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Follow the leader

Learning from experience and best practice in regional fisheries management organizations

A. Willock and M. Lack

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Authors: A. Willock is the TRAFFIC network's Senior Fisheries Advisor. M. Lack is a consultant from Shellack Pty Ltd

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Acronyms and abbreviations

CBD	Convention on Biological Diversity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCRF	Code of Conduct for Responsible Fisheries
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CDS	Catch Documentation Scheme
CITES	Convention for the International Trade in Endangered Species of Wild Fauna and Flora
CMS	Convention on the Conservation of Migratory Species of Wild Animals
COFI	FAO Committee on Fisheries
EU	European Union

(Note: RFMO documentation may sometimes refer to the 'European Community' instead – e.g., as in Anon. 2006a)

EEZ	Exclusive Economic Zone
ERSWG	Ecologically Related Species Working Group
FAD	Fish Aggregating Device
FAO	Food and Agriculture Organization of the United Nations
FFA	Pacific Islands Forum Fisheries Agency
GFCM	General Fisheries Commission for the Mediterranean
HSTF	High Seas Task Force
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IOTC	Indian Ocean Tuna Commission
IPHC	International Pacific Halibut Commission
IPOA	International Plan of Action
IUU	Illegal, Unreported and Unregulated
NAFO	Northwest Atlantic Fisheries Organization
NASCO	North Atlantic Salmon Conservation Organisation
NEAFC	North East Atlantic Fisheries Commission
NGO	Non-Governmental Organization
NPAFC	North Pacific Anadromous Fish Commission
RFMO	Regional Fisheries Management Organization
SADC	Southern African Development Community
SBT	Southern Bluefin Tuna
SEAFO	South East Atlantic Fisheries Organisation
TAC	Total Allowable Catch
UNCLOS	United Nations Convention on the Law of the Sea
UNEP	United Nations Environment Programme
UNFSA	United Nations Fish Stocks Agreement
UNGA	United Nations General Assembly
VMS	Vessel Monitoring System
WCPFC	Western and Central Pacific Fisheries Commission
WWF	WWF, the global conservation organization

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Executive Summary

Governance of the world's oceans is characterized by a patchwork of organizations tasked with the conservation and management of living marine resources. Formal co-operation between States through Regional Fisheries Management Organizations (RFMOs) dates back to at least the 1920s and there are now 16 RFMOs with a mandate to establish binding management measures for fisheries resources. While some gaps remain, particularly with respect to discrete, high seas fish stocks, the vast majority of the marine fisheries resources of the world's oceans are under the control of at least one, if not more than one, RFMO.

The expectations placed on RFMOs have grown exponentially in the past decade or so with a proliferation of both international hard and soft law, most notably the development and entry into force of the United Nations Fish Stocks Agreement (UNFSA). Despite the proliferation of RFMOs and the development and evolution of instruments aimed at empowering them, RFMOs have generally failed to prevent over-exploitation of straddling and highly migratory fish stocks, to rebuild overexploited stocks and to prevent degradation of the marine ecosystems in which fishing occurs. Not only have broader, international expectations not been met but RFMOs have also largely failed to meet the objectives of their own governing conventions, generally characterized as conservation and sustainable utilization of target stocks under their mandate. It is difficult to identify examples of sustainable management of target stocks by RFMOs.

There are ongoing discussions at the highest levels of government concerning improvements to the effectiveness of governance of the world's oceans. These discussions have canvassed a wide range of institutional and legal reforms, including the establishment of an overarching global oceans governance commission, new implementing agreements for discrete high seas stocks and port State measures, and a single governance body for all tunas. While there is undoubtedly merit in many of these suggested approaches, the time frame within which such significant reform could be negotiated and implemented is a lengthy one. Given this, RFMOs are the available vehicle through which strengthened conservation and management measures for the world's living marine resources can be achieved in the short- to medium-term, if not for decades to come.

This report has examined the experiences of RFMOs with respect to the broader expectations of the global community, as reflected in legal instruments and internationally-agreed standards and protocols, and identifies what might be characterized as best practice approaches to these. These are summarized in Appendix II. In examining these experiences, the structure of the report is closely aligned with the Guidance for Assessing the Performance of RFMOs recommended by the recent final report of the Ministerially-led Task Force on IUU Fishing on the High Seas (HSTF).

Although the past performance of most RFMOs has been poor, this report has identified that a number of these organizations are taking steps to embrace some of the more recent international standards and expectations. For example, a number of RFMOs are moving to develop management strategies that reflect a more structured and binding approach to decision-making, framed within the precautionary approach and an ecosystem approach to management. Further, there is more recent evidence of RFMOs' seeking to share elements of best practice among themselves, particularly with regard to compliance and enforcement and trade-related measures. It is also apparent that some RFMOs are becoming more receptive to re-examining their *modus operandi* in response to external expectations, including through initiating formal review processes.

