocations or quotas are legally binding and can have major economic and social effects on the members of the organization and their fishing communities. There are two aspects of this decision-making. To be successful, an RFMO must have in place both *processes* for adopting decisions that are timely and effective and *criteria* for adopting decisions so that the fishery and the ecosystem over which it has jurisdiction are managed sustainably. Article 10 of UNFSA places agreeing on conservation and management measures that 'ensure the long-term sustainability' of fish stocks at the head of its list of the functions of RFMOs. And good decision-making is vital in order to come to agreement.

General principles: sovereignty and the duty to cooperate

Before examining the best practices, some legal background to decision-making will explain the wider context. RFMOs are composed of States and other subjects of international law. States are sovereign: in becoming members of an organization, States exercise their sovereignty and accept its rules. This is a case of sovereignty under the law – principally the international law of treaties and the law of the sea. In regard to fishing on the high seas, claims to sovereignty are expressly forbidden. But today, the regime of freedom of fishing is subject to so many far-reaching qualifications (the rights of others, the terms of the LOS Convention and the principles of UNFSA and the FAO Compliance Agreement) that very little of the original Grotian concept of the freedom of the high seas has survived. Further qualifications are contained in the constitutive instruments of the RFMO and the decisions of its commission.

The fundamental legal basis for the work of RFMOs is the duty of States to cooperate over the conservation and management of living resources, as laid down in the LOS Convention (especially

articles 63, 117 and 118). This broad duty clearly forms part of customary law. It has two aspects: positively, to seek to reach agreement with others concerned, and, negatively, to refrain from taking unilateral actions whether or not agreement has been reached. The positive element of seeking to reach agreement was explained by the International Court of Justice in the North Sea Continental Shelf cases: '[the parties] are under an obligation so to conduct themselves that the negotiations are meaningful, which will not be the case when either of them insists upon its own position without contemplating any modification of it' (ICJ Reports 1969, paragraph 85(b) of the Court's judgment). The negative element has a bearing on the legal situation when a dispute arises between States or when a member of an organization votes against a proposal that nonetheless attracts the necessary support to be adopted as a decision. In both situations, the duty to cooperate described above still applies, and it imposes limits on the nature and scope of any unilateral action that a disputant or an objector may take.

Recent reviews of the practice of RFMOs

In recent months, two political organs have expressed views on the operation of LOS Convention articles 63, 117 and 118. First, the 2006 UNFSA Review Conference recommended that States through RFMOs should

> ensure that post opt-out behaviour is constrained by rules to prevent opting-out parties from undermining conservation, clear processes for dispute resolution, and a description of alternative measures that will be implemented in the interim (A/CONF.210/2006/15, paragraph 32(f) of the Annex).

The Conference also called for improvement in

> the transparency of RFMOs, both in terms of decision-making that incorporates the precautionary approach and the best scientific information available and by providing reasonable participation for IGOs and NGOs through the organizations' rules and procedures (A/CONF.210/2006/15, paragraph 32(g) of the Annex).

Second, UNGA Resolution 61/105 of 8 December 2006 urged RFMOs

> to improve transparency and to ensure that their decision-making processes are fair and transparent, rely on best scientific information available, incorporate the precautionary and ecosystem approaches, address participatory rights … and strengthen … cooperation with other relevant fishery organizations … (operative paragraph 72).

Finally, the recent review of the NEAFC, having noted that decisions by qualified majority vote were adopted in practice when four of the six members voted in favour, urged the parties to ensure that conservation measures were not undermined by the objection procedure, that the dispute settlement mechanism assisted the parties to resolve differences and that there were interim arrangements in place.[1]

[1] NEAFC (2006), section 3.4, especially the Panel Comment in section 3.4.2.1.

The decision-making process

International standards

International standards for decision-making in RFMOs are set out in three provisions of UNFSA:

(1) According to article 10(j), States are to cooperate by agreeing 'on decision-making procedures which facilitate the adoption of conservation and management measures in a timely and effective manner'. In the context, the effectiveness of conservation and management measures, as well as their timeliness, should be measured against the achievement of conservation objectives in a way that is acceptable to the membership as a whole.

(2) Article 12 calls for 'transparency in the decision-making process' of RFMOs. Transparency is important because the condition of fish stocks, especially high seas stocks, is a matter of general interest: it extends beyond the member States. Clear rules are needed for the role of observers (on the issue of transparency, see Chapter 9).

(3) Article 28 notes the link between decision-making and the settlement of disputes. Thus in order to prevent disputes, RFMOs must have 'efficient and expeditious decision-making procedures' (for details on the settlement of disputes, see Chapter 8).

In general, UNFSA lays down benchmarks for decision-making designed to protect the interests of the parties and those of the wider community of States.

Some aspects of the decision-making process

There are several elements of the decision-making process: the participants; the preconditions for taking a decision; the mechanics of taking decisions; the requirement for the adoption of a decision; and the situation in which a member objects to a decision. These will be examined in turn.

Who may take part in the decision-making process?

(1) As a general rule, all members of an RFMO should be entitled to take part in decision-making. However, members that are two years behind with their financial contributions to the budget should lose their voting rights until the arrears have been paid.[2]

(2) Article 8(3) of UNFSA provides that an RFMO's members should include all coastal States situated within or facing its regulatory area and all States fishing for stocks in the area. Membership should be open to those with a real interest in the fisheries. This means that membership should be open to:

- Any State with coasts adjacent to the regulatory area;
- Any State that has fished in the regulatory area in the recent past or is engaged in fishing there at the time of application for membership; and
- Any distant water State that has international responsibility for autonomous territories within the regulatory area.

(3) Arrangements should be made to permit the participation of 'fishing entities' and regional economic integration organizations (REIOs) on appropriate terms, to be negotiated. (See

[2] This is a standard provision, based on article 19 of the UN Charter.

Table 7.1: The capacity and status of 'fishing entities' in selected RFMOs*

RFMO			*Capacity*	*Status*	*Designation*
IATTC	1949 Convention	Before 2003	None	Observer	Taiwan
		After 2003	Cooperating fishing entity	Observer	Chinese Taipei
	2003 Antigua Convention		Fishing entity	Member	Chinese Taipei
CCSBT	Commission		Fishing entity	Observer	Fishing entity of Taiwan
	Extended Commission		Fishing entity	Member of Extended Commission	Fishing entity of Taiwan
ICCAT			Cooperating fishing entity	Observer	Chinese Taipei
WCPFC			Fishing entity	Member of the Commission	Chinese Taipei
IOTC			Invited experts	N/a	Taiwan, Province of China
Interim Scientific Committee			Fishing entity	Member	Chinese Taipei

*The assistance of Prof. Nien-Tsu A. Hu, Professor of Marine Policy and Law of the Sea at National Sun Yat-sen University, Taiwan in the compilation of this table is gratefully acknowledged.
For further and more detailed discussion of the position of fishing entities, see Proceedings of the International Conference on a Decade's Practice of the Concept of Fishing Entities in International Law, *Ocean Development and International Law* (Special Edition) 37(2), April–June 2006; and Serdy (2004).

Table 7.1 for illustrations of how RFMOs have dealt with the problem of 'fishing entities'. Members which are 'fishing entities' or REIOs should have the vote.

(4) Cooperating non-members are not entitled to take part in decision-making, but they should be permitted to attend meetings of an RFMO as observers without a vote. Cooperation in such cases is either between the members of the RFMO acting jointly and the third state/entity or between the RFMO as an international person and the non-member/entity. In either case, the relationship is essentially bilateral in nature. In the light of this, one would not expect the cooperating non-member to take part in decision-making by the RFMO or by its members or to have access to the RFMO's dispute settlement mechanism. However, it is evident that in relation to cooperating non-members, RFMOs are beginning to deal with rights and obligations that have clear economic and social implications.[3] 'Cooperating status' [*sic*] may also terminate owing to non-compliance. The status of cooperating non-member, once conferred, gives some standing in regard to later decisions concerning that status, such as the rights to be informed and to be given a chance to express views on an issue. There is a case, therefore, for (a) the non-member to have a right to state its case before a decision is taken to regard it as non-compliant and for (b) there to be a way of challenging an adverse decision, including possible recourse to appropriate procedures for dispute settlement.

[3] See the supplementary report on this subject commissioned by the Independent Panel (Owen, 2007).

The preconditions for decision-making

Decision-making is a formal process that should be conducted in accordance with agreed rules. An RFMO should have provisions about decision-making in its constitutive instruments and its rules of procedure. There should be a requirement for a high quorum of the members participating before a decision can be adopted validly. All members should have one vote unless different arrangements have been agreed. If an REIO is a member of an RFMO, there should be no 'double voting' power for its members.

Some consideration may also need to be given in this regard to the voting balances between individual members of an REIO in relation to the organization itself when competency for fisheries matters has been collectively delegated to the latter. There are obvious implications should power lobbies be formed that ostensibly work as individual parties but have a collective vision which can compromise assumptions of equivalence and independence.

The mechanics of decision-making

At meetings, decisions are normally taken by the presiding officer putting a proposition to the house and asking whether everyone agrees or whether anyone objects. If appropriate, he or she will hold a vote. Votes can be cast by a show of hands, a roll-call or a recorded vote. Between meetings, there should be the possibility of holding a postal or electronic vote or convening an emergency or extraordinary meeting at the request of a member or the presiding officer. In the WCPFC, Rule 30 of the rules of procedure provides for decisions to be taken between sessions by electronic voting, for example by email or by accessing a secure website. These decisions normally relate to procedural questions, but exceptionally decisions on substantive questions may be taken if there is urgency and the decision cannot await the next session. Article XIV (8) of the NAFO convention provides for a postal vote on the question of whether to convene an ad hoc panel when a contracting party invokes the objection procedure without itself requesting an ad hoc panel.

The required level of support

Questions of procedure are best taken by a simple majority vote. The question of whether an issue is one of procedure or of substance should best be treated as one of substance.

As for questions of substance, the rules of RFMOs vary. Some provide for unanimity (IATTC). However, this rule can easily lead to paralysis if members make demands and refuse to budge in discussions, exerting a *de facto* veto. This is not best practice: further arrangements are required in order to avert a situation in which the RFMO is unable to take timely decisions and is in effect paralysed.

Several RFMOs, such as the CCAMLR, require that decisions of substance are taken by consensus. 'Consensus' is typically defined as the adoption of a decision without any vote or formal opposition voiced at the time. In a small organization, say SEAFO or the CCSBT, with three to five members, there is little alternative to working by way of consensus. Even in this context, however, there should be safeguards designed to make it more difficult for a member to claim the equivalent of a veto on decisions without engaging in any meaningful negotiation or to take unilateral action opposed by the other members. The experience of the CCSBT over Japan's experimental fishing programme illustrates the dangers. Safeguards include the use of outside facilitators or conciliators and the availability of effective dispute settlement procedures. In the CCAMLR and SEAFO, a member may go along with a consensus and then enter an objection or request a review by a panel.

In most RFMOs, there is provision for adopting proposals by means of a vote. However, the best practice is to avoid premature recourse to voting, before all possibilities of reaching consensus have been exhausted, if necessary through deferment of decisions so as to permit further consultation. This was the solution adopted at the Third UN Conference on the Law of the Sea, one that has since been followed by some of the larger RFMOs, such as the WCPFC. Efforts towards reaching a consensus should be guided by the presiding officer, but a 'neutral' conciliator or facilitator may be useful. The presiding officer should ensure that there is no premature voting. Articles 28 and 29 of UNFSA provide for the prevention of disputes by efficient and expeditious decision-making procedures and for the prompt resolution of technical disputes by ad hoc panels of experts. The involvement of neutral conciliators or expert facilitators or panels is often effective in preventing deadlock.

When decision-making does take place, the required level of support required for the adoption of a proposal should be significantly greater than a simple majority. A majority of three-quarters, or at least two-thirds, of the votes cast for or against should be necessary. In the WCPFC, a system of chambered voting exists in the sense that the three-quarters majority must include three-quarters of the members of the Forum Fisheries Agency and three-quarters of the other members; and decisions on allocation (and some other matters, such as the budget and the admission of new members) require consensus. The WCPFC and the proposed South Pacific Ocean Regional Fisheries Management Agreement both stipulate that a decision cannot be defeated by two votes or a single vote: this is an additional safeguard in the situation when several members abstain from voting or do not participate in the vote. In NAFO and NEAFC, the required majority is two-thirds of the members present and voting affirmatively or negatively – a majority at the lower end of the range of best practice.

Procedures for objection or initiating a panel review

It is an unusual feature of intergovernmental organizations in the fisheries sector that RFMOs such as ICCAT, NAFO, CCAMLR, NEAFC and SEAFO permit a member to submit an objection to a conservation or management decision. By contrast, there is no procedure for objecting to a binding decision of the Security Council under Chapter VII of the UN Charter. In an RFMO that permits them, objections are akin to reservations in the general law of treaties. An objector can opt out of a decision that it does not like in much the same way as a reserving State opts out of a provision in a treaty that it is otherwise endorsing. In simple terms, the Vienna Convention on the Law of Treaties permits a State to make a reservation to a treaty unless it falls outside a permitted range in the treaty or unless 'the reservation is incompatible with the object and purpose of the treaty'. What the permitted range is and the incompatibility test are also open to objection. As recent reviews indicate, it is very important that the objection procedure should not be used to undermine conservation. An objector remains a member of the RFMO and thus remains bound by the constitutive treaty. It also remains bound by the duty to cooperate with the other members as well as by its general obligations under the LOS Convention and UNFSA.

Not all objections are open to the charge of undermining conservation. Some RFMOs, among them the CCAMLR and SEAFO, include in their decision-making procedures a provision whereby a member which is not content with a decision may seek a review of its terms by an independent panel. And article 20(6) of the WCPFC Convention provides that a member which has voted against a decision or which was absent when the decision was made may, within 30 days of the adoption of the decision, seek a review by an independent panel. The member might have refrained from blocking consensus despite having serious doubts about the decision. If an objection is made known before a

decision has been taken and thereby triggers a process of conciliation, the objection can be viewed as no more than a stage in the decision-making process. Similarly, if an objection is submitted after a decision has been made and thereby triggers the RFMO's compulsory procedures for a binding decision by an impartial panel or tribunal, the objection is again no more than a stage in the decision-making process in its widest sense.

The objector should be required to give reasons for its objection – simply lodging one is not sufficient – and the permissible grounds should be restricted. A permissible reason is any alleged incompatibility with a provision contained in the LOS Convention, UNFSA or the RFMO's constitutive texts. Another permissible reason is alleged discrimination in form or fact against the member concerned that cannot be objectively justified. Any such allegation should be reviewed by an expert panel or by a dispute settlement panel or tribunal. Good practice is demonstrated by article 23(d) of the SEAFO Convention, which requires an objecting contracting party to give an explanation and specifies that the basis should be that the party considers the measure to be inconsistent with the Convention, that it cannot comply with it in practice, that the measure discriminates against it in form or in fact or that other special circumstances apply. Likewise, Annex II of the WCPFC Convention requires not only that the objector shall supply a statement of the grounds for objection but also that the statement shall be circulated to all members of the Commission and furthermore that any member may submit a memorandum to the review panel and shall be given an opportunity to be heard.

An RFMO following best practice should not permit an objecting member to substitute its unilateral decision for that of the majority. In many if not all instances, a unilateral claim to increase or create a quota would be incompatible with the object and purpose of the organization and would undermine the conservation measures. Such a claim might also be inconsistent with the spirit of article 8 (3–4) of UNFSA, in the sense that if a member refuses to accept and apply the conservation and management measures established by the RFMO, it should not 'have access to the resources to which those measures apply', just like a non-member. It would not be so much an exercise of the objecting State's sovereignty as its failure to cooperate with the other States. Accordingly, if an organization retains the objection procedure, the best practice is not to permit the objector to fix a unilateral quota. Instead, there should be provision for a panel to sit urgently in order to review the situation or for a dispute settlement procedure.

While an objection is being considered, there should be interim safeguards for the rights of other members and for the status of the stocks and the wider ecosystem. These interim arrangements should be decided by the RFMO, the review panel or the dispute settlement tribunal.

Substantive benchmarks for assessing best practice in decision-making

It is not enough for an RFMO to have effective decision-making processes; the actual decisions it takes must also be soundly based. UNFSA contains several general principles (article 5) and several functions of RFMOs (article 10) that together provide internationally agreed standards or benchmarks for assessing the success or failure of decision-making in the case of the various RFMOs. Thus, article 5(a) and article 10(a) both speak of ensuring the 'long-term sustainability of … stocks' and promoting 'the objective of optimum utilization'. Article 5(b) requires measures to be 'based on the best scientific evidence available', a point picked up in article 10(d). Article 5(c) calls for a precautionary approach, and paragraphs (d), (e) and (g) of article 5 point up the need to look at the ecosystem and to protect biodiversity. Articles 5(b) and 10(b) set out some factors that are to be taken into account in making allocations of catches or fishing effort.

The best practice is to incorporate these principles and functions in the constitutive instruments of RFMOs. This has been achieved in the cases of the WCPFC, NAFO and NEAFC, for example. The WCPFC and NAFO have also developed criteria for allocation.

It is beyond the scope of this chapter to attempt to assess whether or not decisions have always been soundly based on the criteria. This is an important issue because, as the annual debates in the UN General Assembly demonstrate, States retain a general interest in the health of the oceans, including the state of fish stocks. RFMOs should not take decisions that in effect legitimize fishing at unsustainable levels to the detriment of wider, long-term interests. A degree of global oversight of the work of RFMOs is carried out by the FAO through the Committee on Fisheries. More oversight may be required in future.

8

The Settlement of Disputes

This chapter examines the best arrangements for handling any legal dispute arising in an RFMO that has not been resolved by discussion and agreement. This is just one category of the various differences that might arise in an RFMO. Other kinds of difference, such as the size of TACs, are best resolved by consultations, conciliation or appropriately composed expert or technical panels. Those matters are dealt with in Chapter 7, on decision-making. This chapter is confined to differences that involve a question of interpretation or a more general question to do with the international law on the conservation or utilization of fisheries and the protection of the marine environment.

Types of legal dispute

Legal disputes include differences over

(a) The interpretation or application of the constitutive instruments of an RFMO. Potentially, this category includes disputes about rights of membership (such as the status under general international law of a member or a would-be member, or disputes about the consequences of failing to pay dues to the RFMO) and disputes about the composition of organs or the legal status or effects of decisions.

(b) The meaning of the LOS Convention (especially articles 63, 64 and 116–19) or UNFSA in relation to the work of the RFMO. Disputes in this category could arise either under the procedures in Part XV of the LOS Convention, under Part VIII of UNFSA or under the procedures of the RFMO itself. The interface between the two different systems could itself be the source of problems, for example over jurisdiction. (For this reason and others, it is most important that members of RFMOs, in response to repeated calls by the UN General Assembly, should become parties to the LOS Convention, UNFSA and the FAO Compliance Agreement.) Legal disputes between the members of an RFMO and a non-member State (for example, one whose vessels are considered to be undermining agreed conservation measures) would have to be handled under the LOS Convention or UNFSA rather than the RFMO's own mechanism because the non-member would not be bound by the latter but may be bound by one of the former. A dispute with a non-member which was not a party to the LOS Convention or UNFSA would have to tackled on the basis of customary international law and general arrangements for dispute settlement such as declarations accepting the jurisdiction of the International Court of Justice (ICJ) under the so-called Optional Clause. However, these are unlikely to be viable in many instances as they are few in number and subject to qualifications.

(c) The compatibility between conservation measures adopted within an EEZ by a coastal State and those applied in the adjacent high seas by an RFMO (article 7 of UNFSA).