Attempts to improve the performance of RFMOs require the causal factors of poor performance to be clearly identified. Although each individual RFMO operates in a relatively unique geo-political environment there is nevertheless a strong degree of commonality in the factors affecting their performance. IUU fishing by highly mobile fleets under the control of multinational companies is widely recognized as a major threat to the sustainability of the world's living marine resources as well as the broader marine environment in which fishing activity takes place and much work has been done in attempting to identify ways in which IUU fishing can be prevented, deterred and eliminated.

Shooting away the trawl on a North Sea trawler.
© WWF-Canon / Quentin Bates

While there is no doubt that IUU fishing is a major threat facing RFMOs that will require co-operation and collaboration with other organizations to address, it is also clear that efforts directed at IUU fishing will do little to address internal failures of RFMOs. Vast over-capacity in authorised fleets, over-fishing of stocks under catch limits set by an RFMO, the virtual absence of robust rebuilding strategies for seriously depleted stocks and a lack of precaution where information is lacking or uncertain are all characteristic of the management regimes currently in place under many RFMOs. Indeed, the experience of most RFMOs to date would suggest that, even if efforts to eradicate IUU fishing were entirely successful, this would not, in and of itself, deliver healthy and sustainable marine fisheries. That is, 100% legal, reported and regulated fishing activity would still result in unsustainable fishing in the absence of improved decision-making and the robust application of the precautionary approach.

This report identifies some overarching recommendations aimed at addressing some of the common impediments to improved performance by RFMOs. These recommendations are directed towards strengthening the will and capacity of RFMOs and their member States, promoting the adoption of precautionary and ecosystem approaches to management, facilitating continuous improvement and accountability, and maximising opportunities for collaboration and transparency.

Political Will and Capacity

The political will and capacity of both the RFMO as a whole, as well as of its individual member States, is perhaps the most crucial element in improving the performance of RFMOs. Decision-making processes that enable dissenting members to opt out of conservation and management measures and consensus processes that result in the lowest common denominator being catered for can lead to weak and ineffective conservation measures. Greater transparency in decision-making and strengthened institutional structures, including those providing scientific advice, have the potential to reduce the scope for credible dissension by individual members. Further, explicit recognition of such fundamental issues as the application of the precautionary approach and the adoption of an ecosystem approach within a management strategy could also reduce ambiguity when conservation and management decisions are taken.

Comprehensive membership of all States with the potential to influence the effectiveness of an RFMO's conservation and management measures is a pre-requisite. This report has identified a gap with respect to membership of port and market States, whose co-operation may be increasingly required with greater use of trade- and market-related measures. The needs of developing States are also not well articulated in most RFMOs. Consideration of developing States in the allocation of fishing opportunities, targeted capacity-building and facilitating effective participation are necessary elements for most RFMOs to improve their overall effectiveness.

Recommendations:

1. States should sign the UNFSA and the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (the Compliance Agreement) in order to strengthen the resolve of member States of RFMOs to meet the obligations imposed by these agreements and by related international standards and protocols. As accession to/ratification of such agreements increases, so too does the recognition of their provisions as customary law.

2. Developed States should provide targeted assistance to developing States to facilitate their accession to the UNFSA and the Compliance Agreement.

3. RFMOs and developed States should provide assistance to developing States in order to strengthen their capacity to meet their international obligations.

4. States/entities involved in developing RFMOs should

Tokyo fish market where Bluefin and Yellowfin Tuna are being processed for sale. Tokyo, Japan. © WWF-Canon / Jason Dewey

ensure that legal obligations and best practice approaches are made legally binding through inclusion in the convention rather than relying on adoption of these by the RFMO at a later date.

5. Existing RFMOs should formally and explicitly, through amendments to conventions or agreed resolutions, reflect the obligations imposed by international law, standards and protocols as a consistent and binding basis for decision-making.

6. RFMOs should ensure that they have the flexibility to include port and market State members in response to the changing dynamics of fishing and trade.

Precautionary and Ecosystem Approaches

RFMOs are clearly at different points on the spectrum in terms of the maturity of approaches to the application of the precautionary approach and an ecosystem approach to management. Experience suggests that most RFMOs struggle to reach a common understanding of what is required by the application of the ecosystem approach. This would at least provide a consistent basis for its application and remove any doubts or debate about what is required of RFMOs in this respect.

The majority of RFMOs remain fixated on management of target stocks. Few have made a conscious decision to broaden their management focus to include all aspects of the marine ecosystem in which these stocks exist. Where this focus has been extended it rarely exceeds attempts to mitigate interactions with threatened species such as seabirds, turtles and cetaceans. By-catch and discards remain largely unmanaged by RFMOs and there is little evidence of attempts to understand and manage the impacts of fishing on the marine ecosystem. The precautionary approach is fundamental to effective management of the marine ecosystem, particularly with respect to new and exploratory fisheries. Yet there is little evidence of its application even for those stocks which are the mainstay of fisheries managed by RFMOs.

Failure to agree on conservation and management measures, including due to disagreement over the relative fishing opportunities of members, is a characteristic of most RFMOs that severely compromises the sustainable management of stocks and the ecosystem. The experience of RFMOs suggests that the development and implementation of management strategies have a key role in linking scientific advice and management decision-making.

Recommendations:

7. States/entities developing new RFMOs should ensure that the governing conventions explicitly provide for delivery of a precautionary and ecosystem approach to management.

8. RFMOs should establish management strategies, based on precautionary reference points (reflecting a sufficiently high probability of sustainability), for all target stocks. Where species are over-fished, explicit rebuilding targets and measures to assess progress should be developed.

9. RFMOs should adopt precautionary management measures, based on the best scientific advice available to them, until management strategies are developed for target stocks.

10. RFMOs and, in their absence, individual States fishing on the high seas, should take immediate action to ensure that fish stocks subject to new and exploratory high seas fisheries, and in particular deep-sea fisheries, are subject to precautionary management.

11. RFMOs should take transparent decisions about the allocation of fishing opportunities in the context of management strategies for target stocks, taking into account the legitimate aspirations of developing States.

12. RFMOs reviewing or making new allocations of fishing opportunities should consider the potential benefits to decision-making that might flow from arbitrated negotiation and the provision of independent external advice on allocation options.

13. States/entities developing new RFMOs should maximise the alignment of the organization's jurisdiction with known biogeographic boundaries and ecosystems, rather than with the distribution of target stocks, as a basis for adopting an ecosystem approach to management.

14. Existing RFMOs should review their instruments and structures to identify impediments to the development of integrated fisheries, ecosystem and management advice and, where necessary, develop approaches to strengthen delivery of that advice. In particular, RFMOs should consider institutionalizing and resourcing:

- the collection and analysis of data on non-target and associated species and broader ecosystem impacts of fishing

- secretariats to play a role as the central point for collection of scientific, ecosystem and compliance information

- the integration of advice, by appropriately qualified advisers, on ecosystem impacts and target stocks

- the establishment and operation of an advisory group charged with synthesizing the ecosystem and stock advice and developing management options for consideration by the commission

- mechanisms to ensure that the best available advice is provided to commissions by, for example, the inclusion of independent scientists or advisors and the incorporation of peer review

15. The UNFSA Review Conference should consider the merits of including guidance on the application of the ecosystem approach to fisheries management in UNFSA.

Collaboration

There is an urgent need for best practice to common issues to be transferred and applied in other forums. There is also a need for each RFMO to have objective information available to them regarding the weaknesses in and problems of the measures adopted by others.

Greater complementarity of management measures between RFMOs and better specification of primary responsibility where jurisdictional overlaps exist in terms of species and/or geographical area is essential. While there is likely to be a need for an overall rationalisation of these arrangements in the longer term, such a major change in governance arrangements will take some time to achieve and therefore complementary arrangements are required in the interim.

Data collection and the lack of formal processes for the exchange of information between members and between RFMOs is a constraint to effective conservation and management. This review has identified that secretariats, both individually and through increased collaboration, could play a much more active role in delivering good management outcomes if they were resourced to do so.

Recommendations:

16. RFMOs should establish co-operative institutional mechanisms to facilitate the sharing of experiences, transfer of best practice approaches to common issues and collaborative research. The role of RFMO secretariats and, in particular, the Regional Fisheries Bodies Secretariats Network should be strengthened in this regard.

17. RFMOs should clarify responsibilities with regard to overlapping jurisdiction for species, geographical area and/or ecosystems through formal and mutual agreements.

Transparency and Accountability

Transparency in the decision-making or the factors influencing those decisions within RFMOs has generally been poor, with some RFMOs never having allowed non-government organizations to attend meetings and others restricting access to information. Transparency should become the normal mode of doing business rather than the exception.