Some examples of actual disputes of relevance to the work of RFMOs include:

- US action to arrest Canadian vessels taking seals in the Bering Sea contrary to US conservation measures: an arbitration in 1895 held that the United States could not lawfully exercise jurisdiction over foreign vessels on the high seas in order to enforce its conservation measures without an agreement to that effect with the flag State(s) concerned, thus the need for RFMOs.
- Canada's action in arresting the Spanish vessel *Estai* in the NAFO regulatory area beyond the 200-mile limit during the broader dispute between Canada and the EC: the ICJ held that it was without jurisdiction (Canada and Spain were not parties to the LOS Convention at the time and UNFSA had not come into force.)
- Japan's decision to conduct an experimental fishing programme unilaterally when Australia and New Zealand had rejected the proposal in the CCSBT: the International Tribunal on the Law of the Sea (ITLOS) prescribed provisional measures, including catch limits on all three parties. An arbitral tribunal held that it was without jurisdiction on account of the terms of the dispute settlement provisions in the CCSBT agreement. (All three States were parties to the LOS Convention at the relevant time, but UNFSA had not entered into force and only Australia had deposited its instrument of ratification.)
- Chile's complaint about the failure of the EC to ensure that Spanish vessels respect articles 116–19 of the LOS Convention when fishing just beyond the 200-nautical-mile limit and report catches to the competent international organization; and the EC's complaints that Chile's action in closing its ports to Spanish vessels and concluding the Galapagos Agreement are contrary to the LOS Convention: this case remains pending before ITLOS but proceedings have been suspended. (In 2000, the parties were bound by the LOS Convention, but Spain and the EC became parties to UNFSA after the case had begun and Chile is not yet a party.)

The recent examples show that actual disputes involving conservation measures and RFMOs have been submitted to international courts and tribunals. Other types of dispute, such as third-state fishing that undermines an RFMO's conservation measures, could also be dealt with by courts and tribunals.

International standards for dispute settlement in RFMOs

International standards have been established by Part VIII of UNFSA. Article 28 provides for cooperation so as to prevent disputes by adopting efficient and expeditious procedures in RFMOs for taking decisions. Clearly, it is best practice to settle differences by negotiation, conciliation or mediation rather than to incur the risks and costs in time and money of litigation. Nonetheless, there may be circumstances when a legal ruling may be the only way to resolve a difference between or among members of an RFMO or to avert unilateral action. Such a ruling may clear the air and clarify issues for the future, creating a precedent. The ready availability of a panel, court or tribunal in the final resort also adds meaning to negotiations: it encourages negotiators holding different ideas to redouble their efforts to reach an accommodation.

Article 30 of UNFSA provides in paragraphs 1 and 2 that

> 1. The provisions relating to the settlement of disputes set out in Part XV of the Convention apply *mutatis mutandis* to any dispute between States Parties to this Agreement concerning the interpretation or application of this Agreement, whether or not they are also Parties to the Convention.

> 2. The provisions relating to the settlement of disputes set out in Part XV of the Convention apply *mutatis mutandis* to any dispute between States Parties to this Agreement concerning the interpretation or application of a subregional, regional or global fisheries agreement relating to straddling fish stocks or highly migratory fish stocks to which they are parties, including any dispute concerning the conservation and management of such stocks, whether or not they are also Parties to the Convention

The effect of these provisions is to apply the arrangements in Part XV of the LOS Convention to several categories of dispute arising partly outside the scope of the Convention itself, including disputes about UNFSA, about the terms of the constitutive instruments of an RFMO or about conservation or management measures taken by an RFMO. In simple terms, Part XV provides for compulsory procedures leading to a binding decision by recourse to the ICJ or ITLOS or to arbitration or special arbitration when no settlement has been reached by recourse to other means, including negotiation, conciliation or other means agreed by the parties.

Paragraph 2 of article 30 is a remarkable provision. It has the effect of supplementing the arrangements, if any, of existing and future RFMOs for handling disputes that may arise among their members which are also parties to UNFSA. The paragraph reflects the policy of the negotiating States at the Conference in 1995 that there should be effective arrangements in RFMOs for the settlement of disputes. However, it applies only to disputes between parties to UNFSA, and at May 2007 there were 66 parties, including coastal States and distant water and flag States. As a result, there remain RFMOs with members which are not yet parties to UNFSA. Accordingly, the better practice is for each RFMO to adopt its own specific arrangements rather than to rely on UNFSA. A simple way to achieve a satisfactory result was found in the WCPFC Convention, article 31 of which provides that '[t]he provisions relating to the settlement of disputes set out in Part VIII of the Agreement apply, *mutatis mutandis*, to any dispute between members of the Commission whether or not they are also Parties to the Agreement.'

If detailed arrangements are adopted, they should be structured in such a way as to follow on from the decision-making arrangements and review panels, as is being done by NAFO. Article XV, paragraph 3 of the NAFO Convention provides that disputes about adopted measures or objections to them are to be considered first by a non-binding ad hoc panel as a matter of urgency. If its recommendations are accepted, they are to be implemented also without delay. If the panel's report is not accepted, any party may refer the dispute to a binding settlement procedure, as provided for in paragraph 5. This paragraph applies the binding procedures set out in Part XV of the LOS Convention and Part VIII of UNFSA to disputes in NAFO. As a result, a future dispute about conservation measures or objections arising between Canada and Spain/the EC, for example, could be referred by either side to a settlement procedure based on the substantive terms and provisions of the LOS Convention and UNFSA for a binding decision, unlike in the case of the *Estai*.

A further qualification to the LOS Convention scheme of dispute settlement arose in the Southern Bluefin Tuna (SBT) litigation when the arbitral tribunal established under Annex VII of the Convention held that the combined effect of article 281 of the Convention and the disputes settlement article in the CCSBT Agreement deprived it of jurisdiction. The CCSBT Agreement, concluded after the LOS Convention, does not provide for compulsory procedures, and the arbitral tribunal found that its disputes article implicitly excludes further procedures under the Convention. Something may

have turned upon the precise facts of the case, so that it may not become a precedent, but in any case this model cannot be recommended. There remains the interesting question of whether the decision would be different today now that the three States are all parties to UNFSA. The important point for RFMOs is that their dispute settlement arrangements should not reduce the scope of the possibilities below the level of the benchmark set in UNFSA. In this regard, the best practice is represented by the recent amendments to the NAFO Agreement in article XV(7), which provides that nothing in the NAFO Convention prevents a party that is already bound by the LOS Convention or UNFSA from submitting a dispute to the binding procedures in the Convention or UNFSA, as the case may be. In other words, the result produced by applying the wording of the disputes article in the CCSBT Convention in the SBT arbitration could not be repeated in the context of NAFO.

Standing versus ad hoc courts and tribunals

Existing practice in RFMOs gives examples of the use of ad hoc panels. Its advantage is that their members can be selected from among a pool of persons who are familiar with the types of issue at stake. Technical issues are best dealt with by technical experts. In the case of legal issues, different considerations apply. International law has become much more detailed, especially in the case of the law of the sea. Legal decisions often have wide implications or create precedents. Great care and expertise are needed in order to judge the facts and the law justly and successfully. Part XV of the LOS Convention provides for recourse to the ICJ or ITLOS. Standing courts and tribunals have advantages in that the judges have an overview of the relevant law, including the relevant conventions, because they are already familiar with it. They can also create a chamber of three or five members very quickly (the Swordfish case is before a chamber of ITLOS). When there is a general issue of great legal significance, it may be best to submit it to the full body. The LOS Convention provides for ad hoc arbitration under Annex VII and Annex VIII. The advantage is that the parties can choose all the members.

Advisory opinions

The ICJ and ITLOS are both able to give advisory opinions on specific legal questions if requested by a competent body in the case of the ICJ or if the members of an RFMO so agree in the case of the Tribunal. Ideally, an RFMO should have some standing arrangement in its constitutive instruments for seeking advisory opinions from a suitable judicial body on legal questions arising in the course of its work. This arrangement could exist alongside arrangements for the settlement of disputes. In the case of the ICJ, requests for advisory opinions may have to be channelled through the FAO as the competent specialized agency for international fisheries matters. In the case of ITLOS, Rule 138 provides that '[t]he Tribunal may give an advisory opinion on a legal question if an international agreement related to the purposes of the [LOS] Convention specifically provides for the submission to the Tribunal of a request for such an opinion.' It may be recalled that in regard to disputes concerning the non-living resources of the deep seabed, the Tribunal's Seabed Disputes Chamber is competent both to determine disputes and to give advisory opinions under articles 187 and 191 of the LOS Convention. The Chamber is also open to contractors involved in disputes with the International Seabed Authority.

Looking to the future

In the past, the International Court of Justice exercised specific powers of judicial review concerning decisions of the UN Administrative Tribunal (UNAT) in staff cases.[1] These were not appeals against the decisions of UNAT. Instead, the ICJ reviewed the decision-making process in order to ensure that UNAT had acted legally and maintained procedural fairness. A UN member state, the UN Secretary General or an aggrieved staff member was entitled to move a UN committee to seek a review by the ICJ of decisions by UNAT on the grounds that the latter had exceeded its jurisdiction, had failed to exercise its jurisdiction, had erred on a question of law related to the UN Charter or had committed a procedural error. Several cases were referred to the ICJ by the UN committee over the years, and eventually a new system was introduced.

Contested decisions of RFMOs could also be made subject to judicial review (not necessarily by the ICJ). RFMOs may be considered to be public bodies on the intergovernmental level. At present, such arrangements for the review of the decisions of such intergovernmental bodies as exist are characterized in terms of 'disputes', resulting in contentious cases. These are disputes between sovereign states that often give rise to much wider diplomatic and political questions than the actual issues at stake. Judicial review is a less confrontational form of litigation compared with such cases.

Judicial review at the national level means that the courts examine an act of a public body with a view to determining whether or not the act is consistent with the applicable rules of law. It may involve questions such as whether decisions were properly taken under the applicable rules, whether powers were properly exercised, whether new legislation is compatible with international standards in treaties in force or whether discrimination was objectively justified in the prevailing circumstances. Tests of reasonableness and fairness, including procedural fairness, are typically applied to public decision-making as part of the rule of law. In some countries, public interest organizations, including trade associations and environmental NGOs, have standing that enables them to seek judicial review of decisions by public bodies of all kinds or to participate in cases by submitting evidence and argument on points to do with the public interest. Recently, for instance, several shipping organizations sought judicial review by the High Court in London of the EC Directive on Ship-Source Pollution, having regard to the terms of the International Convention for the Prevention of Pollution from Ships (MARPOL) and the LOS Convention that are applicable to the EU and, in particular, to ships flying the flags of all its member States. Questions were referred to the European Court of Justice for a ruling, including the question of whether the Directive was consistent with MARPOL and the LOS Convention.[2]

International courts and tribunals would also be able to perform such functions in regard to the decisions of RFMOs. For example, an application for judicial review of a decision could be based on its alleged incompatibility with the RFMO's constituent instruments, with a procedural rule (such as a voting rule or a charge of procedural unfairness) or with the terms of the LOS Convention or UNFSA. This procedure would allow for the general public interest to be presented and taken into account, something lacking in courts' classic handling of bilateral disputes. In the context of RFMOs,

[1] For a review of the experience, see Kaikobad (2000).

[2] R. (Intertanko and others) v. Secretary of State for Transport [2006] EWHC 1577 (Admin): Judgment of Hodge J. of 30 June 2006. The case is pending before the ECJ in Luxembourg.

judicial review would extend to questions of procedural propriety and to questions of the consistency between a decision and the RFMO's constitutive instruments, the LOS Convention and UNFSA. Several practical issues, for instance the role of the RFMO's secretariat in defending the original decision and the rights of individual members and observers to present evidence and argument, would have to be clarified.

The position remains that there is at present little experience of judicial review at the interstate level and that there is no 'best practice' in RFMOs. Nonetheless, RFMOs could usefully include the possibility of creating a system of judicial review in any reconsideration of their arrangements for handling legal differences. Such a system could exist alongside existing arrangements for the peaceful settlement of disputes.

9

Transparency

This chapter deals with the issue of transparency. Traditionally, much of the focus concerning transparency in RFMOs has been on ensuring adequate participation in their work by non-State actors, that is intergovernmental organizations (IGOs) but especially non-governmental organizations (NGOs). However, the concept of transparency, or 'environmental democracy', goes much further than that. Principle 10 of the Rio Declaration, for example, states that

> Environmental issues are best handled with participation of all concerned citizens, at the relevant level. At the national level, each individual shall have appropriate access to information concerning the environment that is held by public authorities, including information on hazardous materials and activities in their communities, and the opportunity to participate in decision-making processes. States shall facilitate and encourage public awareness and participation by making information widely available. Effective access to judicial and administrative proceedings, including redress and remedy, shall be provided.

The implications of this statement of principle have been elaborated in the Aarhus Convention.[1] This convention stands on three pillars: access to full, up-to-date and accurate information, public participation in decision-making and access to justice. Each party to the Convention (40 as of May 2007) is to promote the application of these principles in all international environmental decision-making processes and within the framework of international organizations in matters relating to the environment.

Although not all members of RFMOs are parties to the Aarhus Convention, it is nonetheless useful to consider the issue of transparency as it relates to RFMOs under the headings of the three pillars of the Convention. The question of access to justice is fully considered in Chapter 8, on the settlement of disputes. This chapter therefore covers the issues of access to information and transparency in decision-making.

This categorization of the issues is also consistent with the approach taken in UNFSA, article 12, which is headed 'Transparency in activities of subregional and regional fisheries management organizations and arrangements' and which provides as follows:

> 1. States shall provide for transparency in the decision-making process and other activities of subregional and regional fisheries management organizations and arrangements.
>
> 2. Representatives from other intergovernmental organizations and representatives from non-governmental organizations concerned with straddling fish stocks and highly migratory fish stocks shall be afforded the opportunity to take part in meetings of subregional

[1] The Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters, adopted by the Fourth Ministerial Conference 'Environment for Europe' at Aarhus, Denmark on 25 June 1998 (entered into force on 30 October 2001).

> and regional fisheries management organizations and arrangements as observers or otherwise, as appropriate, in accordance with the procedures of the organization or arrangement concerned. Such procedures shall not be unduly restrictive in this respect. Such intergovernmental organizations and non-governmental organizations shall have timely access to the records and reports of such organizations and arrangements, subject to the procedural rules on access to them.

These issues are somewhat interlinked, as the report of the 2006 UNFSA Review Conference noted when, in paragraph 32(g) of the Annex, it called for improvement in 'the transparency of RFMOs, both in terms of decision-making that incorporates the precautionary approach and the best scientific information available and by providing reasonable participation for IGOs and NGOs through the organizations' rules and procedures.'

Transparency in decision-making processes

The question of who may participate in decision-making, as well as the mechanics of decision-making, is discussed in Chapter 7 and does not need further discussion here. It is important, nonetheless, that decision-making is also transparent, in that it takes place in a reasonably public manner and that decisions, and the reasons for them, are made known.

Experience suggests that when highly contentious issues are under consideration, there is a tendency for RFMOs to fall back on provisions that allow the exclusion of observers from deliberations. For example, the CCAMLR has for the most part included both conservation and industry NGOs at its meetings, and also those of its subcommittees, and it has welcomed the submission and presentation of information papers by observers, but it has retained the practice of holding the detailed negotiation of conservation and management measures in closed session. It is critical that transparency applies to important decisions that are likely to be contentious, particularly those relating to conservation and management measures, not just operational issues. Provisions allowing for closed sessions should be removed or should at least require that a large majority of members support exclusion and that a rationale for the decision is recorded in the report of the meeting.

Transparency also extends to making sure that all members are fully informed of the issues under consideration and are able to participate in informed decision-making. The annual calendar of RFMO meetings is already crowded, especially when the intersessional meetings of various scientific, compliance and technical sub-committees are taken into account. Unless carefully managed, this devolution of responsibility could make the basis for conservation and management measures somewhat opaque. This may be an issue particularly for developing countries, whose capacity to attend and participate in meetings of technical committees is likely to be limited. For this reason, some RFMOs (such as ICCAT) ensure that final decisions and the adoption of management recommendations may be made only in plenary at the annual meeting. This approach is recommended as best practice.

An emerging trend in RFMOs is for there to be established within the overarching treaty structure specialized committees that consider and provide recommendations on conservation and management measures for specific stocks or in a specific area. An example is the 'Northern Committee' of the WCPFC, created to make recommendations on the implementation of conservation and management

measures adopted by the Commission for waters north of 20°N and for stocks that occur mostly in that area. A similar approach has been promoted for the proposed South Pacific RFMO: two subregional management committees would be established, with membership limited to coastal States and States fishing in the relevant waters and other members attending as observers.

The rationale for this approach is twofold. First, it assumes that States fishing or located in an area will have a better understanding of the status of the fishery and the suitability of certain management measures. Thus efficiencies will be gained from confining detailed discussions to those parties. The second reason is the cost savings gained from limiting the participants in the negotiations. Although these approaches may be sound in principle, the rules of procedure and consultative processes for determining agendas and the timing of meetings must be modelled so as to ensure that there is full transparency in the deliberations of those committees as the basis for conservation and management measures.

Participation and access to information

Participation covers two distinct categories of entity. First, there is the question of participation by non-contracting parties as simple observers, as cooperating non-members or as fishing entities. Second, there is the question of participation by IGOs and NGOs.

Participation by non-contracting parties

Non-contracting parties may participate in the work of RFMOs either as observers or, increasingly, as cooperating non-members.

It is common for provisions relating to (States') observer status to be set out in rules of procedure. For example, ICCAT's rules of procedure state that the Commission may invite 'any Government which is a Member of the United Nations or of any Specialized Agency of the United Nations and which is not a member of the Commission, to send observers to its meetings'. The rules of procedure of the IOTC and the GFCM are similar regarding the potential categories of observer. In short, there is provision for any State to be invited to attend as an observer as long as it is a member or an associate member of the FAO, a member of the UN or a member of any of the UN's specialized agencies or the IAEA. The rules of other RFMOs, such as the WCFPC, require observers to be admitted with the consent of the Commission.

Cooperating non-party status, although referred to in different ways ('cooperating non-Party', 'cooperating non-member', 'Cooperating non-Contracting Party'), is to be distinguished from simple observer status. A number of RFMOs have adopted framework provisions on cooperation. There are significant differences between the framework provisions and practices of RFMOs, but there are also a number of common elements. The latter include (a) the requirement of an invitation from the Commission to non-members conducting relevant fishing to apply for cooperating status; (b) an annual deadline for the application, whether in response to the invitation or otherwise; (c) a statement of the information and commitments to be given by the applicant; and (d) an advisory role for the RFMO's compliance body and a statement of the factors to be taken into account in decision-making (Owen, 2007).

Participation by IGOs and NGOs

All RFMOs have provisions on the participation of observers in their activities. Provisions governing attendance and participation in an RFMO's activities by IGOs and NGOs are usually set out in the rules of procedure. In some of the more recently established (that is, post-UNFSA) RFMOs, general principles about transparency are included in the constituent instrument. For example, both the WCPFC and IATTC's Antigua Convention reflect the basic requirement under UNFSA for there to be transparency in the activities of the RFMO. The detail of things such as the nature of applications to become an observer, the timelines for decisions to be taken on attendance and the basis for rejecting an application to observe are contained in the rules of procedure of the organization.

Regardless of their form, there is wide variation in how permissive or restrictive the provisions on observers are. In some cases, provision has been made relatively recently. For example, the NEAFC first made provision for the attendance of NGO observers in 2001. Restrictions pertain to the obligations (such as the length of time required prior to the meeting for the submission of applications to attend, the nature and extent of the information required to support the application and provisions under which an application can be rejected and fees paid) and the rights of observers (such as access to specified meetings, leave to address meetings and circulate documents and the nature and timing of access to meeting documents).

At one end of the spectrum, the CCSBT imposes very restrictive provisions. Among them are that there is a very long lead time for applications to attend; that applications can be rejected on the basis of an objection by a single member; that applicants must have special competence concerning southern bluefin tuna or be competent to contribute to the attainment of the objectives of the Commission; and that observers can be excluded from a session of the Commission at the request of a single member. Given these arrangements, it is not surprising that NGOs, for example, have attended the CCSBT only as part of some national delegations rather than as observers in their own right. Greenpeace has twice applied, unsuccessfully, for observer status (Greenpeace, 1998). However, as no application has been made in recent years, it remains to be seen how one would now be assessed. (It should be noted that the past practice mentioned dates from an era before the main parties to the CCSBT had ratified UNFSA. Presumably, any application for observer status made now would be assessed in the light of article 12 of UNFSA.)

At the other end of the spectrum, the WCPFC Convention specifically provides for the participation of a range of intergovernmental organizations (the FAO, other RFMOs and relevant regional organizations) in meetings of the Commission and its subsidiary bodies. This participation includes entering into relationship agreements where necessary in order to obtain the best available scientific information and to further attain the objectives of the Convention (article 22). Provisions on the participation of NGOs appear in the rules of procedure. Applications are subject to 50 days' notice. The rejection of an application requires objections by a majority of members. Once granted, observer status remains in effect unless decided otherwise by the Commission. NGO observers may also make spoken and written statements to the meetings with the approval of the Chairman. Observers appear to have the same rights of access to documents as do members. Experience at WCPFC meetings to date indicates that there has been active participation by observers and that no application has been refused (Willock and Lack, 2006).

Very similar practices are applied by ICCAT and IATTC. In ICCAT, observers are admitted under rule 5 of the rules of procedure. Criteria and guidelines have been developed for the admittance of

non-contracting parties, IGOs and NGOs in order to ensure transparency and equal treatment. As in the WCPFC, observers are not required to reapply annually after the grant of observer status, and they may also present statements and documents to the meetings of the Commission and its subsidiary bodies.

Some of the recent initiatives taken to improve transparency in RFMO activities and decision-making include:

- Increasing the proportion of objecting members required to reject an application to observe (NEAFC, NAFO and ICCAT);
- Providing for longer-term participation by observers (WCPFC and ICCAT);
- Removing or reducing the burden of justification required for observer status (IATTC and WCPFC); and
- Providing observers with the same access to documents as members (CCAMLR, ICCAT, NEAFC, NAFO and WCPFC).

A very important indicator of transparency is the extent to which there is public access to meetings documents, to reports and to conservation and management measures. Although access varies considerably across RFMOs, new technology has greatly improved the timeliness and accessibility of documents and data, particularly on websites. Most RFMOs now have a publicly accessible website with up-to-date information on issues such as membership, stock status, conservation and management measures and also reports of meetings of decision-making, scientific and technical advisory bodies. More and more, these websites provide access to summary catch and effort data, authorized vessel lists and IUU lists (see Chapter 5). Increasingly too, enhanced cooperation between RFMOs in areas such as monitoring, control and surveillance and as a response to IUU fishing has resulted in improved transparency. A good example is the creation of the website http://www.tuna-org.org as a forum for sharing information from tuna RFMOs (CCSBT, IATTC, ICCAT, IOTC and WCPFC).

Public access to background and working papers is less common. However, NAFO, IATTC and WCPFC have provided a good level of access to these documents. As for access to these documents by observers, the CCAMLR has a system whereby once admitted as an observer, the relevant organization is provided with a password that enables access to documents, background papers and committee reports that are to be considered at Commission meetings.

Access to data from catch documentation and trade information schemes such as those operated by the CCAMLR and CCSBT is partly restricted. There is often good reason for this, such as to prevent fraud or forgery, as well as to safeguard confidential or commercially sensitive information. For the same reasons, several RFMOs, including ICCAT and CCAMLR, have established password-protected areas on their websites that are accessible to commissioners, heads of delegations or other authorized persons. These practices are not incompatible with transparency (because they are necessary and justified) as long as they are not applied simply in order to frustrate timely access to documents and meetings papers.

Conclusion

RFMO members and secretariats have at times been frustrated by a lack of accuracy in the reporting of their measures by external organizations or by what is perceived to be a limited understanding of their organization, including by some conservation NGOs. There is equally frustration on the part of NGOs, which are unable to access information upon which Commission decisions have been based or, in some cases, the decision itself. Although some RFMOs have been slow to embrace a more transparent and inclusive approach to their work, there are signs that they are moving in this direction, although often in iterative stages.

Growing cooperation between RFMOs in areas such as monitoring, control and surveillance as a response to IUU fishing may prove to be the vanguard for promoting the exchange of best practices across a range of areas of responsibility. Providing for transparency in the activities of RFMOs could be viewed as one of these best practices. Two related factors arguably prompting moves to increase transparency in RFMOs' activities and decision-making are the increasing focus on their performance and calls for performance review processes to be implemented. Although discussions continue about the most effective manner in which to undertake reviews of RFMOs' performance, and specifically about the extent of independent involvement in the review process, it will nevertheless be crucial that the basis for reviews and their outcomes are made readily and publicly available.

10

The Special Requirements of Developing States

One of the crucial challenges in developing UNFSA was how to resolve growing tensions between coastal developing States' interests in exploiting straddling and highly migratory fish stocks in areas under their jurisdiction and distant water fishing countries' interests in the same stocks on the high seas. The resolution of these disparate and often conflicting interests was central to the Agreement and is indeed the primary focus of article 7, which deals with the compatibility of conservation and management measures.

Equally important, however, is Part VII of the Agreement, which aims to address in specific and proactive terms the special needs of developing States. In doing so, it draws attention to the vulnerability of developing States, their particular dependence on fish for nutritional requirements and the importance of access to fisheries by 'subsistence, small-scale and artisanal fishers and women fishworkers, as well as indigenous people in developing States'. At the same time, Part VII emphasizes the need to make certain that in setting conservation and management measures for straddling fish stocks and highly migratory fish stocks, States will take into account the need to ensure that those measures do not result in transferring a disproportionate burden of conservation action on to developing States. The measure of what is 'disproportionate' is largely undefined, as noted below, and susceptible to subjective interpretation, but it clearly cannot mean no burden at all. It is worth noting the provisions of Part VII in full (see Box 10.1).

Implementation of the provisions of Part VII has been recognized as fundamentally important to the successful implementation of UNFSA (United Nations, 2006a). These provisions amount to an implicit recognition that the lack of capacity, or limited capacity, in many developing States is a serious impediment to effective conservation and management of straddling and highly migratory fish stocks. They also highlight the need to enhance the ability of developing States to participate effectively in cooperative arrangements aimed at conservation and management of those fish stocks. Issues of capacity-building and institutional change (good governance) are of course essential to development regardless of sector. However, the purpose of this chapter is to examine the content of Part VII's requirements as they relate specifically to RFMOs and to consider the way in which they have been applied to date by and through RFMOs.

The requirements of Part VII as applied to RFMOs

In broad terms, Part VII seeks a commitment from States and international organizations to take into account the special requirements of developing States and sets forth the objectives of enhanced cooperation with developing States and the ways in which specific forms of assistance might best be given.

The Agreement recognizes that developing States have special requirements in relation both to the conservation and management of straddling and highly migratory fish stocks and to the development

Box 10.1: UNFSA Part VII

AGREEMENT FOR THE IMPLEMENTATION OF THE PROVISIONS OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA OF 10 DECEMBER 1982 RELATING TO THE CONSERVATION AND MANAGEMENT OF STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS

PART VII: REQUIREMENTS OF DEVELOPING STATES

Article 24

Recognition of the special requirements of developing States

1. States shall give full recognition to the special requirements of developing States in relation to conservation and management of straddling fish stocks and highly migratory fish stocks and development of fisheries for such stocks. To this end, States shall, either directly or through the United Nations Development Programme, the Food and Agriculture Organization of the United Nations and other specialized agencies, the Global Environment Facility, the Commission on Sustainable Development and other appropriate international and regional organizations and bodies, provide assistance to developing States.
2. In giving effect to the duty to cooperate in the establishment of conservation and management measures for straddling fish stocks and highly migratory fish stocks, States shall take into account the special requirements of developing States, in particular:
   (a) the vulnerability of developing States which are dependent on the exploitation of living marine resources, including for meeting the nutritional requirements of their populations or parts thereof;
   (b) the need to avoid adverse impacts on, and ensure access to fisheries by, subsistence, small-scale and artisanal fishers and women fishworkers, as well as indigenous people in developing States, particularly small island developing States; and
   (c) the need to ensure that such measures do not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing States.

Article 25

Forms of cooperation with developing States

1. States shall cooperate, either directly or through subregional, regional or global organizations:
   (a) to enhance the ability of developing States, in particular the least-developed among them and small island developing States, to conserve and manage straddling fish stocks and highly migratory fish stocks and to develop their own fisheries for such stocks;
   (b) to assist developing States, in particular the least-developed among them and small island developing States, to enable them to participate in high seas fisheries for such stocks, including facilitating access to such fisheries subject to articles 5 and 11; and
   (c) to facilitate the participation of developing States in subregional and regional fisheries management organizations and arrangements.
2. Cooperation with developing States for the purposes set out in this article shall include the provision of financial assistance, assistance relating to human resources development, technical assistance, transfer of technology, including through joint venture arrangements, and advisory and consultative services.

3. Such assistance shall, inter alia, be directed specifically towards:
   (a) improved conservation and management of straddling fish stocks and highly migratory fish stocks through collection, reporting, verification, exchange and analysis of fisheries data and related information;
   (b) stock assessment and scientific research; and
   (c) monitoring, control, surveillance, compliance and enforcement, including training and capacity-building at the local level, development and funding of national and regional observer programmes and access to technology and equipment.

Article 26

Special assistance in the implementation of this Agreement

1. States shall cooperate to establish special funds to assist developing States in the implementation of this Agreement, including assisting developing States to meet the costs involved in any proceedings for the settlement of disputes to which they may be parties.

2. States and international organizations should assist developing States in establishing new subregional or regional fisheries management organizations or arrangements, or in strengthening existing organizations or arrangements, for the conservation and management of straddling fish stocks and highly migratory fish stocks.

of fisheries for those stocks. But unlike many international instruments,[1] the Agreement gives detailed guidance as to how the nature and extent of those special requirements might be identified and quantified. The way in which States would recognize special requirements will vary depending on the nature and degree of the impact of the fisheries on developing States. The elements that need to be considered are specified in article 24(2), and include:

- Vulnerability, which may be defined in terms of economic dependence or the degree to which fisheries meet the nutritional requirements of the populations;
- The degree of impact on subsistence, small-scale and artisanal fishers, women fishworkers and indigenous people; and
- The extent to which conservation and management measures may transfer a disproportionate burden of conservation action on to developing States.

In a study prepared for the General Assembly of the United Nations in 2002, IDDRA (the Institute for Sustainable Development and Aquatic Resources) suggests that defining the nature and degree of impact is critical as a precursor to identifying and prioritizing effective means of intervention through which to achieve the objectives set out in articles 25 and 26 of UNFSA (IDDRA, 2002). Case studies demonstrate that the nature of impact varies widely, from primary dependence for nutritional purposes (as in the South Pacific) to marginal (as in the larger Caribbean states).[2] In many cases, including the Caribbean and south-eastern Africa, there is a lack of data from which to quantify either the level of dependence or the potential economic benefits from these fisheries.

[1] For example, the FAO Code of Conduct, which contains only one brief article on the special requirements of developing countries (article 5).

[2] The case studies referred to are annexed to the cited IDDRA study and cover the Pacific islands, the South East Atlantic, the Caribbean and the South East Pacific.

This problem was also addressed in an analysis of the impacts of IUU fishing on developing countries prepared for the High Seas Task Force in 2005 (MRAG, 2005). The analysis attempted to assess impacts in terms of lost government income (contribution to GNP), loss of sustainable livelihoods (contribution to food security and per capita consumption of fish protein) and cost-benefit. It noted that impacts varied widely in different regions and different fisheries but also that there was a striking relationship between levels of governance and levels of vulnerability to IUU.

The objectives to be achieved from enhanced forms of cooperation between developed and developing States are set out in articles 25 and 26 of UNFSA. These, and some of the key relevant considerations that the Panel suggests ought to be taken into account by RFMOs in implementing their provisions, are set out in Table 10.1.

In addition to establishing the objectives of assistance to developing States, Part VII provides guidance on the kinds of assistance that might be provided. Article 25(2), for example, states that cooperation shall include the provision of financial assistance, assistance relating to human resources development and technical assistance and the transfer of technology, including through joint venture arrangements and advisory and consultative services. Article 25(3) states that this assistance shall be directed towards, *inter alia*: 1) improving the collection, reporting, verification, exchange and analysis of fisheries data and related information; 2) stock assessment and scientific research; and 3) training and capacity-building for monitoring, control, surveillance, compliance and enforcement at the local level, as well as the development and funding of national and regional observer programmes and access to technology and equipment. One reason for the emphasis on capacity-building may be that it is not in the interest of RFMOs to be bordered by the EEZs of non-parties, especially those of developing states with a limited capacity for managing fishing in their waters.

Nevertheless, the list as it stands is very limited, and the words '*inter alia*' are therefore very important to clarify that it is not exclusive. One of the main conclusions of the IDDRA report referred to above was that as it is in the interest of developing States that UNFSA succeeds, so it is in their interest too that the scope of assistance under the Agreement should be broadened significantly. Article 25 (3) should therefore be read in the context of the whole article. The list does not contain, for instance, assistance directed at managing resources in different ways and investigating methods of sharing the benefits of better management among different countries.

In the RFMO context, experience from EEZ-based fishery management suggests very strongly that unless these fundamental issues are addressed, management based on data collection, stock assessment and MCS is doomed to failure. For this reason, it is essential that RFMOs have in place policies and procedures to identify and document the benefits obtainable from relevant fish stocks so that developing State policy-makers can make informed and appropriate policy decisions. Both the IDDRA study and the MRAG study cited above contain valuable recommendations emphasizing the need to direct assistance at improving institutional capacity and creating more effective regional management bodies. MRAG in particular highlights the significant long-term resource, ecosystem and economic benefits that can be derived from relatively modest investment in fisheries management systems in developing countries.

Table 10.1: Special requirements of developing states under UNFSA Articles 25 and 26: considerations for RFMOs

Objective	*Relevant considerations in implementation*	*Implications for RFMOs*
(i) Enhance the ability of developing States to conserve and manage straddling and highly migratory fish stocks and to develop their own fisheries for such stocks (Article 25(1)(a)).	There is an implicit assumption that the developing States in question require the ability to conserve and manage the two types of stock. This may not be true if developing States are equally able to obtain appropriate conservation and management arrangements from other institutions, notably RFMOs. Where the assumption is true, it raises the question as to the type of ability that is required. Whether it is appropriate to develop their own fisheries for such stocks depends on accurate quantification of the nature of the benefits obtainable from them and the equitable sharing of such benefits. This may or may not require direct participation in the fishing activity itself.	RFMOs need to have policies and procedures in place to identify and document the benefits obtainable from relevant fish stocks so that developing States' policy-makers can make informed and appropriate policy decisions. It is quite clear that ignoring weak fisheries management of straddling or migratory stocks by States within RFMO waters or adjacent to them will undermine attempts by RFMOs to manage their stocks, either by not applying measures consistent with those in the RFMO or by becoming a haven to IUU fishing.
(ii) Assist developing States to participate in high seas fisheries for straddling and highly migratory fish stocks and facilitate their access to such fisheries (Article 25(1)(b)).	The appropriateness of this objective depends on quantifying the benefits that can be obtained from exploiting the resource under different sets of arrangements. The experience of ICCAT suggests that RFMOs must provide sufficient incentive in terms of a share of the allocation for developing states to become members.	Under UNFSA, cooperation to achieve this objective purposes to take the form of financial assistance, human resources development, technical assistance, transfer of technology through joint venture arrangements, and advisory and consultative services. In an undersubscribed or unregulated fishery, new entrant developing States will likely have little difficulty in obtaining an allocation, but nothing in UNFSA gives developing States a prima facie right to an allocation of high seas fishing opportunities. Articles 11, 24 and 25 of UNFSA, although encapsulating the tensions involved, fail to resolve the problems that inevitably arise when high seas fisheries are fully subscribed or oversubscribed. RFMO allocation rules and criteria should address these issues.
(iii) Facilitate the participation of developing States in subregional and regional fisheries management organizations and arrangements (Article 25(1)(c).	Such organizations should establish the economic rules under which the resources are exploited and the benefits are shared between the owners. Once these rules are clear, developing State policy-makers can make appropriate policy decisions concerning objectives (i) and (ii) above. This objective should therefore be given high priority.	Participation may be facilitated through budgetary contributions, special funds or voluntary funds. Measures taken by RFMOs to implement this requirement should be capable of resulting in effective participation in all the work of the RFMO.

Special requirements in practice – increasing access by developing States

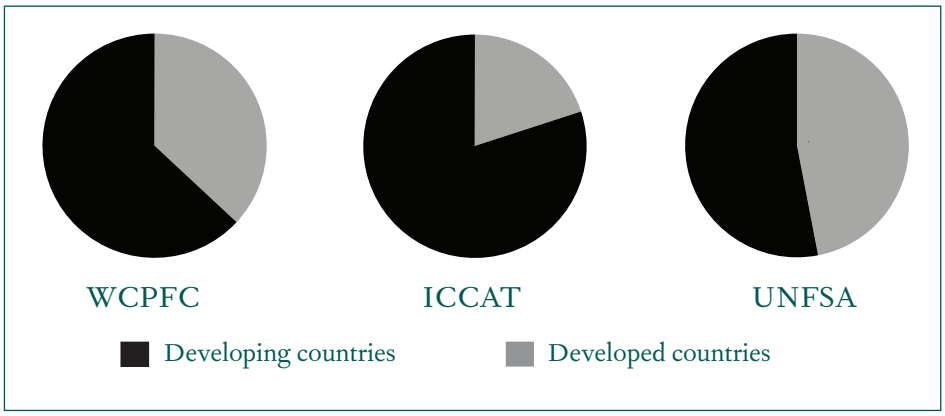
The real difficulty for RFMOs lies in the application of the requirements of article 25(1)(b) of UNFSA. The problem is that although UNFSA parties are under an obligation to assist developing States to enhance their own fisheries for straddling and highly migratory fish stocks and to enable them to participate in high seas fisheries for those stocks, nothing in UNFSA gives developing States a prima facie right to an allocation of high seas fishing opportunities. Indeed, even the obligation in article 25(1)(b) is expressly made subject to the provisions of articles 5 and 11 dealing with management practices in-zone and the rights of new entrants. The principle that all States have the right for their vessels to fish on the high seas implies that in an undersubscribed or unregulated fishery, new entrant developing States are likely have little difficulty in obtaining an allocation. But at present in oversubscribed fisheries, the only ways that developing States or other new entrants might receive an allocation are if existing members of an RFMO either willingly reduce their own allocations or agree to possibly unsustainable increases of capacity or if new entrants participate in the fishery through commercial activities such as charters or downstream economic activities such as port or processing facilities (options that are in most cases prohibitively commercially competitive). Moves by developing countries to, for example, increase their national allocations or to insulate them from a need to reduce overall catches are likely to destroy any equilibrium reached in an initial allocation process between parties.

Articles 11, 24 and 25 of UNFSA encapsulate the tensions involved but fail to resolve the problems that inevitably arise when fisheries are fully subscribed or oversubscribed. On the other hand, assistance in the conventional form of financial assistance, human resources development, technical assistance, transfer of technology through joint venture arrangements, and advisory and consultative services is unlikely to achieve the objective set out in article 25(1).

Generally, there is limited evidence that RFMOs have yet taken positive steps to increase the access of developing States to high seas stocks. It is obvious that there is no easy answer to this problem, which is intrinsically linked to the broader issue of allocation. Decisions on allocation are among the most difficult ones that any RFMO must take. They also become more difficult to take as stocks are put under pressure. For instance, it may be possible in a number of tuna RFMOs to accommodate new entrants in underexploited skipjack stocks but be exceedingly difficult to do so in bigeye stocks. Nevertheless, it is inevitable that in view of the binding nature of UNFSA, RFMOs will need to confront the issue of participatory rights for developing countries at some stage, especially given indications of the growing level of developing country participation in RFMOs and the UNFSA regime.

Few RFMOs have addressed developing countries' participation in the fisheries as part of their allocation criteria. In some cases, such as NAFO and NEAFC, very little, if any, fishing is undertaken by developing countries; nor are they significant participants in the RFMO. In most cases, the criterion of the special needs of developing countries is relegated to a subsidiary category of allocation criteria, well below elements such as historical catch and record of compliance. An example is the SEAFO Convention, article 20 of which replicates much of article 11 of UNFSA. One difficulty with this approach is that because elements such as historical catch are relatively easy to quantify objectively, it is difficult to balance them against more subjective criteria relating to the special interests of developing countries. The aspirations of developing countries are always diluted in this scenario.

Figure 10.1: Relative participation in RFMOs and UNFSA by developing States



The exception is the WCPFC, which is unique in including in its constituent treaty the requirement that the Commission will develop criteria for the allocation of catch or effort and in setting out some of the factors that the Commission must take into account in doing so. These factors include a very specific recognition of the circumstances of developing States in the region.[3] However, identifying the way in which such criteria can be given practical effect in any system of allocation is not an easy task, and it is likely to take the Commission much work (see MRAG, 2006).