Closely linked with transparency is a need for an increased focus on performance assessment and review. There have been increasing calls from States in various international forums and from the NGO community for greater monitoring of RFMO performance along with a range of suggestions about how this might best be done. While discussions about the most appropriate methodology continue, it is apparent that the credibility of any such review process will be enhanced where there is regular, external assessment framed around a standard set of criteria.

Recommendations:

18. RFMOs should ensure that their rules of procedure facilitate access to information by interested parties and organizations and enable effective participation in the decision-making forum.

19. RFMOs should instigate mechanisms for regular review of their performance. Such reviews should be based on a consistent set of agreed criteria to assess RFMOs' performance against international law, standards and protocols. Given the focus of the UNFSA on conservation and management of target stocks, non-target stocks and the marine ecosystem, consideration of the conservation status of stocks and the ecosystem should be an integral part of such reviews.

1. Introduction

Regional Regional Fisheries Management Organizations (RFMOs) have been established, in the main, to facilitate co-operation between countries with a common interest in the management of fish stocks. Regional co-operation in the management of fish stocks has been undertaken since the 1920s[1]. However, 11 of the 16 RFMOs that are currently in force and have a mandate to establish management measures directly, have been established in the last 30 years.

Despite the proliferation of RFMOs and the development and evolution of instruments aimed at empowering them, it is widely acknowledged that RFMOs have generally failed to prevent over-exploitation of straddling and highly migratory fish stocks, to rebuild overexploited stocks and to prevent degradation of the marine ecosystems in which fishing occurs (see for example FAO, 2004a; Anon., 2005a; UNGA, 2005; UNGA, 2006a; UNGA, 2006b; HSTF, 2006). RFMO coverage of the high seas is incomplete in terms of both species and of membership of those States and entities whose co-operation is required to achieve effective conservation and management.

In pursuing their own stated objectives, RFMOs are expected to comply with international law and to operate in accordance with internationally-agreed standards and protocols. The international legal and policy environment in which RFMOs operate is increasingly complex and demanding. The 1982 United Nations Convention on the Law of the Sea (UNCLOS) and the subsequent 1995 UN Fish Stocks Agreement (UNFSA)[2] imposed new obligations on and expectations of Parties to that Agreement when acting individually or collectively, through RFMOs. These legislative instruments, together with increasing concern for marine fish stocks and the marine environment, prompted the development of a range of 'soft law' instruments and internationally-endorsed declarations and resolutions. These have placed considerable obligations and responsibilities on the members of RFMOs. However the conventions and agreements under which many RFMOs operate pre-date many of the initiatives of the last decade in particular. Few have been updated to reflect these initiatives, although a process of reform is now underway in some. In addition, the members of RFMOs have often been slow to respond to these initiatives at a national level and this acts as an impediment to their adoption regionally.

There are ongoing discussions at the highest levels of government about options for more effective oceans governance. Such discussions may result in significant changes to current governance structures in the long term. However, at least in the short- to medium-term, RFMOs provide an established mechanism to approach the issues facing the world's oceans. The level of responsibility placed on these organizations is high and increasing. This report provides some guidance for RFMOs on how their effectiveness in meeting those responsibilities might be improved, by reference to the best practice approaches being used by RFMOs to common challenges.

[1] The International Pacific Halibut Commission (IPHC), originally called the International Fisheries Commission, was established in 1923 by a convention between the Governments of Canada and the USA.

[2] The 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks.

Cod in bucket on deep sea trawler North Atlantic Ocean. © WWF-Canon / Mike R. Jackson

2. Methodology

A literature review was conducted to identify the international law and 'soft law' applying to RFMOs, the results of previous surveys of RFMOs and other reports on the operation and effectiveness of RFMOs. The material identified is summarized in Appendix 1. The body of literature available is indicative of the level of interest in the effective operation of RFMOs.

The review confirmed that the range of obligations on RFMOs is extensive. The source and nature of these obligations are discussed in Section 3. This report does not examine all aspects of RFMO structure and operation or all of the obligations and issues facing RFMOs. In particular, given the extensive consideration of illegal, unreported and unregulated (IUU) fishing in the final report of the Ministerially-led Task Force on Illegal, Unreported and Unregulated Fishing on the High Seas (HSTF)[3] (HSTF, 2006), this issue has not been addressed in detail in this report.

The experiences of RFMOs are used in this report to illustrate the range of responses to what are common issues faced by RFMOs and, in particular, to highlight best practice approaches. This provides insights for those involved in developing new RFMOs and for RFMOs looking to improve their own performance, and contributes to the development of frameworks for monitoring and assessing RFMO performance. The report aims to assist in improving the performance of RFMOs rather than to assess performance *per se*.