A similar problem has also been tackled by ICCAT. Even more than that of the WCPFC, ICCAT's membership contains a significant proportion of developing countries (see Figure 10.1). Unlike the WCPFC, however, the constituent treaty of ICCAT does not have the same highly explicit links between EEZ stocks, developing coastal States and their developmental aspirations.

Even so, ICCAT's internal allocation criteria, developed in 2001,[4] now include eight standards relating to the status of qualified participants. These include:

- the interests of artisanal subsistence coastal fishers;
- the needs of coastal communities dependent on the stocks;
- the needs of coastal states whose economies are overwhelmingly dependent on the exploitation of marine resources;
- the socio-economic contribution of the fisheries to the developing States, especially small island States;
- the coastal State's dependence on the stock;
- the economic and/or social importance of the fishery for qualifying participants whose fishing vessels have habitually participated in the fishery;
- the contribution of the fishery to national food security, domestic consumption, income resulting from exports and employment; and

[3] The criteria are set out in article 10 of the WCPFC Convention. They include the needs of small island developing States, and territories and possessions, in the Convention area whose economies, food supplies and livelihoods are overwhelmingly dependent on the exploitation of marine living resources; the needs of coastal communities, which are dependent mainly on fishing for the stocks; the unusual geographic configurations of individual States in the region (Samoa and Kiribati); and the fishing interests and aspirations of coastal States, particularly small island developing States, and territories and possessions, in whose areas of national jurisdiction the stocks also occur.

[4] ICCAT Ref 01-25.

- the right of qualified participants to engage in fishing on the high seas for the stocks to be allocated.

It can be seen that several of these criteria are very similar to the criteria set out in UNFSA. The criteria are applied on a stock-by-stock basis by the relevant ICCAT panels according to certain conditions, including the requirements that:

- they are to be applied in a gradual manner in order to address the economic needs of all parties;
- they should be applied in a fair and equitable manner, with the goal to ensure opportunities for all qualifying participants;
- they should be applied consistent with international instruments and in a manner that encourages efforts to prevent and eliminate overfishing and excess fishing capacity;
- they should be applied so as not to legitimize IUU catches; and
- they should be applied to encourage cooperation between developing States and other States for the sustainable use of fish stocks.

Since 2001, the ICCAT allocation criteria have been applied in such a way as to increase fishing opportunities for a number of developing States.[5]

The WCPFC and ICCAT are not the only RFMOs that have had to deal with the problem of access by developing States. Faced with a need to limit the growth of purse seine fleets, IATTC's Resolution on Capacity (2002) restricted the growth of the fleet but nevertheless allowed for the development of additional capacity by developing countries in the region (Costa Rica, El Salvador, Nicaragua, Peru and Guatemala) that did not already have substantial fleets. Meanwhile, both the CCAMLR and the CCSBT have had to deal with the impact of unregulated high seas catches taken by fleets of developing States. In both cases, the main strategy to date has been to encourage cooperation and participation in the work of the Commission by those States. In the case of the CCSBT, a small proportion of the TAC has been allocated to cooperating non-parties. This case is notable because a relatively large catch allocation (most of which is taken on the high seas) has been provided to Indonesia, which has not taken the status of cooperating non-member but remains an observer. Recent initiatives by the CCAMLR are discussed further below.

Against this background, it is notable that UNGA Resolution 61/105 of 8 December 2006 places particular emphasis on the development of special financial mechanisms or instruments to help developing States to enhance their national capacity to exploit fishery resources, including improving their domestically flagged fishing fleet and their value-added processing and expanding their economic base in the fishing industry (operative paragraph 20). Clearly, however, this assistance ought not to result in excess capacity in the fishery concerned. The resolution further invites States to assist developing States to deepen their participation in RFMOs, including by facilitating access to fisheries for straddling fish stocks and highly migratory fish stocks, in accordance with article 25(1)(b) of UNFSA.

[5] ICCAT Rec. 2006-02 provides for allocations of North Atlantic swordfish to Barbados, Belize, Brazil, China, Côte d'Ivoire, Mexico, Morocco, the Philippines, Senegal, St Vincent and the Grenadines, Trinidad and Tobago, Vanuatu and Venezuela. Rec. 2006-03 provides for allocation of South Atlantic swordfish to Angola, Belize, Brazil, China, Côte d'Ivoire, Ghana, Namibia, the Philippines, South Africa, Saõ Tomé and Príncipe, Senegal, Uruguay and Vanuatu. Rec. 2002-07 allocates bigeye quotas to Mexico, Libya and Morocco.

Chapter 4 suggests some of the ways in which developing countries might obtain better economic returns from high seas fisheries without necessarily increasing overall capacity. These suggestions include the introduction of national quota trading schemes to RFMOs.

Forms of assistance to developing States

There is considerable evidence that States parties to UNFSA have made good progress in implementing some of the provisions of Part VII. For example, the United Nations General Assembly decided in 2003 to establish the 'Assistance Fund under Part VII of the Agreement'.[6] The purpose of the Fund is to provide financial assistance to developing States parties in the implementation of the Agreement in accordance with Part VII. Financial support from the Fund may be sought for

- Facilitating participation in meetings of regional fisheries management organizations;
- Assisting with travel costs to relevant meetings of global organizations dealing with high seas fisheries;
- Supporting ongoing and future negotiations to establish new related organizations, to renegotiate founding agreements and to strengthen existing organizations;
- Building capacity for the effective exercise of flag State duties, monitoring, control and surveillance, data collection and scientific research;
- Facilitating the exchange of information and experience on implementation of the Agreement;
- Assisting with human resources development, technical training and technical assistance in relation to conservation and management of the relevant stocks and to development of fisheries for those stocks consistent with the duty to ensure the proper conservation and management of those stocks; and
- Assisting in meeting costs involved in proceedings for the settlement of disputes.

The Fund is administered by the FAO in accordance with the terms of reference adopted by the States parties. To date (May 2007), the governments of Canada, Iceland, Norway and the United States have made financial contributions to it. Two recognized problems with the Fund have been lack of visibility and complex procedures. The summary of outcomes from the 2006 UNFSA Review Conference recommended that both the FAO and the relevant department of the United Nations publicize further the availability of assistance through the Fund and also solicit views from developing States regarding its application and award procedures (United Nations, 2006b). In addition, several RFMOs have already placed links to the Fund on their websites.[7]

The Fund's terms of reference make clear that it is 'one component of assistance to be provided in accordance with Part VII of the Agreement and supplements other sources of assistance'. Many States, both parties to UNFSA and non-parties, provide assistance to developing States that is aimed in one way or another at some or all of the matters covered by Part VII. Examples of such assistance, bilateral, multilateral or regional, are in the UN Secretary-General's report to the 2006 UNFSA Review Conference (United Nations, 2006a).

[6] UN General Assembly Resolution 58/14.
[7] For example, see http//:www.tuna-org.org.

The same report also describes some of the efforts undertaken to date by RFMOs in order to operationalize elements of Part VII. These include:

(a) The CCAMLR's non-contracting party cooperation enhancement programme (CCAMLR Resolution 24/XXIV). The objective of this programme is to encourage cooperation with the CCAMLR especially by those non-contracting parties that lack the capacity to do so. The aim is to develop a structured programme of technical cooperation so as to build the capacity of key non-contracting party flag and port States and assist them to combat IUU fishing activity and trade and to support wider implementation of CCAMLR conservation measures. The programme will be operationalized further by developing a priority list of States that may benefit from technical cooperation. It nevertheless relies on CCAMLR members to commit, support and be willing to deliver technical assistance, advice and training to non-contracting parties. CCAMLR members have in the past also directly assisted developing countries in improving their implementation of the Catch Documentation Scheme relating to trade in toothfish, and they have a special fund for projects associated with the CDS.

(b) The CCSBT meets the cost of certain developing States sending observers to its meetings. The Commission has also provided financial support to Indonesia for participation in its activities and provided assistance to establish fisheries administration in relation to southern bluefin tuna.

(c) ICCAT's recently adopted Madrid Protocol (in force as of March 2005) has the effect of significantly reducing the financial cost to some developing States of membership of the Commission. Those countries with the smallest economies and lowest per capita GDP (where catches are below 5,000 tons per year and/or GDP is below $2,000) are required to pay a basic membership fee of $1,000, with 0.25 per cent of the budget assigned to all members in that category. The Commission also manages special research programmes that may be used to provide assistance in data collection and submission.

(d) Article XXXIII of the Antigua Convention (not yet in force) provides for measures on technical assistance, technology transfer and other forms of cooperation with the purpose of assisting developing States that are members of IATTC to fulfil their obligations under the Convention.

(e) Some RFMOs have also developed their own capacity-building funds that are not related to UNFSA Part VII. For example, several ICCAT contracting parties have made available substantial funds to finance improved data collection and reporting activities and to help with travel assistance for scientific meetings. These funds are destined exclusively for scientists from developing contracting parties.[8]

Both the SEAFO Convention and the WCPFC Convention contain specific provisions about the recognition of the special requirements of developing States.

SEAFO

The position of developing States played a prominent role in the negotiations leading to the conclusion of the SEAFO Convention. This was inevitable because three of the four coastal States that initiated the

[8] See, for example, the Resolution by ICCAT on improvements in data collection and quality assurance. ICCAT Res. 03-21.

SEAFO process are developing States, and the fourth is an overseas territory of the United Kingdom with developing status. The provisions of the Convention are designed to implement the relevant provisions of UNFSA. Parties are required to give full recognition to the special requirements of developing States in the region in relation to the conservation and management of fishery resources and their development. In particular, parties are to consider the vulnerability of developing States that are dependent on the exploitation of living marine resources, the need to avoid adverse impacts on subsistence, small-scale and artisanal fishers and women fishworkers and the need to ensure that conservation measures do not result in transferring, directly or indirectly, a disproportionate burden of conservation action onto developing States.

In describing the specific areas in which developed contracting parties may provide assistance to developing States, the Convention also draws heavily upon Part VII of UNFSA. The position of developing States is also recognized in the provisions on budget and finance, which provide that the Commission can amend the basic formula for contributions to the budget (which consists of a combination of an equal basic fee and a fee based on catch) in order to take into account the economic status of each contracting party.

The WCPFC

The WCFPC Convention contains even more extensive and innovative provisions on the requirements of developing States. This no doubt reflects both the fact that negotiations for the WCPFC took place shortly after the conclusion of UNFSA and the fact that the Western and Central Pacific region contains a large number of small island developing States and territories.

Article 30(1) of the WCPFC Convention requires the Commission to give 'full recognition to the special requirements of developing States Parties … in relation to conservation and management of highly migratory fish stocks in the Convention Area and development of fisheries for such stocks'. This requirement is elaborated further in article 30(2), which, in specifying the particular elements that need to be taken into account by the Commission, repeats the content of article 24(2) of UNFSA.

However, the WCPFC Convention goes one step further than the UNFSA and SEAFO Conventions by then imposing in article 30(3) a specific requirement on the Commission to establish a fund to facilitate the effective participation of developing States parties in the work of the Commission, including its meetings and those of its subsidiary bodies. It is also a requirement of the Convention that the Commission's financial regulations include guidelines for the administration of this fund. Article 30(4) goes on to specify that cooperation with developing States for the purposes set out in the article may include (in addition to the fund) the provision of financial assistance, assistance relating to human resources development, technical assistance, transfer of technology and advisory and consultative services. Further, it sets out some of the areas in which this assistance may be directed, including towards improved conservation and management, stock assessment, scientific research and compliance and enforcement.

The way in which these provisions would be implemented was discussed in detail during the Preparatory Conference for the Establishment of the WCPFC in 2001–4. The financial regulations that emerged from the Preparatory Conference make clear that article 30 requires two types of assistance. First, there is assistance designed to facilitate the participation of developing States parties, territories and possessions. In respect of this element, the financial regulations require that

Box 10.2: The WCPFC Special Requirements Fund

7.1 A special requirements fund shall be established for the purposes identified in article 30 of the Convention, including:

(a) assisting developing States Parties, small island developing State members of the Commission and, where appropriate, territories and possessions, with human resources development, technical assistance and transfer of technology in relation to conservation and management of highly migratory fish stocks in the Convention Area and development of fisheries for such stocks; and

(b) building capacity for activities in key areas such as effective exercise of flag State responsibilities, monitoring, control and surveillance, data collection and scientific research relevant to highly migratory fish stocks on a national and/or regional level.

7.2 The special requirements fund shall be financed from voluntary contributions and such other sources as the Commission may identify. The fund will be administered by the Executive Director, in accordance with the same financial controls as regular budget appropriations.

7.3 The Executive Director shall establish a process for notifying the members of the Commission annually of the level of available funds in the special requirements fund, which shall include a timeline and a format for the submission of applications for assistance.

7.4 In accordance with the provisions of article 30, paragraph 4, of the Convention, developing States Parties, particularly small island developing States and, where appropriate, territories and possessions, will be eligible to receive assistance from the special requirements fund.

7.5 Those eligible, in accordance with Regulation 7.4, may submit an application for assistance from the fund. An application may also be submitted by an appropriate subregional or regional organization or arrangement on behalf of one or more of those eligible. Any application should specify how it relates to the purposes identified in Regulation 7.1 and include a description of the desired outputs of the project or expenditure and an itemization of anticipated costs.

7.6 The Commission shall consider the applications for assistance. The Commission shall be guided by the purposes of the fund, the provisions of the Convention, the financial needs of the applicant and the availability of funds, with priority given to small island developing States and, where appropriate, territories and possessions. Assistance shall be provided on an impartial basis. Consideration of applications shall also include an assessment of whether any existing sources of assistance are available. Decisions by the Commission on assistance from the fund shall take into account the size of the fund and the need for cost-effectiveness.

7.7 The Executive Director shall submit an annual report to the Commission on the status of the fund, including a financial statement of contributions to and disbursements from the fund. Recipients of assistance shall be required to provide to the Executive Director a report on the purpose and outcome of each approved project and a summary of expenditures.

the regular budget of the Commission include the 'costs required to finance the travel and subsistence for one representative from each developing State Party to the Convention and, where appropriate, territories and possessions, to each meeting of the Commission and to meetings of relevant subsidiary bodies of the Commission'. In this way, funding for participation is assured and is not made subject to the availability of funds provided on a voluntary basis. At the same time, there is an element of burden-sharing because developing countries themselves contribute to the regular budget (see Chapter 11).

Second, there is the Special Requirements Fund (see Box 10.2), established by the Commission's Financial Regulations (WCPFC Financial Regulations, adopted 10 December 2004). This has four model features. To begin with, the purposes of the Fund are set out clearly and in full conformity with the purposes of UNFSA Part VII. Next, the Fund is open to voluntary contributions as well as to contributions from other sources, for example multilateral funding agencies and philanthropic organizations. Then, a transparent process of accountability is built into the Fund, which is administered by the Executive Director of the Commission. Lastly, the procedures for access to the Fund are clearly elaborated, and a clear linkage is made between the objects of the Fund and decisions as to eligibility for access to the Fund. The Independent Panel considers that the WCPFC Special Requirements Fund provides a sound best practice model for providing UNFSA Part VII assistance on a regional basis.

Assistance in establishing new RFMOs

The final area of assistance specified in UNFSA is aimed at the development of new RFMOs or strengthening existing organizations or arrangements. In the cases of SEAFO, WCPFC and the proposed South Pacific RFMO, voluntary funds were used effectively in order to ensure developing States' full participation in the negotiations to establish those organizations. The UN/FAO Part VII Assistance Fund also identifies support to 'ongoing and future negotiations to establish new related organizations, to renegotiate founding agreements and to strengthen existing organizations' as one of the legitimate purposes of that Fund, although it appears that no applications for such assistance have yet been made.

As yet, no RFMO has formalized a procedure for the provision of assistance to developing States in the process of strengthening existing organizations. It would appear, however, that this assistance has been forthcoming, on a case-by-case basis, where necessary and that there is no practical need for prescriptive measures beyond the relevant UNFSA provisions.

11

Institutional Issues

This chapter examines some of the institutional best practices relevant to RFMOs.

Institutional structures and mechanisms can be considered on two levels. At one level, the effectiveness of an RFMO's institutional structures has a direct bearing on the effectiveness of conservation and management measures and of the governance of high seas fisheries. But although effective governance of those fisheries is the ultimate objective, it cannot be delivered unless basic institutional structures are themselves effective. Institutional factors are at the core of successful management systems. The institutional structure of the organization defines the way in which political will is mediated and international cooperation is manifested. Thus at a second level, it is necessary to consider the nature of the institutional structures that provide the basis for the procedures and issues of internal management that all RFMOs deal with on a routine basis.

This chapter focuses on the underlying institutional *structures* of the RFMO rather than on the way in which those structures are applied in the pursuit of conservation and management objectives. However, in view of the purpose of effective institutional structures – to enable better delivery of conservation and management objectives – there are important cross-linkages with several other chapters of this study. The most important cross-linkages are to those dealing with:

- Decision-making procedures;
- Transparency;
- Procedures whereby scientific advice is obtained;
- Data collection and research;
- Special requirements of developing States; and
- Cooperation with other RFMOs and international organizations.

In general, RFMOs are intergovernmental bodies. Whether or not this is the best model for managing high seas fish stocks is well beyond the scope of this study. Most RFMOs are structured along similar lines. The primary institutional mechanisms are a decision-making body, usually a commission or a meeting of the parties, the mechanisms for obtaining scientific advice on the status of fish stocks and the secretariat (staff) of the organization. The organization is funded by and accountable to its members. In these circumstances, its cost-effectiveness and efficiency are increasingly important considerations. There are variations on this model, but they are relatively minor. For example, a number of RFMOs have established additional organs to consider issues of monitoring, control and compliance. The main bodies often establish other subsidiary organs, on a permanent or short-term basis, to help them to advance their work.

Rules of procedure

The substantive functions of decision-making bodies and the way they are exercised are considered elsewhere. For the purposes of this chapter, what is essential is that there are clear rules and procedures for the operation of those bodies. Rules of procedure may be set out in the constituent instrument of the RFMO or, more commonly, in a separate document. The rules should govern, *inter alia*, representation by members and other stakeholders (for example, representatives of the fishing industry, conservation organizations and civil society) at meetings of various organs of the RFMO and the procedure for electing the officers of the RFMO and its subsidiary bodies. They should also govern the procedure and form in which proposals and other documents should be tabled, public access to documentation and results and whether or not and how non-parties may take part in meetings of the various organs.

Budget and finance

Funding arrangements are a critical part of any institutional structure. The availability of adequate financial resources is critical to the effective functioning of an RFMO. An assessment of best practice requires an examination of two elements: how the budget for the RFMO is determined and how it is funded.

How the budget is determined

There should be a process in place for determining the level of the budget. The process should be transparent and should contain sufficient checks and balances so as to ensure that the budget is adequate to meet the service needs of the RFMO as identified by all members. In most RFMOs, the practice is for the executive director to produce a draft budget estimate. This should be circulated to all members well in advance of the meeting at which it will be considered. In some cases, the draft budget may be scrutinized by a smaller committee of members prior to its adoption. This committee could be a formalized body made up of financial experts or an ad hoc group of representatives of members. The CCAMLR, as a case in point, has a standing committee on administration and finance, which is responsible for reviewing the operation of the budget for the current year and for examining the draft budget for the coming year. A similar standing committee composed of representatives of each member State was established by the CCSBT at its fourth session in 1997. ICCAT too has a standing committee on finance and administration, which operates in a similar way. The financial regulations of the WCPFC, on the other hand, do not establish a permanent committee, but allow the Commission to establish an ad hoc committee to provide advice and recommendations to it on financial and budgetary matters.[1]

In all RFMOs, decisions to adopt the budget require consensus.

How the budget is funded

Historically, fisheries commissions have relied on assessed contributions from members in order to fund their budgets. In the most elementary way, these contributions may be divided equally between the members of the RFMO. This is the case in the NPAFC.[2] However, such a model is really appropriate

[1] Financial Regulation 3.8, WCPFC/Comm.2/18, annex.
[2] NPAFC Convention, article XI(3).