The final report of the HSTF (HSTF, 2006) identified six categories of assessment for RFMOs. This report is closely aligned to those categories. The discussion in Section 4 of this report, of the challenges faced by RFMOs and the responses of RFMOs to them, is closely aligned with those categories:

I. International Co-operation
   a. Membership
   b. Co-operation with other RFMOs
II. Conservation and Management
   a. The precautionary approach to fisheries management
   b. The ecosystem approach to fisheries management
   c. Scientific advice
   d. Allocation of fishing opportunities
III. Compliance and Enforcement
   a. Co-operative mechanisms to detect non-compliance
   b. Co-operative measures to deter non-compliance
IV. Performance Review and Evaluation
V. Institutional Mechanisms
   a. Decision-making
   b. Resourcing
VI. Cross-Cutting Issues
   a. Special requirements of developing States
   b. Transparency

Section 5 of the report provides a discussion of the broad implications of the lessons arising from the examination of the experience of RFMOs to date. Based on that, overarching recommendations to assist RFMOs to improve their performance are made in Section 6.

[3]Established in 2003, the HSTF comprised a group of fisheries ministers and international non-government organizations (NGOs) working together to develop an action plan designed to combat illegal, unregulated and unreported fishing on the high seas. The HSTF final report was released in March 2006.

Yellowfin Tuna in seine. Tuna purse-seine fishery in the Atlantic Ocean. © WWF-Canon / Hélène Petit

3. RFMO Responsibilities

The genesis of the majority of RFMOs examined in this study lies in the recognition of the need to fill a management void for stocks of straddling and/or highly migratory fish species on the high seas and for co-operative approaches to management of these resources to be institutionalized.

The convention or agreement establishing an RFMO dictates the mandate of the organization. Ideally this mandate would reflect all relevant international law and internationally-agreed standards for management of target stocks, non-target and associated or dependent species and the marine ecosystem. In practice, most do not, having been established prior to more recent advances in international law and adoption of broader standards relating to marine fisheries conservation and management.

UNCLOS (Articles 116 and 117) prescribes rights and duties of States and their nationals in relation to fisheries governance. Of particular relevance for this study is the duty UNCLOS places (Article 118) on all States to co-operate in the conservation and management of living resources of the high seas, including through the establishment of regional and subregional fisheries management organizations. Even when co-operating collectively through an RFMO, State parties to UNCLOS and the UNFSA have a responsibility to operate in accordance with those obligations. However there is a tendency for States to accept the outcomes reached through those RFMOs of which they are a member even where these outcomes may be inconsistent with their individual obligations relating to their own operations in their exclusive economic zone (EEZ) and/or on the high seas.

The provisions of UNCLOS have been elaborated in a number of legal and internationally recognized instruments, most notably the 1995 UNFSA. The UNFSA (Articles 8 and 9) identifies RFMOs as having a primary role in facilitating co-operation between States in order to achieve the conservation of straddling and highly migratory fish stocks. In summary, the UNFSA defines key conservation and management principles (Articles 5 and 6), requires compatibility between measures imposed by coastal States and those imposed by RFMOs (Article 7), provides for RFMOs to enforce conservation and management measures (Article 21), requires that the needs of developing States be taken into account (Articles 24 and 25) and imposes obligations for dispute settlement (Part VIII).

Two other important instruments, the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (the Compliance Agreement) and the Code of Conduct for Responsible Fisheries (CCRF) were negotiated in parallel to the UNFSA.

The Compliance Agreement was adopted by the Food and Agriculture Organization of the United Nations (FAO) Conference in 1993. Its core objective was to address the practice of reflagging vessels in order to avoid compliance with conservation and management measures on the high seas. The Agreement relates to conservation and management measures implemented by RFMOs, provides for parties to the Agreement to co-operate at the regional level to promote the achievement of its objectives and provides for information collected to be shared with RFMOs. Article VII requires that RFMOs provide assistance to developing countries in order to assist them to fulfil their obligations under the Compliance Agreement. The Agreement is binding on its parties.

The CCRF (FAO, 1995) sets out principles and international standards of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources with due respect for the ecosystem and biodiversity. The CCRF identifies RFMOs as key players in the implementation of its objectives and principles. It specifies the application of the precautionary approach (Article 6.5) by RFMOs and identifies roles for RFMOs (Article 7) relating to various aspects of fisheries management. Implementation of the CCRF is voluntary.

The implementation of the CCRF has been supported by the development of Technical Guidelines for particular issues. Those of most relevance to RFMOs relate to fishing operations (FAO, 1996a), vessel monitoring systems (FAO, 1998a), the precautionary approach (FAO, 1996b), fisheries management (FAO, 1997), conservation and management of sharks (FAO, 2000a), the ecosystem approach to fisheries (FAO, 2003a) and indicators for sustainable development of marine capture fisheries (FAO, 1999a). Guidelines have also been developed in relation to the conservation of sea turtles (FAO, 2004b).

In addition, four International Plans of Action (IPOAs) have been developed to guide conservation and management action to mitigate seabird by-catch (FAO, 1998b), to manage fishing capacity (FAO, 1999b), to provide for the conservation and management of sharks

(FAO, 2000b), and to manage IUU fishing (FAO, 2001a). The IPOAs identify roles for RFMOs in addressing each of these issues. In relation to IUU fishing, FAO has also developed guidelines to assist in implementation of this IPOA (FAO, 2002).

In 2003, the United Nations General Assembly (UNGA) endorsed the FAO Strategy for Improving Information on Status and Trends of Capture Fisheries (FAO, 2003b). The Strategy was developed to address the need for accurate and relevant information and knowledge of fisheries and fishery resources to underpin responsible fisheries management, as envisaged by the CCRF. Implementation of the Strategy is voluntary and its success relies upon the participation of States and entities acting individually and through RFMOs. The Strategy identifies roles for regional fishery bodies in improving the framework for assembly and dissemination of information on the status and trends of fisheries. The United Nations has supported the implementation of the Strategy at national and regional levels (see Res. 59/25 (UNGA, 2005) and Res. 60/31 (UNGA, 2006a)).

Other legal instruments relevant, but not specific, to fisheries operations of RFMOs are the Convention on the Conservation of Migratory Species of Wild Animals (CMS), the Convention on Biological Diversity (CBD) and the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). These Conventions impose obligations on their parties to ensure the conservation of biological diversity through individual or co-operative, including regional, action. The ninth meeting of the CBD's subsidiary body on Scientific, Technical and Technological Advice developed Global Outcome-oriented Targets for the Programme of Work on Marine and Coastal Biological Diversity. These targets include indicators related to the performance of RFMOs in halting unsustainable fishing (CBD, 2003).

The Plan of Implementation arising from the 2002 World Summit on Sustainable Development included a number of actions requiring the participation of RFMOs:

- Strengthening regional co-operation and co-ordination between the relevant regional organizations and programmes, the United Nations Environment Programme (UNEP) regional seas programmes, regional fisheries management organizations and other regional science, health and development organizations
- Encouraging the application by 2010 of the ecosystem approach
- Maintaining or restoring stocks to levels that can produce the maximum sustainable yield with the aim of achieving these goals for depleted stocks on an urgent basis, where possible not later than 2015
- Implementing the CCRF's IPOAs and Technical Guidelines
- Maintaining the productivity and biodiversity of important and vulnerable marine and coastal areas
- Developing and facilitating the use of diverse approaches and tools, including the ecosystem approach, eliminating destructive fishing practices, establishing marine protected areas consistent with international law and based on scientific information, including representative networks by 2012 and implementing time/area closures for the protection of nursery grounds and periods

Since 1994, when UNCLOS came into effect, State parties have been required to co-operate to conserve and manage marine living resources. For over a decade, the underlying objective has not changed. Conservation and sustainable use of marine resources remains front and centre. The period has, however, seen a marked broadening of the focus to include not just target species but by-catch and discard species and the ecosystem in which fisheries operate. This move to an ecosystem approach is consistent with the original objective specified in UNCLOS – the conservation of the living resources of the high seas.

Over the last decade, additional legislative instruments have been developed and a range of guidelines and plans establishing globally-acceptable standards for fisheries and broader marine ecosystem management have been adopted. The number of regional organizations charged with achieving this objective has increased markedly and the number of strongly-worded and widely-endorsed declarations of support for the objectives of these instruments and organizations has continued to grow.

Yet the status of marine fish stocks, particularly those fished on the high seas, and the condition of the marine environment, continues to deteriorate. What needs to be done is widely known and, by and large, the tools and guidance to achieve it are available. Every conference and other forum convened to discuss these issues acknowledges the key role that RFMOs must play in addressing them on the high seas. For example, the ministers participating in the Conference on the Governance of High Seas Fisheries and the UN Fish

Stocks Agreement, held at St John's, Canada, in 2005, acknowledged that RFMOs are the 'most effective means of co-operating in the conservation and management of high seas fish stocks' (Anon., 2005a). Participants recognized the need for RFMOs to further strengthen and modernize so as to ensure that they could effectively address the new challenges and responsibilities imposed by the principles and provisions of newly developed international instruments and tools.