Box 11.1: The WCPFC budget formula

Article 18(2) of the WCPFC Convention provides guidance on the broad nature of the formula for assessed contributions:

> [D]ue consideration shall be given to each member being assessed an equal basic fee, a fee based upon national wealth, reflecting the state of development of the member concerned and its ability to pay, and a variable fee. The variable fee shall be based, *inter alia*, on the total catch taken within exclusive economic zones and in areas beyond national jurisdiction in the Convention Area of such species as may be specified by the Commission, provided that a discount factor shall be applied to the catch taken in the exclusive economic zone of a member of the Commission which is a developing State or territory by vessels flying the flag of that member.

The actual formula adopted by the Commission is as follows:

(a) a 10 per cent base fee divided in equal shares between all members of the Commission;

(b) a 20 per cent national wealth component based upon an equal weighting of proportional gross national income (calculated on a three-year average) per capita and proportional gross national income (calculated on a three-year average); and

(c) a 70 per cent fish production component based upon a three-year average of the total catches taken within exclusive economic zones and in areas beyond national jurisdiction in the Convention Area of all the stocks covered by the Convention for which data are available (including the main target tuna species, as well as the four main billfish species (black marlin, blue marlin, striped marlin and swordfish)), subject to a discount factor of 0.4 being applied to the catches taken within the EEZ of a member of the Commission which is a developing State or territory by vessels flying the flag of that member.

only when the number of members of the RFMO is small and when all of them have a similar interest in the fishery. More commonly, contributions are divided between members according to a negotiated formula that takes into account variable factors such as national wealth, the state of development of the country concerned and the amount of catch taken in the RFMO's area of competence. This reflects the fact that although some of the basic services (for administration and meetings) of the RFMO will be used by all members, those with a greater fishing interest will make more use of other services, for example observer programmes and data collection. The WCPFC provides an illustration of a relatively sophisticated funding formula that takes into account not only the national wealth and development status of members but also their capacity to pay (see Box 11.1).

Broadly similar formulae are also applied by the other tuna RFMOs, among them IOTC and IATTC. A variation applies in the CCAMLR, where, in the assessment of catch, different values are assigned to different species. These formulae recognize the inability of developing countries to take on a large financial burden, but the result can be that the funding base of the organization ends up being dominated by a small number of wealthy countries with large fishing fleets. In most tuna RFMOs, they are Japan, the United States, the Republic of Korea, the EU and (in the WCPFC) Taiwan. Unless the RFMO has robust procedures in place for determining the strategic direction of its budget and work programme, including a transparent procedure for determining the level of the budget, this situation can lead to the same 'big payers' having a disproportionate influence through the budget over the content and direction of the work programme of the organization.

Cost recovery

In recent years, some RFMOs have considered the use of alternative funding mechanisms, primarily cost recovery or service fees. This approach is increasingly popular in some national administrations but it has yet to find universal acceptance by intergovernmental organizations. There are basically two types of cost recovery: to levy costs directly against operators using specific services or to levy the costs against the members of the RFMO whose vessels use the services. In cases of cost recovery being applied to the provision of services, it is generally on the basis of a levy against vessel operators. IATTC, for example, provides observers for purse seine vessels seeking observer coverage pursuant to the International Dolphin Protection Programme. Under this programme, vessels are required to have 100 per cent observer coverage while fishing in the programme area. IATTC recovers the cost of providing observers from the vessel operators by way of an annual fee that is charged on the basis of the carrying capacity of the vessel. In the Central Western Pacific, the FFA manages an observer programme associated with the multilateral treaty between the United States and Pacific island countries, and here as well a cost recovery process is applied to each vessel operator for the funding of that service.

The CCAMLR, under CMs 21-01 and 21-02, also exercises cost recovery procedures for the processing of new and exploratory fisheries notifications. These include charging fees a non-refundable portion of which applies even if an applicant does not activate its application. This is intended as a deterrent to prevent the 'booking' of future quotas should a viable fishery develop. In other words, parties wishing to be involved in exploring or developing fisheries should be active partners, not just 'free-riders' in the notification system. This procedure has not yet been put to the test.

Another option may be to recover the costs of specific services from members of the RFMO and to allow national administrations to determine the extent to which those charges are passed on to vessel operators. So far, there have been few examples of fisheries commissions taking this approach. The Recommendation by ICCAT Establishing a Programme for Transhipment (ICCAT Rec. 06-11) requires that the costs of implementing the programme be financed entirely by the flag parties of vessels wishing to engage in transhipment operations. In addition, the CCAMLR Scheme of International Observation has been applied by some CCAMLR members in a way similar to applying charges to individual members. Although the CCAMLR scheme does not explicitly prescribe that observer costs shall be recovered from the Commission member whose vessels receive observers under the scheme, the practice is increasingly that members providing observers require that service to be paid for bilaterally. In the case of the CCSBT, the costs of the observer programme adopted in 2006 are to be borne by flag State members and cooperating non-members and to be paid into a special fund maintained for the purpose by the secretariat.

Advantages and disadvantages of cost recovery

The advantages of applying cost recovery to high-expenditure programmes such as regional observer programmes, vessel monitoring systems and vessel registers can include an increase in transparency (the costs must be itemized and justified), greater efficiency (the costs are paid by the member or the individual operator seeking services) and a reduction in the overall financial burden on member countries. This last advantage is particularly important for developing countries.

On the other hand, some criticisms can be levelled at adopting cost recovery on too broad a basis. When concern about cost-effectiveness means that regular budgets are already stretched to their

maximum extent, it can be tempting to use cost recovery as a substitute for necessary budgetary increases in response to growing demands on the organization. Necessary growth in the budget should be related to the needs of the organization rather than to the possibility of cost recovery. It is important that cost recovery is not applied in a way that undermines the long-term stability of the organization's budget. This suggests that cost recovery is best applied to variable fees for services.

Although it would be premature to regard cost recovery as an established best practice, it is recommended that RFMOs give consideration, where appropriate, to extending the use of cost recovery as a basis for the provision of technical services, including data collection and research.

Voluntary contributions

RFMOs complement compulsory contributions by providing the possibility for members (and non-members) to make voluntary contributions. In the CCAMLR, IATTC and WCPFC, for example, members have made substantial voluntary contributions. The financial regulations of the CCAMLR provide that voluntary contributions may be accepted if their purpose is consistent with the 'policies, aims and activities of the Commission'. Recent voluntary contributions in the CCAMLR have been towards the development of an electronic catch documentation scheme by the United States, its main proponent. In IATTC, the United States makes an annual voluntary contribution of $1 million in support of tuna and dolphin work. In the case of the newly established WCFPC, several countries have made voluntary contributions to its budget in anticipation of becoming full members.

It is important, however, that voluntary contributions are made in accordance with the priorities of the RFMO. These should not become distorted by an undue emphasis on the interests of one or a small group of countries that is willing to fund special projects. Nor should RFMOs be put in the position of having to rely on voluntary contributions to support what members have defined as core business activities.

One cause of problems is the issue of financing the participation of developing countries in the work of the RFMO (this is discussed further in Chapter 10, on the special requirements of developing States). Many RFMOs maintain voluntary trust funds for facilitating the participation of developing countries in their meetings. But in the case of the WCFPC, the Financial Regulations (3.5) provide that 'The draft budget shall include an item specifying the costs required to finance the travel and subsistence for one representative from each developing State Party to the Convention and, where appropriate, territories and possessions, to each meeting of the Commission and to meetings of relevant subsidiary bodies of the Commission.' This provision is not found in the rules and procedures of other RFMOs. And although it may be exceptional in view of the specific geographic and political circumstances of the WCPFC region, the provision has a definite use: it makes it possible to clearly segregate funds that are provided for enhancing the ability of developing States to conserve and manage straddling and highly migratory fish stocks (UNFSA, article 25(1)(a) and (b)) from funds designed to facilitate participation in RFMOs (UNFSA, article 25(1)(c)). The WCPFC provision also gives real substance to the requirement in UNFSA, article 25(1)(c) to facilitate the participation of developing States in RFMOs.

Of paramount importance for establishing best practice for the financing of RFMOs is that the contributions formula should be transparent and sustainable. All members of the RFMO must be satisfied that the formula is equitable and can take into account members' changing circumstances over time.

The consequences of failure to meet financial obligations

A fundamental obligation of the members of any intergovernmental organization is the prompt payment of their financial contributions. Good practice dictates that members are under a legal and moral obligation to pay their assessed contributions in full and on time. It is important that the consequences of failure to fulfil this requirement are spelt out clearly and provide sufficient incentive to members to comply with their obligations.

The standard provision for when a member is in arrears, which is modelled on article 19 of the UN Charter, is that if it has failed to pay its contributions for longer than a certain period (normally two full years), it will be deprived of the right to vote. A provision of this nature in the constituent instrument of the RFMO or in its financial regulations should be regarded as best practice. Given the adverse impact on the organization of the late payment of contributions, we would also regard best practice as requiring the payment of reasonable rates of interest on late contributions.

Strategic planning and management

In general, RFMOs have been reluctant to embrace strategic planning and multi-year budgets and work programmes. In most cases, budget and meeting cycles are annual. This reflects the fact that most national governments work to annual budget cycles, as well as the dynamic nature of many high seas fisheries. The CCSBT, for example, has a work plan of only 12 months' duration.

An emphasis on short-term management is inappropriate because the long-term sustainability of fish stocks is a high priority objective for nearly all RFMOs. Longer-term planning would establish the priority tasks and strategic objectives of the organization over a three-to-five-year period and also help to set benchmarks (performance indicators) against which an assessment of progress can be measured. Strategic plans, which should not be confused with periodic reviews, should cover matters such as how the RFMO determines and funds activities to be carried out by the secretariat and/or member governments in relation to data, research and assessment and to efforts to detect and deter non-compliance with conservation and management measures. Besides setting out clearly the work priorities and benchmarks for the secretariat, they should provide a general sense of strategic direction to member countries of the organization.

All RFMOs operate under pressure, and it can be difficult to find time for long-term planning. In the CCAMLR, for example, although a specific agenda item on the implementation of the objectives of the CCAMLR Convention had appeared every year since 1996, the Commission acknowledged in 2002 that time had never allowed for a full discussion of it. As a result, the Commission convened a special symposium, held in Valdivia, Chile in April 2005, on the current and future challenges facing the CCAMLR. The outcome of the symposium formed the basis for a detailed discussion at its annual sessions in 2005 and 2006. For many years, certain CCAMLR working groups (most notably the Working Group on Ecosystem Monitoring and Management) have developed detailed timetables in order to ensure a structured approach to priority and strategic issues. This is coupled with an annual task list for both the Commission and the Scientific Committee, which is provided to all members shortly after the CCAMLR's annual meeting. A secretariat strategic plan based on function completes the arrangements to facilitate administrative priority setting and operational efficiency.

The WCPFC has gone a step further than many other RFMOs by preparing a draft business and strategic plan for 2007–11. Such long-term planning is recommended as best practice for all RFMOs.

Secretariat

Most RFMOs have a permanent and independent secretariat, which is a vital part of the organization. The secretariat of an RFMO is properly seen as part of the international civil service and should be organized as such. This implies that staff, including the executive director or chief executive officer, should be recruited on the basis of merit with due regard for equitable representation from member countries, and that the relationship between the RFMO and its staff should be governed by appropriate rules and regulations. Most importantly, the staff of the RFMO should be independent. As a minimum, the rules of the RFMO must recognize that the responsibilities of staff members are not national but exclusively international. Staff members must be required to uphold the highest standards of efficiency, competence and integrity and must neither seek nor accept instructions from any government or from any other source external to the RFMO. Some difficulties may arise in this matter if the RFMO takes the form of an 'arrangement' rather than an autonomous organization. And if the arrangement is hosted by the public service of one or more of the participating governments, care needs to be taken to ensure that the staff members assigned to support the arrangement are able to function with a sufficient degree of independence.

Members of the RFMO need to be clear about what they expect from the staff and in what timeframe. They need to provide sufficient resources so that expertise and facilities are adequate for carrying out assigned duties, and they are responsible for overseeing the effective functioning of the staff. This should be reflected in budget decisions and clear guidance from Commission members. At the same time, the secretariat itself must carry out its functions efficiently and cost-effectively. Best practice in this regard might include the application of appropriate generic management system standards (for example, ISO 9000).

The precise role of the secretariat varies considerably between RFMOs. In some, the secretariat simply organizes meetings and receives and compiles information from individual members. In others, the secretariat is expected to play a more proactive role: to collect and analyse information on research findings or catch and effort or on compliance with conservation and management measures. In general, the basic functions of RFMO secretariats include the following:

(a) Receiving and transmitting the RFMO's official communications and organizing meetings;

(b) Facilitating the compilation and dissemination of catch and effort data;

(c) Preparing administrative and other reports for the RFMO (including subsidiary bodies);

(d) Administering any agreed arrangements for monitoring, control and surveillance and for the provision of scientific advice;

(e) Publishing the decisions of the RFMO;

(f) Treasury, personnel and other administrative functions.

It is not appropriate to be prescriptive about the precise role of the secretariat. There may be good reasons in some cases for giving it only a very limited role. What is important is that its role is clearly spelt out and that the resources allocated to the secretariat are adequate for it to fulfil those functions. In recent years, there has been a greater emphasis in international instruments such as the IPOA-IUU (section 80) on more proactive roles for RFMOs against IUU fishing. For example, the FAO's technical guidelines on the implementation of the IPOA-IUU propose that RFMOs should, by establishing databases, be hubs for the improved collection and dissemination of information on

vessels engaged in or supporting IUU fishing. The guidelines also recommend the development of common data formats, data sharing arrangements and standards. For some RFMOs, these may well require a review and significant strengthening of the technical capacity of the existing secretariats.

Both the CCAMLR and NAFO provide for staff enhancement programmes. These allow key staff to visit other RFMO Secretariats to see how they work and strengthen technical capacity and to get some feel for best practice. The CCAMLR secretariat has hosted staff from NAFO, CITES and the CCSBT.

Regional fisheries management organizations or arrangements

Much of the discussion in this chapter has focused on RFMOs as intergovernmental organizations. It is important to remember, however, that in elaborating on the content of the duty of States to cooperate in achieving the sustainable management of fisheries, UNFSA explicitly allows for cooperation to be carried out through regional fisheries management organizations *or* arrangements. An 'arrangement' for this purpose is defined in article 1(d) as 'A cooperative mechanism established in accordance with the [LOS] Convention and this Agreement by two or more States for the purpose, *inter alia*, of establishing conservation and management measures in a region or sub-region for one or more straddling fish stocks or highly migratory fish stocks'.

This provision can also be seen as an important reminder that the underlying duty to cooperate (as discussed in Chapter 1) is a duty to cooperate 'directly' as well as through appropriate international organizations. The precise obligation placed on States whose nationals exploit the same living resources, or different living resources in the same area, under article 118 of the LOS Convention is to 'enter into negotiations with a view to taking the measures necessary for the conservation of the living resources concerned'. UNFSA merely underlines the point that this may be achieved through the establishment of an RFMO or by direct cooperation through an 'arrangement' involving two or more States.

The most important implication of these provisions is that States should not wait until an RFMO has been established before taking appropriate conservation and management measures. Instead, they should put in place interim measures to avoid the possibility that stocks become depleted while negotiations for a management arrangement are in progress. In otherwise unregulated high seas areas, this may well raise practical difficulties, such as identifying the countries that should be invited to participate in setting interim measures and also enforcing those measures against third countries. Attempts by only one or two countries to limit capacity in previously unfished areas may be undermined if fishers are not willing to act in the common interest (the 'prisoner's dilemma') or by the presence of new entrants to the fishery. This is illustrated by the unsuccessful attempt by Australia, New Zealand and South Africa to limit capacity in the South Indian Ocean.

There are several examples of States choosing to conclude arrangements rather than to proceed to the establishment of fully-fledged RFMOs. The most recent example is the Southern Indian Ocean Fisheries Agreement (SIOFA), concluded in 2006 between the Comoros, France, Kenya, Mozambique, New Zealand, the Seychelles and the European Community, which covers fishery resources other than tuna in high seas areas in the South Indian Ocean. Other examples include the South Tasman Rise Arrangement between Australia and New Zealand (2000), the Central Bering

Sea Pollock Convention (1994) between China, Japan, Poland, Russia, the Republic of Korea and the United States and the 'Loophole' Agreement (1999) between Iceland, Norway and the Russian Federation on aspects of fisheries cooperation.

Compared to RFMOs, arrangements may have significant advantages in terms of expeditiousness, flexibility and costs of administration, although it is notable that nearly all the arrangements mentioned above (with the exception of the South Tasman Rise Arrangement) involved the negotiation of treaty instruments.

In the case of previously unregulated fisheries, existing RFMOs may also function as a forum in which new arrangements can be negotiated and adopted to cover them. This seems to be specifically contemplated by the terms of UNGA Resolution 59/25 of 17 January 2005 which, in operative paragraph 57, calls upon States that are members of RFMOs to consider adopting conservation and management measures for stocks that are as yet unmanaged. The same resolution, in operative paragraph 67, calls upon RFMOs with the competence to regulate deep sea bottom fisheries to address specific destructive fishing practices. RFMOs that do not have such a mandate are encouraged in paragraph 68 to expand their competence accordingly.

As to the nature of measures that should be adopted for unregulated fisheries, this is discussed in Chapter 3. Guidance may also be found in the CCAMLR's measures relating to new and exploratory fisheries (CM 21-01 (2001) and CM 21-02 (2004)). In general, it seems that the approach should be to discourage fishing until appropriate controls are in place and to place the burden of proving that a new fishery is sustainable in the long term on those wishing to exploit the fishery.

Institutional cooperation

Reference has already been made in Chapter 1 to the need for active cooperation between RFMOs in order to increase the possibility of achieving effective fishery resource conservation and management. It is also necessary for RFMOs to cooperate with other international organizations as an integral part of the global system for oceans governance.

Cooperation between RFMOs

The need for enhanced cooperation between RFMOs arises from the fact that some species of fish are so wide-ranging that they are found in the regulatory areas of more than one RFMO and the fact that modern-day fishing fleets are highly mobile and may well target similar stocks in different parts of the world almost simultaneously. Active cooperation thus becomes very important if issues such as excess capacity and IUU fishing are to be addressed effectively. Added to this is the fact that some species of fish (for example, tuna) are global commodities, traded internationally and often at a great distance from the site of harvesting.

In these circumstances, RFMOs' performance will improve if there is greater cooperation between them, especially between those dealing with similar species. Practical steps such as shared or consolidated vessel lists (as, for example, between NAFO and the NEAFC or between the five tuna RFMOs) and better coordination of port and market measures (such as catch documentation schemes) and vessel monitoring systems can bring about significant improvements in compliance.

In recent years, the extent of cooperation between RFMOs and the opportunities for making use of this cooperation have increased. Examples include:

- The establishment, under the auspices of the FAO, of the Regional Fishery Bodies Secretariats Network (RSN). The RSN, which meets every two years and is hosted by the FAO, provides an opportunity for cooperation at secretariat level between RFMOs and FAO regional fishery bodies (including those dealing with inland waters). Among the important technical issues taken up by the RSN are harmonization of catch documentation schemes, implementation of the Fisheries Resource Monitoring System for improving the global monitoring of catches and trends, and work on consolidating regional vessel lists. Participation in the Network should be regarded as indispensable;
- The joint meeting of all tuna RFMOs in January 2007 (see below) and their agreement to hold a further meeting in 2009; and
- The establishment of a common IUU vessel list by NAFO and NEAFC for the North Atlantic.

In some cases, it has been necessary to formalize cooperation between RFMOs. This may be appropriate when conservation and management measures overlap. Such is the case, for example, in the Central Pacific, where there is an overlapping competence between IATTC and the WCPFC. For this reason, the WCPFC contains a provision requiring active cooperation with IATTC in the establishment of conservation and management measures. A reciprocal obligation exists in IATTC's new Antigua Convention. The aim is to ensure that fishers are not subjected to two conflicting regimes. The WCPFC not only has formalized a memorandum of understanding with IATTC, including a joint programme of work, but also has formalized Memoranda of Understanding with the South Pacific Community and the CCSBT. Moreover, it is in the process of entering into MOUs with IOTC and the South Pacific Forum Fisheries Agency.

Consolidation and merger

It was pointed out in Chapter 2 that evolving cooperation between RFMOs could cause the nature of existing RFMOs to change over time. In the most extreme cases, this could lead to the merger of RFMOs covering adjacent or overlapping areas or common stocks. The idea of a single global agency to manage highly migratory tuna stocks was postulated in the research literature as long ago as the 1960s (Joseph, 1972; Joseph and Greenough, 1979; Gulland, 1972; and Saila and Norton, 1974). This approach has clear theoretical advantages in its ability to maximize economic rent, but there are formidable political obstacles to its implementation. Nevertheless, it is likely that greater efficiency could be derived from consolidating or merging some of the functions of RFMOs in some areas. A clear example (see Chapter 4) is the move towards creating consolidated vessel lists. This could lead ultimately to the establishment of a global record of fishing vessels.

Another possible area for consolidation is the expansion of the mandates of existing RFMOs to cover hitherto unregulated high seas stocks and species. This has been dealt with above.

A particularly compelling reason for the consolidation rather than proliferation of RFMOs is that it is impossible for small developing countries to finance effective participation in the growing number of RFMOs and related international bodies. This puts them at a disadvantage compared to the more affluent developed States. Some consolidation of existing bodies may need to be considered in order to address this problem.

One area in which developing States are particularly disadvantaged is in the use of limited scientific resources. There are too few scientists with sufficient experience to provide reliable and consistent advice to the growing number of RFMOs. In a perfect world, this might suggest the creation of a single scientific body to advise on high seas fisheries, in the way the International Council for the Exploration of the Sea provides advice for fisheries in much of the North Atlantic. Although this kind of body might not be viable for obvious political reasons, the possibility ought to be considered of a single scientific body providing scientific advice for groups of RFMOs, for example those concerned with tuna.

Cooperation with other international organizations

RFMOs are only one piece of the jigsaw that makes up the general system of oceans governance. Fishing is only one of several activities that take place at sea, whether in areas under national jurisdiction or on the high seas. These activities, which may impact on the conservation and management of fisheries resources by RFMOs, include marine scientific research, ocean mining, cable-laying and navigation. In addition, ecosystem-based management requires, *inter alia*, that management decisions must take into account all the different sources of stress on the marine environment and that assessments must be made and action taken on an appropriate geographical scale. The implications of ecosystem-based management have been discussed in detail in Chapter 3. Here it is necessary simply to note that effective ecosystem-based management requires informed interaction between RFMOs and other organizations or arrangements with region-specific or species-specific mandates that may have an impact on their fisheries management activities. Examples of these other organizations include the Agreement on the Conservation of Albatrosses and Petrels adopted under the 1979 Convention on the Conservation of Migratory Species of Wild Animals (CMS) and the Inter-American Convention for the Protection and Conservation of Sea Turtles (1996).

As a result of the decision by the World Summit on Sustainable Development in 2002 to set a target of 2012 for the establishment of a global network of marine and coastal protected areas (MCPAs), several regions have initiated efforts to establish coherent MCPA networks. And there has been some progress in coordination among the partners in the UN Environment Programme's Regional Seas Programme, the biodiversity-related conventions (for example, the Convention on Biological Diversity) and other global conventions. For the most part, these initiatives do not yet extend to the high seas. But the emphasis on them highlights the need for coordination between RFMOs and regional seas bodies for species and habitat conservation. This may involve, for instance, agreement by RFMOs to refrain from fishing in key habitats for migratory species listed under the CMS or in protected areas designated under regional seas protocols.

An example of what could be a model for effective regional cooperation is provided from the North-East Atlantic. There, the OSPAR Commission is mandated with the task of establishing a network of marine protected areas. The relevant RFMO for the area, the NEAFC, has the power to make recommendations concerning fisheries beyond national jurisdiction. Several of its members are also parties to the OSPAR Convention. Without proper coordination and cooperation between the organizations, there is clearly scope for overlap and inconsistency between the respective measures taken by them. For example, fishing activities authorized by the NEAFC might adversely affect a marine protected area established by the OSPAR Commission. Conversely, the establishment of a marine protected area without adequate consultation with other users of the marine environment, including fishers, may not be effective. In order to try to avoid or to minimize these conflicts, the

secretariats of the NEAFC and the OSPAR Commission meet on a regular basis and have established procedures for informing one another on matters within their respective competences, including fisheries matters and lists of threatened species and vulnerable habitats. For example, the 2006 NEAFC recommendation on the protection of vulnerable deep water habitats was formally introduced to the OSPAR Group on Marine Protected Areas in 2007. In future, it is envisaged, the NEAFC may present an annual fisheries status report to the OSPAR Commission.

Review and evaluation

Notwithstanding UNFSA, there is in practice much divergence in RFMOs' mandates and in how effective their members have been in adopting and implementing conservation and management measures.

For this reason, two other aspects of review and evaluation need to be considered as a key element of good management practice in addition to strategic planning. These are periodic review of the mandates of RFMOs (and other regional fishery bodies) and periodic review and evaluation of the performance of RFMOs in meeting their objectives. In practice, reviews may cover either or both of these aspects, which are discussed below.

There is as yet no firm consensus as to how objective and transparent criteria might be applied in evaluating the performance of RFMOs. Some favour a systematic approach that would ensure consistency and recognize that RFMOs are an integral part of the global system of oceans governance and have common responsibilities to conserve and manage high seas marine living resources. Others have adopted a more fragmented approach, arguing that RFMOs are autonomous bodies answerable to different political constituencies and governed by different constituent instruments. The meeting of all five tuna RFMOs in Kobe, Japan in January 2007 agreed in principle that each RFMO should undertake regular performance reviews in accordance with a common methodology and a common set of criteria. Since the Kobe meeting, informal efforts have produced a set of recommended minimum criteria for this purpose (based on a proposal made at the sixth round of the Informal Consultations of States Parties to UNFSA (see Annex II to UN Doc. ICSP6/UNFSA/REP/INF.1)). The Indian Ocean Tuna Commission agreed at its 2007 meeting to undertake a performance review using the recommended criteria as a basis. It is expected that the other tuna RFMOs will consider the issue at their respective meetings in 2007 and that other RFMOs may do so as well.

Review of mandates

Many RFMOs were established before UNFSA. Some of the older ones (for example, IATTC and ICCAT, which were established in 1949 and 1969 respectively) were created even before the Third LOS Convention. Some of these RFMOs do not necessarily possess the mandate to carry out all the functions UNFSA has ascribed to them, and UNFSA itself recognizes this. Article 13 provides that 'States shall cooperate to strengthen existing [RFMOs] in order to improve their effectiveness in establishing and implementing conservation and management measures for straddling fish stocks and highly migratory fish stocks.' The objective of strengthening existing RFMOs was regarded as sufficiently important that it is mentioned in article 26(2) as one of the objectives of the special assistance that is to be provided to developing States.

Some RFMOs have already assessed their performance critically and made the necessary adjustments to their mandates or practices the better to meet international fishery conservation and management objectives. IATTC has reviewed its constituent instrument, and in 2003 it adopted the Antigua Convention (not yet in force), which aims to strengthen the mandate of the organization in line with modern fisheries instruments, including UNFSA. The NEAFC, NAFO and, most recently, ICCAT have taken steps to review both their mandates and their performance (see below). The remaining 'pre-UNFSA' RFMOs that have not yet reviewed their mandate should do so, as urged by the General Assembly in its most recent resolution on sustainable fisheries (A/RES/61/105 of 6 December 2006).

Review and evaluation of performance

That RFMOs or arrangements are mandated, based on their constitutive instruments, to carry out the objectives of UNFSA and related international fisheries instruments is not enough by itself. In recent years, the need for RFMOs to demonstrate that they are taking active steps to bring about substantive improvements in performance has become widely recognized. The most recent General Assembly resolution on sustainable fisheries (A/RES/61/105 of 6 December 2006), besides urging RFMOs to strengthen their mandates and to modernize their measures and approaches to fisheries management, calls upon States to develop and apply best practice guidelines for RFMOs and to undertake performance reviews of them. It recommends that these should be based on transparent criteria which should include 'some element of independent evaluation'.

In 2007, the FAO Committee on Fisheries also emphasized the importance of conducting performance reviews of RFMOs and regional fishery bodies. It stressed the need to develop common criteria for evaluating core functions and obligations, and it also recognized that flexibility was needed: each RFMO must decide upon the precise methodology for review independently.

As mentioned above, both the NEAFC and NAFO have recently reviewed their mandates and performance. In the case of the NEAFC, a comprehensive performance review was undertaken in 2006 by a panel consisting of internal NEAFC representatives and external experts. An extensive report was prepared covering all aspects of its work, including a review of its mandate and practice as well as an assessment of its performance in meeting conservation and management objectives. The report was considered by a working group of the NEAFC, which formulated proposals for follow-up action by the Commission. These proposals were considered at a special meeting of the NEAFC in June 2007. In addition, a paper was prepared after the 2006 UNFSA Review Conference for consideration by the Commission. Its purpose was to assess whether the NEAFC had taken the actions for implementing UNFSA as proposed by the Review Conference and, if it had not, to determine what actions should be taken.

NAFO's approach to performance review has been different: it has been based on the work of a specially convened working group on reform. Although arguably not as transparent as the approach taken by the NEAFC, the review process has nevertheless led to similar outcomes, including far-reaching revisions of NAFO's Convention, procedures and associated conservation and management measures.

Both approaches to performance review can be recommended. In the view of the Independent Panel, the procedure by which a review is undertaken is less important than the substance with which it is concerned. Transparency in process is important, and, for this reason, the approach

taken by the NEAFC provides a useful precedent. The adoption of a common framework (criteria and methodology) for performance assessment, as urged by both the UN General Assembly and the FAO, would greatly facilitate a more systematic approach to understanding what is intended by UNFSA and how to implement it, including effective means for cross-learning among RFMOs about best practices. In this regard, the January 2007 meeting of the five tuna RFMOs agreed that they should undertake performance reviews using a common framework. Review should also be periodic, at reasonable intervals, so that it reflects feedback and encourages continual improvement of performance. Initial reviews of mandates and performance could provide an appropriate baseline for subsequent reviews against objectives.

In terms of the substance of a review, good governance suggests a three-stage approach:

- A periodic independent review of scientific advice;
- A periodic review of RFMO performance against baselines and objectives, for example rebuilding targets; and
- A global view across RFMOs dealing with similar areas or species (perhaps through the FAO or through meetings of tuna and non-tuna RFMOs).

12

Summary of Recommended Best Practices for Regional Fisheries Management Organizations in Relation to the Conservation and Management of Fish Stocks

A. General Practice

1. In each RFMO, the members should:
   (a) commit themselves to the overriding objective of ensuring the long-term conservation and sustainable use of straddling, highly migratory and discrete fish stocks subject to their governance;
   (b) recognize that if the issue of allocations is not dealt with expeditiously, the stability of the RFMO will be threatened;
   (c) consider, or be able to consider, the use of a wide range of mechanisms for achieving acceptable economic benefits to all parties from cooperation and compliance, such as transfers or the leasing of fishing opportunities;
   (d) recognize the grave threat to the stability of the cooperative regime posed by IUU fishing and work vigorously towards the suppression and elimination of such fishing;
   (e) ensure that any non-member having a real interest in fishing in the area of competence of the RFMO assumes the full rights and benefits of membership of the RFMO and that, for such non-members, the status of cooperating non-member is regarded as transitional;
   (f) seek means of accommodating new members that will not undermine the long-term stability of the RFMO, such as by allowing new members to purchase or lease fishing opportunities from existing RFMO members;
   (g) ensure that no prospective member will be considered for membership unless it has demonstrated its commitment to cooperation by, for example, ratifying either the UN Convention on the Law of the Sea or UNFSA or submitting a written declaration of its commitment to abide by the provisions of both UNCLOS and UNFSA;
   (h) seek to ensure that the RFMO has the required resilience and flexibility to withstand the effects of unpredictable events on their fisheries, such as environmental shocks. The cooperative management agreements underpinning each RFMO should have built into them mechanisms for responding to such events; and
   (i) in recognition of the role of uncertainty in fishery resource management, ensure that the precautionary approach to resource management is an integral part of their convention or decision-making processes.

2. RFMOs should actively cooperate with one another in order to ensure that their broad objectives of long-term conservation and sustainable use are achieved, to promote greater consistency in the application of UNFSA and to suppress and eliminate opportunities for IUU fishing.

3. The members of RFMOs should ensure that there exists provision for regular performance assessment by each RFMO, whether through self-assessment, external review or a combined panel of internal and external reviewers, based on widely recognized best practices and agreed indicators. The results of these assessments should be made publicly available.

B. Conservation and Management Practices

In each RFMO, the members should ensure that:

1. The *overarching objective* of the RFMO includes optimal and sustainable long-term utilization, subject to the control of fishing capacity and fishing effort commensurate with these objectives. This control is informed by adequate data collection and sharing, use of the best available science and application of the precautionary approach and ecosystem considerations in decision-making, including the recovery of overfished stocks.

2. There are *target and limit reference points* for fishing mortality and population size for all target and commercially retained species and stocks (where stocks are known or are reasonably expected to exist).

3. Assessments and predictions of the status of species or groups of species *include all sources of mortality*, taking in non-fishery mortality and fishing mortality owing to retained catch, discarded catch and deaths that do not involve capture. Fishing mortality is from all fisheries, including those managed under other jurisdictions and illegal, unreported and unregulated fishing.

4. *Target reference points* are consistent with achieving long-term optimal utilization and with the ecological properties and role of the target species (for example, a key prey species), and that they have a low probability of violating the limit reference point in the context of the information available and the management arrangements in place.

5. *Key prey species* affected by fishing are identified and the reference points are modified to take account of the needs of dependent predators as well as those of the fishery. In the absence of detailed understanding of feeding dependencies and for animals low in the food chain, the target biomass reference point should be greater than B_{MSY}, consistent with a precautionary approach (for instance, it might be 75 per cent of the unfished level).

6. The *limit reference point for fishing mortality* is no greater than the mortality giving maximum long-term sustainable yield, as specified in UNFSA.

7. The *limit reference point for stock size* is the size below which it is known or expected that there is a much greater probability of significantly reduced recruitment but at which the probability of significantly reduced low recruitment is still small. The limit reference point for stock size could be at a size that has been historically shown to be safe and/or below which stock dynamics are unknown.

8. There are agreed *management strategies or decision rules* to determine the catch, the level of fishing or other management measures that will be applied, depending on the status of the stock and the information available.

- The management strategy is demonstrated to deliver, in the long term, a balanced probability of the stock being above or below the target and a very low probability of the stock violating the limit reference point.
- The strategy has a high chance of success both in view of the information that is realistically expected to be available to assess stock status and for a reasonable range of stock and ecosystem productivity and variability.
- The fishing mortality caused by the strategy decreases with increasing uncertainty about the present or predicted stock status and decreases as a limit reference point is approached.

9. As a part of the overall management strategy, there is a pre-agreed *rebuilding plan* that is triggered for stocks at or below a biomass limit reference point. The rebuilding plan has a very high chance of rebuilding the stock to a rebuilding target in a specified timeframe, for example 10–30 years or one to two fish generation times. The recovery target is the stock size giving the maximum long-term yield, as specified in UNFSA. Targeted fishing is very low or ceases below a biomass limit reference point, and any catches permitted for monitoring below the limit reference point do not significantly reduce recovery time.

10. As a part of the general management strategy, there is pre-agreement on *fishing mortality reduction* to be triggered if fishing mortality is greater than its limit reference point. Fishing mortality may be higher than the limit reference point for an agreed period if it is a part of a planned reduction of biomass in order to attain the target biomass.

11. There is an agreed strategy for the *development of new or exploratory fisheries* that impact on species or ecosystems in ways that have not been fully assessed previously – for example, fisheries that target new species, use significantly modified gear or operate in new areas. These strategies ensure that fishery expansion does not outpace the information needed to determine the management measures for optimal and sustainable use. The strategy provides cautious conservation and management measures until there is sufficient information to allow identification of appropriate measures for incremental development and/or long-term utilization. The strategy includes, *inter alia*:
    - notification of new or exploratory fisheries;
    - precautionary limits on the catch, the fishing effort and the number of operators, further defined for particular sub-areas as appropriate;
    - requirements for information collection and assessment; and
    - specification of how this information and assessment is used to trigger decisions about subsequent fishery development.

12. There are identified limits for the acceptable impact on key non-target species (both fish and non-fish species), including associated or dependent species and especially protected or endangered species, and for bycatch of any non-target species as a whole. These limits are intended to ensure that populations and stocks are not excessively depleted, that wastage is avoided, that there is minimal impact on protected or endangered species, and that the functional ecosystem of which fisheries are a part is maintained. The FAO's international plans of action for relevant bycatch should be implemented. Measures to ensure that limits are not exceeded, and to minimize bycatch generally, are:

- risk-based impact assessment of the effect of fishing activities on non-target species, followed by explicit analytical assessments and/or action when risk is determined to be high;
- bycatch limits or caps for species and species groups;
- shifting fishing from times or areas with high and/or significant bycatch;
- preference for use of fishing gear, including mesh sizes and types, that reduces bycatch;
- use of practices and equipment to reduce interactions and bycatch (for example, night fishing, tori poles, hook design, excluder devices, controlled or zero offal discharge and acoustic deterrents); and
- release of captured animals alive and unharmed whenever possible.

13. *Habitats* that are important to fishery production or for non-target species, including associated or dependent species, and/or that are affected by fishing are recognized, and that limits of acceptable impact are identified. Management measures to limit the impacts include:
    - risk-based impact assessment of the effect of fishing activities on habitats, followed by explicit analytical assessments and/or action when risk is determined to be high;
    - restrictions on fishing in certain areas and/or at certain times (time/area closures);
    - restrictions on gear types that could affect the habitat;
    - establishment of other area-based management measures such as marine protected areas in order to protect and conserve habitats of special concern;
    - moratoria on new fisheries in sensitive habitats until adequate management measures can be identified; and
    - appropriate engagement in the management of land-based pollution and coastal development.
14. There is an identified level of *fishing capacity* that is commensurate with long-term optimal and sustainable utilization, and that the capacity operating in the fishery is monitored. Authorization and other management measures should be used to limit capacity to the desired level.
15. There are effective provisions and mechanisms for the *collection and reporting of data* to the RFMO that are necessary for the monitoring and management of fishery operations and for tracking the status of the resources and ecosystems.
    - There are quality assurance and verification mechanisms to ensure that the data are sufficiently accurate and reliable to ensure optimal and sustainable utilization of the resources and ecosystem.
    - Economic and social information is collected that is relevant to allocation decisions, to measuring economic efficiency and to management for optimal utilization.
    - The provisions and mechanisms meet the requirements of UNFSA Annex I.
    - Scientific observer programmes are used as appropriate and particularly to gather information about the impact on the fishery non-target species and habitats.
    - There is coordinated data collection and sharing between RFMOs and coastal states, and among RFMOs, with management responsibility for relevant shared fisheries and/or ecosystem elements.
    - Data are shared through recognized international data management arrangements.

16. There are robust methods for measuring and monitoring so as to account for illegal, unreported and unregulated (IUU) fishing and catch, including bycatch.

17. There is a *scientific body* with appropriate technical expertise to assess issues related to the target species, the broader ecosystem and, as appropriate, the socio-economic impacts of fishing.
    - The advice of the scientific body includes management options and risks in relation to target and limit reference points. Fishery data are assessed on a timely basis consistent with the life history of affected species and the management strategy. The advice is publicly available.
    - When the advice of the scientific body is not followed by the RFMO's decision-making body, the reasons are given and are made publicly available.
    - There is periodic independent advice and peer review of the assessments, reference points and management strategies. The advice and review are made publicly available.

C. Allocation Practices

In each RFMO, members should ensure that:

1. To the extent practicable, participatory rights are allocated only when the membership of an RFMO includes all relevant coastal States and States fishing on the high seas for the relevant stocks.

2. Decisions on total allowable catch or total allowable effort are insulated and separate from decisions on allocation. Participatory rights should be expressed as percentages of agreed allowable catch or effort rather than as absolute tonnages.

3. There is agreement in advance as to how new members will be accommodated in the scheme of participatory rights. Accommodating new members must not be allowed to result in increases of catch or effort with regard to stocks that are fully subscribed or oversubscribed.

4. There is a pre-agreed formula about how any increases or decreases in catch or effort limits will be distributed among members.

5. Strong measures exist to ensure the integrity of allocations, including penalties for breaches of national allocation and reductions in future allocations for breaches of other conservation measures. RFMO members' records of compliance with conservation and management measures should be an essential criterion for allocation.