At the same time there is widespread concern that some RFMOs are not up to the task. There are increasing calls for the performance of RFMOs in achieving the expectations of the international community to be assessed and monitored against agreed standards (e.g., FAO, 2005; HSTF, 2006; UNGA, 2006a).

The HSTF (HSTF, 2006) has recognized that there is great diversity in the mandates and effectiveness of implementation of regulations by RFMOs. The Task Force has proposed a range of initiatives to increase the effectiveness of RFMOs in addressing IUU fishing specifically, but more broadly to meet the standards required by the UNFSA. These include:

- Mechanisms to promote and encourage progressive reform of RFMOs based on a process of internal self-evaluation against objective and broad-based criteria consistent with the principles set out in international fisheries instruments
- The establishment of an independent review and evaluation process for RFMOs, aimed at producing critical assessments of their performance against an evolving model RFMO

A number of RFMOs are now reviewing their mandate to ensure that it is broad enough to reflect the requirements of legal instruments and international standards and to manage new and emerging fisheries, such as those for discrete deep-sea stocks found within their area of jurisdiction. This suggests that, in some cases, members of RFMOs consider that the current mandate of the organization acts as a constraint to responding to their obligations. While this may be the case in some instances, there are few circumstances where the mandate is so strong as to preclude actions by the members where there is agreement within the group to take them. Ultimately, the effectiveness of an RFMO will be determined by the will and commitment of its individual members.

There is also increasing recognition, especially in relation to the highly migratory tuna species and the mobility of the fleets that target them, that efforts by one RFMO to address issues such as IUU fishing and overcapacity can be undermined by either inaction or inconsistent action by other RFMOs. The HSTF (High Seas Task Force, 2005) has, for example, supported efforts to develop greater harmonization of measures between tuna RFMOs, in particular, and for better co-ordination between other related RFMOs, in order to increase efficiency and consistency in conservation and management measures.

The HSTF has also called for more effective collaboration by RFMOs to ensure better co-ordination and use of port- and trade-related measures to address IUU fishing (HSTF, 2006). There are initiatives underway to address these issues. For example, Japan has proposed the convening of a meeting of the secretariats of the tuna RFMOs early in 2007. Ostensibly, the purpose of the meeting is to review current management measures addressing fishing capacity and limitation of fishing effort, inspection and control schemes, transshipment measures, non-discriminatory, internationally agreed trade sanction processes and procedures, marketing and incidental catch measures, to review the effectiveness of their current systems and to develop processes for exchange of information contained in their authorized fishing vessel records and IUU fishing vessel lists, as well as other information relating to IUU fishing activities. Another positive development in relation to co-ordination has been the establishment of the Regional Fisheries Bodies Secretariats Network which provides a forum for exchange of information across RFMOs.

The need for a system of RFMOs that ensures comprehensive coverage of the high seas has been acknowledged at many levels. New RFMOs are being developed in the South West Indian Ocean and the South Pacific Ocean. Those reviewing and developing RFMOs can benefit greatly from the experiences of others. While not all of this experience has been positive there is much that can be learned from the mistakes of the past and much to be gained by the transfer of best practice responses. The following section highlights some of these lessons and the potential for improved performance of new and existing RFMOs.

4. Identifying Experience and Best Practice in RFMOs

I. International Co-operation

a) Membership

Experiences of RFMOs

The active membership of RFMOs is obviously core to their effective functioning. Where gaps in membership exist, especially of coastal States or major fishing States, the effectiveness of the RFMO is likely to be diminished.

The experience of RFMOs shows that the concept of 'real interest', routinely considered to be held by coastal States and States fishing for the relevant species, is a fluid one. For example, when the Commission for the Conservation of Southern Bluefin Tuna (CCSBT) was established in 1994 there were only three major fishing nations (Australia, Japan and New Zealand) for Southern Bluefin Tuna *Thunnus macoyii*; in fact, CCSBT arose from trilateral co-operation between these countries that had been in place since 1982. Since that time, other countries and entities have either signalled an intention to develop a fishery for Southern Bluefin Tuna as coastal States (e.g., South Africa and Indonesia) or commenced targeted fishing on the high seas (e.g., Korea, Taiwan). CCSBT has since taken steps to encourage such States and entities to become members, and both South Korea and Taiwan[4] have now done so, while the Philippines became a co-operating non-member in 2004.

With respect to the South East Atlantic Fisheries Organisation (SEAFO), 11 countries and the European Union (EU) participated in the negotiation of its convention, representing a broad spread of both fishing and coastal States of the relevant region. The SEAFO convention was signed in 2001 and entered into force in 2003, yet to date there are only four members (Namibia, Angola, the EU and Norway) (SEAFO, 2006).