6. The process through which allocations are negotiated and the basis for the allocation are transparent. When decisions on allocation require mandatory consensus there is provision for a 'circuit breaker', such as the appointment of an ad hoc expert panel or a conciliator, that prevents any one member from exercising a *de facto* veto over the allocation of participatory rights.

7. There is an agreed process and timeframe for the review of participatory rights.

8. New RFMOs or RFMOs with no previous history of allocation consider establishing an advisory panel of external experts in order to facilitate reaching agreement on decisions about allocation.

9. The impacts of the allocated rights, including any measures on the transferability of those rights, are closely monitored for their potential to change fishing dynamics and to have unintended consequences on both target stocks and the broader marine ecosystem.

D. Compliance and Enforcement Practices

1. The RFMO has in place a comprehensive and cost-effective system of control consisting of at least the following elements:

   - A clear statement of general flag State duties similar to those set out in Article 18 of UNFSA;
   - A vessel register, which includes fishing vessels as well as transhipment and support vessels. Vessels not entered into the register should be deemed not authorized to operate in the RFMO's area of competence. Unique identification numbers, including IMO numbers and radio call signs, for all vessels on the register should be required;
   - A centralized vessel monitoring system for direct reporting in real time to the secretariat for all vessels involved in fishing operations on the high seas;
   - Prohibition of transhipment at sea or closer monitoring through a comprehensive compliance observer programme to supervise all transhipment operations at sea;
   - A scheme of port State measures taking into account at least the minimum requirements set out in the FAO's Model Scheme. Landing and transhipment in port should be allowed only when the flag State confirms in writing that the vessel has complied with all relevant measures;
   - Non-discriminatory trade- and market-related measures, such as catch certification and trade documentation systems, particularly for high-value fisheries. To be fully effective, RFMOs should make a greater effort to monitor patterns of trade, although this will be facilitated by the introduction of species-specific and product-specific trade codes. Trade- and market-related measures and systems need to be designed to minimize the burden on enforcement officials. Developing countries may need to be provided with assistance in order to meet the requirements of these schemes;
   - A system for punishing flag States and/or their vessels and nationals for violations of an RFMO's conservation and management measures, in addition to requirements for each member of the RFMO to follow up any violations by its flagged vessels. Overfishing should invariably lead to a loss of fishing opportunities in future years. Members should be required to report on domestic actions taken, including imposition of fines, seizure of catch/gear, sequestration of vessel, suspension of licence or reduction/withdrawal of fishing opportunities;
   - Schemes to target non-parties fishing in contravention of an RFMO's conservation and management measures, such as blacklisting non-party vessels and listing irresponsible flag States, followed by agreed actions against those vessels and States;
   - Schemes promoting compliance by nationals of its members, requiring the latter to ensure that natural and legal persons subject to their jurisdiction do not support or participate in IUU fishing; and
   - Mechanisms for sharing surveillance information with adjacent coastal States and with other RFMOs targeting non-members conducting IUU fishing.

2. RFMOs should also consider the following additional tools and, if they are applicable to the situation at hand, they should implement them:
   - Observer programmes, in particular where the areas of jurisdiction are vast and at-sea inspections are random or absent.
   - Inspection schemes, which include provision for reciprocal boarding and inspection (in accordance with articles 21 and 22 of UNFSA) as well as an obligation on the flag State to take immediate action against a vessel suspected of having committed a serious violation. Such action shall include stopping the vessel's fishing operations and requiring its immediate rerouting to port.

E. Decision-Making Practice

General

1. The RFMO has transparent procedures in place for taking decisions.
2. Rules of procedure have been adopted for all deliberative and decision-making organs and are publicly available.
3. The principal decision-making organ should hold regular sessions. In addition, it should be able to hold extraordinary or emergency meetings at short notice as provided for in the rules of procedure.
4. The rules should permit decision-making by consensus, a show of hands, a recorded vote, a roll-call vote or, in urgent situations, by post or electronic communication. All members are entitled to participate fully in decision-making. Where voting is provided for, each member should have one vote; and rules for the participation of REIOs should be designed to avoid the possibility of 'double voting'. The rules should also provide for participation by observer organizations and specify their rights to participate in meetings of the RFMO's organs and to receive and submit documents in advance of meetings.
5. Consensus means adopting a decision without a vote and in the absence of a formal objection by a member when the decision is adopted.
6. The rules should require a high quorum for taking decisions on questions of substance.
7. The rules should provide for the public availability of official documents and reports of meetings and for data and information related to management decisions except for that which is truly proprietary. All documents and reports should be available online.

Administrative, budgetary and other decisions

1. The RFMO has procedures and rules in place for taking decisions on administrative, budgetary, membership, organizational and similar matters. These decisions may be taken by a majority vote and may be cast in the form of resolutions, recommendations or decisions, as appropriate.
2. Apart from decisions on conservation and management measures, decisions in subsidiary organs of an RFMO should be taken by a simple majority vote and should be reviewable by the principal

organ. As far as possible, the reports of subsidiary bodies should reflect the full range of views expressed. Reports of the scientific advisory body to decision-makers should contain the rationale for all findings and recommendations, including attendant assumptions, uncertainties and areas of disagreement. The rules of procedure of the decision-making body should provide that the advice and recommendations of the scientific advisory body are taken fully into account.

3. Procedural decisions are taken by a simple majority vote. The decision whether an issue is one of procedure or of substance is treated as one of substance.

Decisions on questions of substance

1. Decisions about questions of conservation or the management of the stock(s), including the allocation of catches or fishing effort, are ones of substance. Decisions should be cast in the form of conservation measures, including fishing opportunities.

2. The rules should encourage members to keep in mind their duty to cooperate and thus to use their best efforts to reach consensus, but without thereby giving the equivalent of a veto to any member. Decisions should be deferred if necessary in order to permit further consultations.

3. If consensus still cannot be reached after extended consultations, the rules should provide for the assistance of a facilitator or a conciliator. This assistance should be available at the request of the presiding officer or any participant in the consultations.

4. When all efforts to reach consensus have been exhausted, decisions in an RFMO that has:

   (a) fewer than five members
   may be taken by consensus, coupled with a right for a dissatisfied member which does not block consensus to request a review of the decision by a panel;

   (b) more than five members
   should require a high majority for adoption such as two-thirds of the members voting for or against, rising to three-quarters in an RFMO with more than 12 members.[1]

5. A member objecting to or intending to vote against the adoption of a proposal can request a review or enter an objection to the (proposed) decision within a short time limit. Objections should be reasoned and should be based on one of the following grounds:

   (a) The decision is contrary to UNCLOS, UNFSA or the RFMO's constitutive instruments;

   (b) The decision discriminates against that member in form or fact and there is no objective justification for the discrimination.

   In such circumstances, decisions do not enter into force immediately, even if they are supported by the requisite majority. The default position, pending resolution of the objection or dispute, on decisions about conservation and management measures should not permit action to be taken that may compromise the sustainability of the stock(s) or undermine the objection procedures of the RFMO. Conversely, objection procedures should not be able to be used so as to allow inaction.

[1] The exception is that decisions on conservation and management measures that would apply within a coastal State's EEZ should be taken by consensus.

6. Whenever an objection is submitted, a panel of independent experts shall review the objection without delay and report its conclusions to the appropriate organ of the RFMO. If the panel is not unanimous, all views shall be included in the report. If the panel endorses the decision, it shall enter into force for all members on a specified date. If the panel upholds the objection, the decision shall be reconsidered urgently by the RFMO in the light of the panel's report and a new decision shall be taken. If there are objections to this new decision, any legal differences should be submitted to the RFMO's procedures for the settlement of disputes without delay. Panels should be able to set provisional or interim measures.

7. Once taken, decisions are accepted and implemented by all members, including those voting against, subject to any pending legal disputes referred to the dispute settlement mechanism.

8. The general principles and the functions of RFMOs contained in articles 5 and 10 of UNFSA should be incorporated into the texts governing decision-making in individual RFMOs.

F. Dispute Settlement Practices

1. An RFMO should encourage members to cooperate in such a way as to prevent legal disputes from arising. Decision-making arrangements should give every possibility for reaching consensus through consultations, mediation, conciliation and expert review panels.

2. An RFMO should have arrangements in place for handling and resolving any differences within its membership over questions of law, including the interpretation or application of the organization's constitutive instrument, that cannot be settled by consultations or other agreed means.

3. These arrangements should take full account of Part XV of the LOS Convention and Part VIII of UNFSA. They should be at least as effective as Part XV and Part VIII; in particular, they should not create any derogations from those two parts. In other words, the arrangements of an RFMO should not be cast in terms that prevent a member state that is a party to the LOS Convention and/or UNFSA from submitting a dispute about the interpretation or application of the LOS Convention or UNFSA to binding procedures of dispute settlement under Part XV or Part XIII, as the case may be.

4. An RFMO's procedures for resolving legal differences should, in principle, be open to all members, whatever their general status under international law. However, particular legal and political problems exist in relation to two categories. In the case of members which remain dependent territories, their administrative authorities should be urged to facilitate their participation in legal cases under appropriate conditions. A cooperating non-member of an RFMO should accept its arrangements for handling disputes as part of the wider arrangements for acquiring the status of cooperating non-member.

5. The procedures should be compulsory in the sense that all members agree in the constitutive treaty or in advance of a dispute that in the event of failure to resolve a legal difference, each party to the dispute is entitled to submit it to an impartial expert panel or tribunal for a binding ruling.

6. Procedures should be expeditious. Provisional measures should be available during the proceedings in order to protect the rights of the parties, the stocks and the marine environment generally.

7. Whenever there are technical or scientific issues in dispute, the procedures should permit the participation of technical or scientific experts.

8. The procedures should be transparent. Submissions by the parties to the dispute and decisions by the dispute settlement procedure should be made public. Other members of the RFMO and observers such as industry groups and conservation organizations should be entitled to submit a statement of their views, and these should also be publicly available.

9. The secretariat of the RFMO should assist the panel, court or tribunal by submitting documentation and information about the work of the RFMO.

10. The procedures should produce a result that is binding upon the parties. If not, the procedures should safeguard the application of section 2 of Part XV of the LOS Convention.

11. The members of the panel should be recognized for their impartiality and their experience of international fisheries or international law. Decisions should be taken by a simple majority vote; if the panel is not unanimous, separate opinions should be permitted.

12. If a difference of a general nature arises, the members of an RFMO should agree to request from an international court or tribunal an advisory opinion on a stated legal question of direct relevance to its work.

13. If, in future, there should be judicial review by international courts and tribunals of the decisions of RFMOs, appropriate trade bodies and NGOs should be afforded an opportunity to submit information and argument to an extent similar to that in many national courts.

G. Transparency

In each RFMO, members should ensure that:

1. The RFMO has given effect to article 12 of UNFSA, which requires transparency in decision-making processes and other activities of RFMOs, and that representatives from IGOs and NGOs should be afforded an opportunity to participate in meetings on reasonable terms.

2. The RFMO has adopted streamlined processes for applications for observer status that minimize lead times for applications and clearly specify the information required in support of the application and the justification for observer status.

3. The rules of procedure adopted by the RFMO provide for long-term approval of observer status instead of requiring an annual approval process.

4. Observers have access to all official documents in the same timeframes as members. Reasons of confidentiality should not be used as a means to unduly restrict access to documents. The basis upon which confidential documents are treated as confidential should be made available.

5. Rules of procedure minimize the capacity for RFMOs to selectively close meetings to observers. A decision to close a meeting requires the agreement of at least a majority of members.

6. The websites maintained by RFMOs are readily and publicly accessible. They should be kept up to date and contain summary statistics on catch, effort and trade as well as all meetings documents, including background papers and reports.

7. When committees have been established in order to provide advice on conservation and management measures for certain geographical areas or species, RFMOs should ensure that the nature of participation in them does not result in a lack of transparency. If membership of these committees is limited in scope, provisions should be in place to support attendance as observers by other members of the RFMO, particularly developing State members.

8. The rules of procedure for the conduct of committees, including those established to provide advice on conservation and management measures, do not provide for lower standards of transparency, including in regard to participation and access to meetings papers and reports, than those adopted by the Commission.

H. Special Requirements of Developing Countries

1. The RFMO has processes in place to evaluate developing State members' level of dependence on managed stocks, for example vulnerability indices.

2. The RFMO has processes in place to demonstrate the value of the potential benefits to members, especially developing State members, from better management of stocks on the high seas and in areas under national jurisdiction.

3. Participation of developing States in the work of the RFMO is assured, either through RFMO-managed voluntary contributions or, preferably, through guaranteed budgetary contributions, as in the case of the WCPFC. Where appropriate, such participation should extend to observers as well as members. This is particularly relevant when developing countries are involved in trade in product subject to catch or statistical documentation schemes and when full membership may not be appropriate or necessary for application of the scheme.

4. Formulae for contributions to the budget of the RFMO take into account the ability of developing States to make financial contributions.

5. The RFMO has given effect to Part VII of UNFSA by structured programmes of assistance to developing States. The WCPFC provides an example of current best practice for the establishment of a special fund for this purpose.

6. Programmes of assistance, whether financed through voluntary contributions or otherwise, are linked to the agreed priorities and the strategic plan of the RFMO. Where appropriate, these programmes should include enhancing the ability of developing countries to participate in catch documentation schemes and port state regimes and to comply with their obligations to supply statistical information. RFMO secretariats may have an important role to play in the coordination and practical implementation of the programmes of assistance.

7. The RFMO has adopted strategies that permit developing States to develop their own fisheries for straddling and highly migratory fish stocks.

8. The RFMO has adopted high seas allocation criteria that meet the objectives of UNFSA Part VII as regards participation by developing States.

I. Institutional Practices

1. Institutional structures, whether the body concerned is an RFMO or an arrangement, must be sufficiently robust to achieve its core conservation and management objectives.

2. The financial resources allotted to the RFMO or arrangement are adequate to enable it to achieve its core objectives.

3. The RFMO has a transparent process in place for scrutinizing and adopting its budget.

4. The formula for the RFMO's members to assess contributions to its budget is equitable, transparent and sustainable.

5. Assessed contributions to the budget are paid in full and on time. There should be sanctions, for example withdrawal of voting rights, interest payments and suspension of fishing rights, in case of non-payment.

6. The RFMO is able to establish medium- and long-term operational plans identifying research and management priorities for use of the resources of the organization and for the alignment of voluntary contributions.

7. Voluntary (extra-budgetary) contributions are applied only to support the agreed priorities and strategic plan of the RFMO.

8. The staff of the secretariat are recruited according to merit, taking due account of the need for equitable geographic representation.

9. The secretariat is given both clear guidance about members' expectations of it and resources adequate for carrying out its work.

10. The secretariat applies appropriate generic management system standards (for example ISO 9000), to all aspects of its operations.

11. Financial regulations, rules and procedures and staff regulations covering the internal administration of the RFMO are in place.

12. RFMOs actively cooperate with one another and with other relevant regional organizations so as to ensure that their broad objectives of long-term conservation and sustainable use are achieved.

13. There exists provision for regular performance assessment by each RFMO, whether through self-assessment, external review or a combined panel of internal and external reviewers, based on widely recognized best practices and agreed indicators. The results of these assessments should be made publicly available.

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Appendix 1
Ecosystem-based Fisheries Management

Summary of current practices by major RFMOs to implement some key elements of the UNFSA, the FAO Code of Conduct for Responsible Fishing, Ecosystem-based management and the Precautionary Approach to fisheries management[1]

Regional Fishery Management Organizations (RFMOs) employ a variety of approaches and methods to manage resources and associated ecosystems under their jurisdiction. On the basis primarily on a review of annual and technical reports of 13 RFMOs and various UN/FAO publications, 'best practices' were identified with respect to Ecosystem-Based Management (EBM) and the Precautionary Approach (PA). In addition information was collected on RFMO target and non-target species, management decision rules and operational benchmarks (where possible), research programmes and use of scientific advice in decision-making. Through an understanding of best practices employed by various RFMOs, a model for improved high-seas governance is derived which includes measures to promote both EBM and the PA.

RFMOs reviewed were chosen because their mandates provide the authority to enact management measures. The following RFMOs were examined: *Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR)*, *Commission for the Conservation of Southern Bluefin Tuna (CCSBT)*, *General Fisheries Commission for the Mediterranean (GFCM)*, *Inter-American Tropical Tuna Commission (IATTC)*, *International Baltic Sea Fishery Commission (IBSFC – now defunct)*, *International Commission for the Conservation of Atlantic Tunas (ICCAT)*, *International Pacific Halibut Commission (IPHC)*, *International Whaling Commission (IWC)*, *Northwest Atlantic Fisheries Organization (NAFO)*, *North Atlantic Salmon Conservation Organization (NASCO)*, *North East Atlantic Fisheries Commission (NEAFC)*, *South East Atlantic Fisheries Organization (SEAFO) and the Commission for the Conservation and Management of Highly Migratory Fish Stocks in the Western and Central Pacific Ocean (WCPFC)*.

Owing to the decline of many commercially exploited fish stocks, there is a worldwide movement by fishery managers to embrace EBM and PA – to go beyond traditional management approaches (i.e., single-species/stock management plans which generally assume that the productivity of the stock is a function of its inherent population characteristics). EBM acknowledges that fishing and other activities take place within complex communities of organisms and habitats and that fishing is only one of many human activities which impact on these marine environments. EBM considers cumulative impacts of different sectors on the ecosystem. In the fisheries management context the main goal of EBM is sustainability of catches without compromising the inherent structure and functioning of the marine ecosystem. In general, the PA is intended to (1) avoid the tendency to address problems only in arrears after substantial economic and ecological losses have occurred by using prudent foresight to guide resource use; (2) promote a more equitable balance between short-term considerations (which often lead to overfishing) and longer-term considerations; and (3) counteract the effects of

[1] This Appendix and Table A.1 are adapted from Mooney-Seuss and Rosenberg (2007).

current high economic discount rates which provide a strong incentive to overfish, maximizing the discounted net benefits from a stock by *de facto* preferring current over future consumption.[2]

Arguably, single-species management schemes are not the cause of overexploitation of fish stocks. The failure is due to lack of political will by fishery managers and marine resource users to implement management measures according to scientific advice and effectively enforce and comply with those management measures. Rather than abandoning single-species management, which in some cases has been successful (e.g., US/Canada Pacific halibut), it may be more appropriate to broaden the scope of existing management efforts to manage associated and dependent species.

Another determining factor in the success of fisheries management is the proper identification of conflicts and synergies between conservation outcomes and economic objectives. Inherent in the primary issues which hinder effective fisheries management (e.g., overfishing, bycatch and discards and Illegal, Unreported and Unregulated (IUU) fishing) is the struggle between short-term socio-economic costs/benefits and long-term conservation costs/benefits. Few of the RFMOs reviewed have well-articulated strategies for identifying and accounting for these socio-economic needs. NASCO and GFCM have defined socio-economic indicators. More typically, however, RFMOs consider associated costs and ecological benefits when they impose a new management measure or require the use of new fishing technology or methodologies (e.g., use of pingers on fishing nets or mesh size requirements) and these considerations are implicit in the resulting regulation. Several RFMOs also collect trade data to better identify future market opportunities or combat IUU fishing. However if EBM and PA are to advance, socio-economic considerations must be deliberately stated and appropriately accounted for in management decisions.

How well RFMOs adhere to scientific advice when defining management measures and how well they comply with those measures once implemented may provide a good indication of how effectively RFMOs will implement EBM and the PA. Only three RFMOs, CCAMLR, IATTC and IPHC, and their respective Contracting Parties appear to comply consistently with both scientific advice and corresponding management measures. While both NASCO and the IWC seem to establish management measures consistent with scientific advice, Contracting Parties have not always complied with these measures. The WCPFC does appear to be following scientific advice when establishing its management measures, but as it is a new organization it is too early to tell whether Contracting Parties will effectively enforce and adhere to these measures.

For NAFO, NEAFC, ICCAT and CCSBT scientific advice has been inconsistently followed when management measures were established and in some cases the measures were not adhered to when they were in place. For GFCM and SEAFO it is not clear whether scientific advice is being followed when management measures are adopted. SEAFO is a new organization and GFCM has only recently begun to identify PA management measures for its respective stocks. In the case of IBSFC, disputes between Contracting Parties over proposed management actions often resulted in years of unregulated fishing for some stocks; thus it could be argued that the IBSFC rarely followed scientific advice. Table A.1 summarizes development of EBM and PA measures within organizations, and also highlights how well each organization complies with scientific advice when designing management measures and how well each complies with these measures once adopted.

Of all the RFMOs reviewed, CCAMLR is the most advanced in terms of developing and implementing EBM/PA measures. CCAMLR has not only adopted overarching objectives and decision rules for

[2] United Nations (1994), p. 9.

some of its key stocks which incorporate PA and EBM but has also adopted precautionary reference points (targets and limits). CCAMLR has clear precautionary procedures for the development of new and experimental fisheries, including cautious initial caps on the total catch and effort and their spatial distribution, data collection to support assessment and expansion decisions, and agreed methods for those assessments. CCAMLR serves as a model for its efforts to monitor and remedy impacts on associated and dependent species (e.g., establishing TACs for bycatch species and tying them to TACs for management species, closing areas when bycatch targets are reached and including a set-aside for predators when establishing TACs for target stocks.) CCAMLR has a comprehensive ecosystem monitoring programme (CEMP) which not only monitors the relationship between target and associated and dependent species but also conducts assessments on predator populations. CCAMLR also is applying a number of measures to mitigate seabird bycatch (e.g., setting nets at night, the use of tori lines in longline fisheries, moving the start of the fishing season to avoid conflict with birds) and is testing a new pumping system in the krill fishery so that the trawl net can remain in the water, thereby reducing bird bycatch). Nevertheless, CCAMLR was regarded as having only partially implemented 'Penalties for Non-Compliance' because it still is plagued by IUU fishing. Overall, CCAMLR fish stocks are considered to be in good condition although some are fully exploited and others are being fished without management.

CCSBT is the only organization to pre-specify what should happen when TACs generated by the Management Plan (MP) are considered to be 'highly' risky or inappropriate, to incorporate regular review and MP revision and to establish performance measures. The problem is that management advice is not always followed. CCSBT also accounts for both Contracting and Non-Contracting Party fishing effort in its TAC. CCSBT has a fairly comprehensive Trade Information Scheme, but it has failed to impose any strong penalties on states involved in the sale and distribution of tuna taken in IUU fishing activities. In terms of EBM, CCSBT has instituted educational efforts to improve data collection and reduce seabird and shark bycatch. The organization also compiles and analyses data on predator and prey species in relationship to bluefin tuna. Even though there is a solid scientific foundation, CCSBT efforts to rebuild depleted southern bluefin tuna have been slow because catches in recent years have remained too high. Australian scientists estimate that current southern bluefin tuna stock is between 3 and 14 per cent of the 1960 level and between 14 and 59 per cent of the 1980 level.[3]

The GFCM overarching objective captures the need to take into account the best scientific evidence which is clearly in keeping the PA approach. More than any other RFMO it has taken actions to ensure that its Contracting Parties are familiar with and practise the FAO Code of Conduct which defines key aspects of both the PA and EBM. Furthermore GFCM is using the code to develop a means for gathering and accounting for socio-economic data in its management approach. GFCM prohibits the use of towed dredges in trawl-net fisheries at depths greater than 1000m, and the use of bottom-trawls and dredges in three areas to protect corals, cold hydrocarbon seeps and seamounts. Generally, CPUE is declining in the Mediterranean. FAO's most recent global assessment identified a number of Mediterranean stocks as overexploited, including bluefin tuna, Atlantic bonito, hake, swordfish, whiting, striped mullet and sea bream.

IATTC has made some progress implementing the PA and EBM. The IATTC objective encompasses important aspects of both EBM and the PA, citing both the need to be more cautious when information

[3] http://www.deh.gov.au/biodiversity/threatened/species/southern-bluefin-tuna.html.

is uncertain and the need to adopt management measures for associated and dependent species. While IATTC has an exemplary research programme and has adopted management measures with which Contracting Parties consistently comply, the organization still grapples with the problems of IUU fishing which threaten to undermine its management efforts. Several IATTC stocks are considered fully exploited and the rebuilding plan for marlin has been only moderately successful. While IATTC has made progress defining precautionary reference points for many of its stocks, the reference points have not yet been fully translated into adaptive management measures for all species. Unlike most other RFMOs reviewed, IATTC has in place a Capacity Management Scheme which has actually defined an overall capacity goal for the Convention Area. In addition, IATTC's unique position as Secretariat for the Agreement on the International Dolphin Conservation Program (AIDCP) has resulted in a much broader ecosystem focus. IATTC has adopted measures to address bycatch of juvenile tuna and associated and dependent species in its regulated tuna fisheries, most notably dolphins and sea turtles. IATTC and ICCAT are the only two RFMOs to impose strict measures to penalize vessels engaged in IUU fishing (e.g., trade sanctions) to promote better compliance with regulations. For the most part, IATTC stocks are considered to be healthy (exceptions include North Pacific albacore, bigeye and southeastern swordfish), although at much lower levels than historically present.

When the IBSFC was in place, IUU fishing and bycatch and discarding practices were widely recognized as serious problems in the region. In addition, the organization consistently exceeded limits recommended by ICES when establishing TACs. Under Baltic 21, IBSFC had promised to advance EBM measures, but these measures were not realized prior to the dissolution of the organization. Even now that the EU has taken over the primary responsibility for managing Baltic fish stocks, scientific advice is not fully heeded. In 2006 TACs for the severely depressed eastern Baltic cod stock were not reduced to the levels recommended by ICES to rebuild the stock. While Baltic herring and sprat stocks appear healthy, in part owing to favourable environmental conditions, cod and salmon in some areas are seriously overfished.

ICCAT has not made much progress developing limit reference points or corresponding management actions. It also is inconsistent when developing management measures to conserve and/or rebuild fish stocks. However, ICCAT, like the IATTC, is one of the few RFMOs to use strict enforcement measures (e.g., sanctions) to penalize fishing vessels engaged in activities which undermine stock conservation. ICCAT has adopted some broader EBM measures in recent years. The Commission is assessing and regulating seabird bycatch and shark finning. The majority of ICCAT managed stocks are overfished or fully fished, or their status is unknown.

IPHC, IWC and NASCO are good examples of effective implementation of the PA under single-species or multi-species management. All have developed limit and/or target reference points. IPHC successfully restored halibut stocks under a conservative rebuilding programme. IWC has defined a precautionary management strategy for sustainably fishing whale populations worldwide. This strategy has not been fully implemented for any of the whale stocks and management is still based on a moratorium. Some whaling has taken place under an objection procedure or scientific protocol and remains extremely controversial. NASCO has developed guidelines for implementing the precautionary approach including River Specific Conservation Limits (CLs). However, the onus remains on Contracting Parties to actually develop corresponding management measures to rebuild depleted salmon populations. In addition, while a moratorium is in effect to help protect salmon on the high seas, IUU fishing continues to impede stock recovery.

With respect to EBM, IPHC and IWC have taken definitive action to address bycatch of halibut or

cetacean species in non-target fisheries, respectively. NASCO assesses the risks and the benefits to the Atlantic salmon stocks including socio-economic implications of any given project. IWC's progress in implementing EBM has been limited despite the notable exceptions of collaborative research with CCAMLR on krill/whale relationships and accounting for ship strikes when establishing TACs. However, progress in advancing EBM in these three organizations is probably hindered by their limited mandates, which apply to either a single species or a specific class of marine species. In terms of status of managed stocks, the Pacific halibut stock under IPHC is considered healthy; for the IWC the majority of whale stocks, other than Northern right whales, have either recovered or are showing signs of improvement; but salmon stocks in the North Atlantic Ocean remain in a precarious state.

NAFO scientists have developed a Precautionary Approach Framework which includes Target and Limit Reference Points as well as buffer zones to help ensure that Precautionary Limits are not exceeded. However, this Framework has yet to be widely adopted by the Fisheries Commission. The PA has been applied to a few NAFO-managed stocks, most notably yellowtail flounder. NAFO has also adopted a rebuilding plan for Greenland halibut, but this plan has not been adequately enforced. In terms of implementing EBM, NAFO has not made significant progress. For instance, bycatch and discarding remain a serious problem for the organization. NAFO has begun to develop research guidelines to identify sensitive deep-sea habitats within the Convention Area (i.e., seamounts). At present, almost half of NAFO managed stocks remain under moratoria and are subjected to continued exploitation as a result of IUU fishing. There are no clear rebuilding plans for any of these stocks.

An initial examination of NEAFC reveals that there has been limited progress in adopting PA and EBM measures. ICES scientists have generated precautionary reference points and management recommendations for NEAFC's five primary stocks, but this has not always resulted in corresponding management actions. From an ecosystem perspective, NEAFC was proactive in protecting deep-sea habitats by prohibiting several gear types from fishing at depths greater than 200 m and closing five areas to all fishing to protect seamounts. NEAFC also imposed catch reductions or fishery closures to help rebuild depleted basking shark populations. All but one of NEAFC's primary target stocks are considered fully exploited or harvested at unsustainable or unknown levels.

Both the WCPFC and SEAFO include 'precautionary' language in their respective conventions. However, it is too early to tell if these organizations will follow through with the development of precautionary reference points and appropriate management actions for all of their respective stocks. SEAFOs reluctance to follow scientific advice and establish a cap on deep-water fisheries as an interim measure until enough scientific data could be collected to clarify further management action is clearly not precautionary or even in keeping with its own mandate. Nevertheless, SEAFO's requirements that all fishing vessels be equipped with VMS and carry scientific observers and other interim measures to deter IUU fishing (e.g., port inspection scheme, prevention of transhipments at sea for species covered by SEAFO convention and record-keeping by authorized fishing vessels) are positive steps, if there is adequate enforcement. SEAFO has laid the foundation for future EBM within its waters, namely instituting measures to curtail shark and seabird bycatch and protect deep-sea habitats. In fact, it is one of only two RFMOs (along with NEAFC) to proactively close an area to fishing which is believed to contain sensitive deep-sea habitat (e.g., seamounts), and implement exploratory measures to study the area and small-scale impacts from fishing activities before permitting full-scale fisheries. WCPFC was proactive in adopting interim measures to freeze fishing effort on yellowfin and bigeye tuna. In addition, the fact that the relationship between the catches of these two tuna species and associated species is considered at least qualitatively in assessments is both precautionary and helping to promote EBM.

In summary, most RFMOs have taken steps to incorporate PA and EBM objectives in their management practices. Several RFMOs have actually adopted PA measures for some of their managed species. A few organizations stand out as having firmly embraced PA measures in effective management of their fisheries (e.g., NAFO – yellowtail flounder, CCAMLR, IPHC, IWC). Most recognize the value of collecting bycatch data and have made progress in adopting various measures to curtail bycatch from gear modifications, imposing minimum size limits and mesh requirements, as well as adopting bycatch limits which when reached result in closure of fishing areas or relocation of fishing effort. A number of organizations are beginning to collect data on associated and dependent species of target species and investing in development of broader ecosystem models for defining future catch rates (most notable among these is CCAMLR). There appears to be a strong commitment by these organizations to assess and address IUU fishing, particularly by Non-Contracting Parties (e.g., ICCAT and IATTC). A couple of RFMOs have recognized the importance of developing socio-economic indicators and incorporating socio-economic data in their management policies (e.g., GFCM and NASCO). Some have adopted Capacity Reduction Schemes (e.g., GFCM, IATTC and CCAMLR). Efforts are under way, stimulated in part by the UN General Assembly mandate, to identify sensitive deep-sea habitats (e.g., seamounts and cold water corals) but beyond that little is being done to identify and protect other important spawning, nursery or feeding habitats.

In addition, lacking in all RFMOs reviewed is adequate enforcement and compliance by Contracting Parties with agreed management measures. Furthermore, when catch limits have been established and are exceeded, only two of these organizations (CCAMLR and CCSBT) have well-articulated, pre-negotiated management responses.

With EBM, RFMOs are challenged to manage complex marine ecosystems which require an even greater amount of information about the impact of human activities than under single-species management regimes. Under the PA approach prudent foresight needs to be exercised when information is lacking. If little is known about the state of a resource or the potential effect of fishing, then the activity should be strictly limited until such time as it can be determined that it is likely to be sustainable.

A further challenge to EBM/PA implementation is that for many RFMOs the majority of their regulated fish stocks are either fully fished or overfished. This leaves little room to allocate shares to new members including developing countries. In addition, some RFMOs have opt-out procedures whereby Contracting Parties within a set period of time may choose not to abide by agreed upon fishing regulations, without penalty, thereby undermining the effectiveness of management efforts.

IUU fishing activities also undermine management efforts. IUU fishing has global effects and its solution will require creative solutions at global, regional and local levels. Solutions identified by RFMOs include trade monitoring and direct estimation from surveillance. Clearly, there is a need to improve the individual as well as corporate accountability of all parties involved in fishing. In this context, some RFMOs have made progress in developing and circulating both 'positive' and 'negative' vessel lists and imposing sanctions on violating parties.

As was the case for single-species management under EBM and PA, a concerted effort to ensure adequate follow-through with enforcement and compliance mechanisms (e.g., comprehensive observer programmes, dockside and onboard monitoring of catch and discards with sufficient deterrents to penalize non-compliance) is imperative.

Table A1: Summary of measures and approaches by Regional Fisheries Management Organizations (RFMOs) in addressing ecosystem-based management and Precautionary Approach measures*

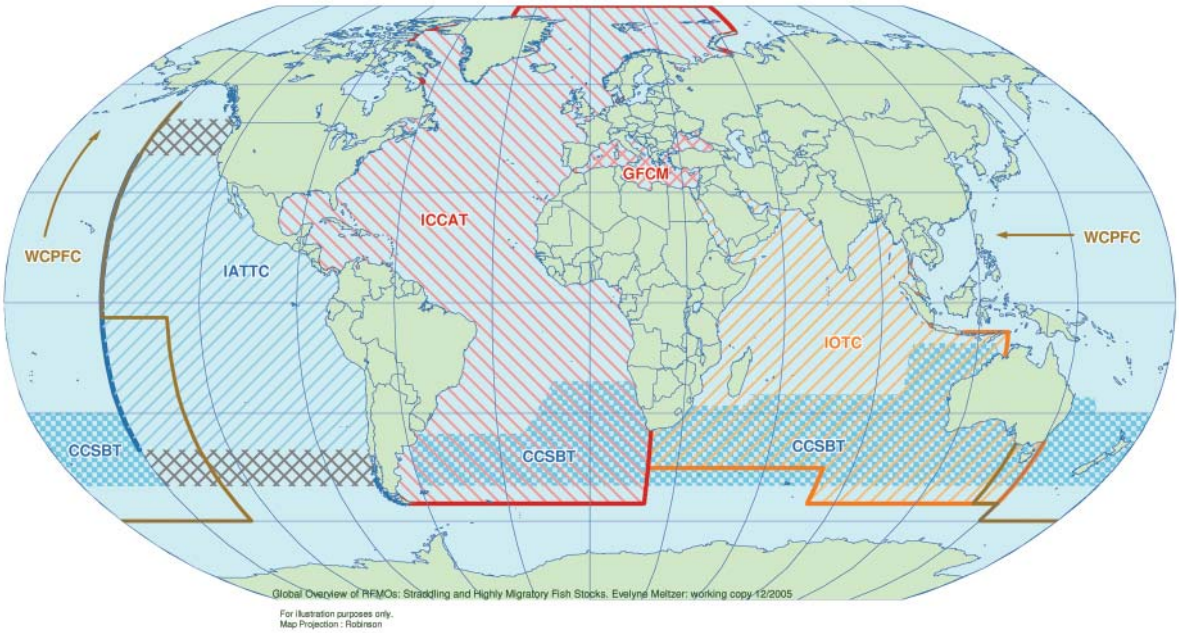
	CCAMLR	CCSBT	GFCM	IATTC	IBSFC	ICCAT	IPHC	IWC	NAFO	NASCO	NEAFC	SEAFO	WCPFC
Overarching objectives													
Decision rules													
Limit reference points													
Target reference points													
Management measures Access control													
Management measure Bycatch reduction													
Management measures Habitat protection													
Interim measures/ Recovery plan													
Capacity reduction scheme													
Evaluation & adjustment													
Voluntary Code of Conduct													
Research programme													
Experimental fisheries													
Monitoring & enforcement Monitors compliance													
Monitoring & enforcement Detection of ancillary impacts													
Monitoring & enforcement Penalties for non-compliance													
Management based on scientific advice	C	I	**	C	R	I	C	C	I	C	I	**	C
Compliance with management measures	C	I	**	C	R	I	C	I	I	I	I	**	**

Key for resource management measures	
	Implemented
	Developing, not applied or applied for some species
	No measures in place or insufficient information to evaluate or not applicable

Key for compliance with scientific advice/management measures	
C	*Consistent* compliance
I	*Inconsistent* compliance
R	*Rare* compliance
**	*Insufficient data for evaluation*

* This table analyses whether measures are in place, not how effective measures are, unless otherwise indicated (e.g., Compliance with scientific advice).

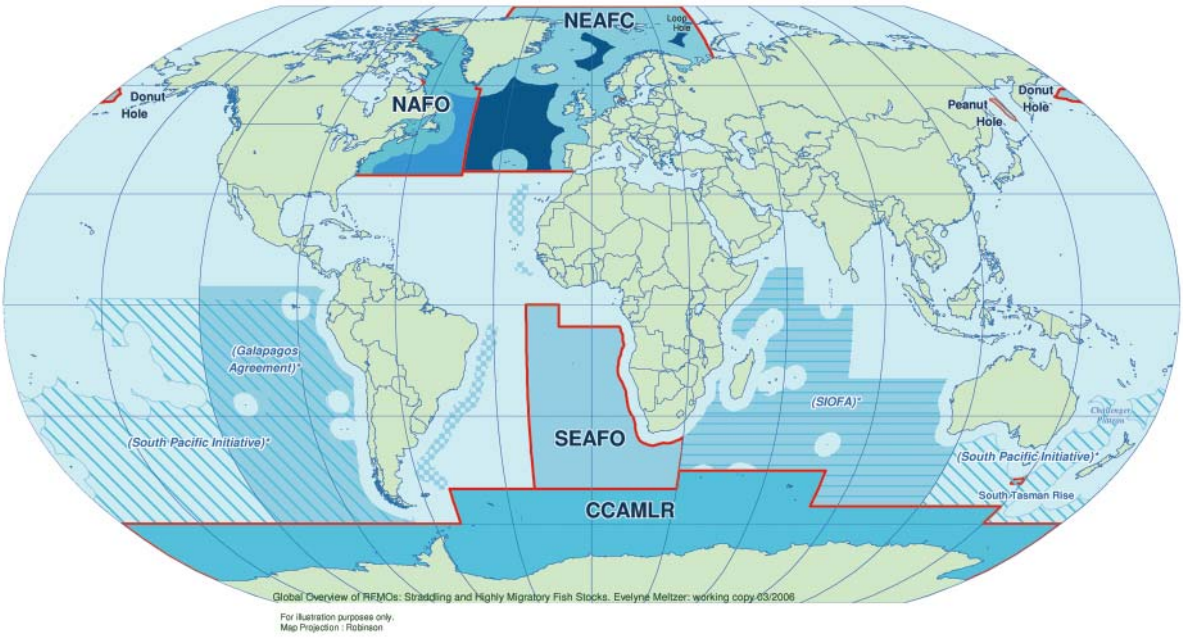
Appendix 2
Maps of Regional Fisheries Management Organizations



Global Overview of RFMOs:
Highly Migratory Fish Stocks (Tuna and Tuna-Like)

IATTC
Antigua Convention (not yet in force)
GFCM
CCSBT
ICCAT
IOTC
WCPFC

WCPFC Note : Northern boundary and most of Western boundary for RFMO are not defined, and Area is not intended to include waters in South-East Asia which are not part of the Pacific Ocean; nor is it intended to include waters of the South China Sea.



RFMO Boundary

( )* RFMO area under negotiation, not yet adopted or not yet in force.

Global Overview of RFMOs:
Straddling Fish Stocks

- SEAFO
- CCAMLR
- NEAFC Convention Area
- NEAFC Regulatory Area
- NAFO Convention Area
- NAFO Regulatory Area
- Donut Hole Arrangement
- *(SIOFA)* (Not yet adopted)*
- *(Galapagos Agreement)* (Not yet in force)*
- *(South Pacific Initiative)* (Under negotiation - preliminary boundary)*
- Other Unregulated High Seas Areas where Straddling Fish Stocks occur