Participants in the formal negotiation of the formation of the Western and Central Pacific Fisheries Commission (WCPFC) included coastal States and those States fishing on the high seas in the region at the time the negotiations commenced. Parties invited to participate in the negotiations subsequently excluded other States from participating, rejecting a number of requests from individual States and from the EU during the three-and-a-half years of negotiations. The motivation for this approach centered on the strong, existing interests in the fishery of both coastal States and those distant water fishing nations that had been long-term partners with the coastal States in exploiting the resource, together with a desire to limit the potential for 'new entrants' to claim future participatory rights. Since the entry into force of the convention in June 2004 all but three[5] of the 25 charter States have become members of the Commission and the EU has now acceded to the convention (WCPFC, 2005a).

By contrast, the most recently commenced negotiations for an RFMO, those for the proposed South Pacific RFMO, has so far adopted an all-inclusive approach. Any interested State was invited to attend and take part in the negotiations with no attempt made to narrow down participation through a definition of 'real interest'. It is likely that this approach reflects a lower level of existing, or vested, interest in the resources proposed to be managed and a lack of information on the nature of those resources and current fishing activity on which any defensible assessment of 'real interest' could be based. Twenty-four countries and the EU participated in the recent first negotiating session (Anon., 2006a).

One emerging lesson within RFMOs with respect to membership is that the historical focus on fishing States and coastal States may be too narrow to account sufficiently for the growing emphasis on the role of port and market States in the effective implementation of conservation and management measures. For example, Article VII of the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) Convention provides for States fishing or undertaking research in its convention area to become members. Through CCAMLR's increasing use of trade-related information and measures to combat IUU fishing, the importance of gaining co-operation from States engaged in the trade of Patagonian Toothfish *Dissostichus eleginoides* and Antarctic Toothfish *D. mawsoni* became increasingly apparent. For example, both Namibia and Mauritius were identified as crucial to the success or otherwise of CCAMLR's innovative Catch Documentation Scheme (CDS). Although the CCAMLR Convention text would not seem to provide explicitly for port or market States to become members, Namibia, for example, has become a member largely in recognition of its role as a port State.

While a number of RFMOs have taken steps to encourage States to become members, or to otherwise co-operate with their management measures, a key barrier to this is that existing RFMO members are reluctant to provide new members with sufficient allocations of fishing opportunity. For example, the International Commission for the Conservation of Atlantic Tunas (ICCAT) and CCSBT have both undertaken protracted negotiations with non-member States over the level or nature of their fishing entitlements, with these States often holding off from becoming members until this is agreed, or choosing not to join, often continuing to fish in the meantime. The Northwest Atlantic

[4]The fishing entity of Taiwan became a member of the Extended Commission and Extended Scientific Committee in 2002.

[5]The USA and Indonesia are recognized as co-operating non-members while domestic ratification processes are underway. The UK, on behalf of its Pacific territories, was invited to participate in the negotiations but did not do so.

Fisheries Organization (NAFO) has taken the approach of advising any prospective new members not to expect any quota in species already allocated to existing members (NAFO, 1999). IUU fishing by non-members on the high seas of the NAFO convention area is of concern.

With regard to developing States, membership of such countries is often crucial to the effectiveness of an RFMO, particularly where these are also important coastal States for the species of concern. For example, a lack of membership from developing coastal States of east Africa is a key issue for the Indian Ocean Tuna Commission (IOTC), especially given that catch rates in the Western Indian Ocean are far higher than in the Eastern Indian Ocean, including within the waters of these coastal States (M. Burgener, TRAFFIC East/Southern Africa, *in litt.* 13 April, 2006). Where developing States do join a commission or become co-operating non-members their domestic capacity may be insufficient to meet the full range of obligations. CCAMLR has responded to such circumstances by providing targeted assistance and training to, for example, Mauritius to support implementation of the CDS while CCSBT has provided funding towards the attendance costs of Indonesia, a developing State and prospective new member. The WCPFC funds a representative from developing State members and participating territories (currently 19 States and territories) to all meetings of the Commission and its subsidiary bodies (A. Wright, Executive Director, WCPFC, *in litt*. to A. Willock, 14 April, 2006).

An increasingly used mechanism within RFMOs is that whereby States become co-operating non-members. A number of RFMOs (e.g., CCAMLR, ICCAT, WCPFC and CCSBT) have encouraged States to become co-operating non-members in an effort to secure their support in giving effect to some or all of the RFMO's conservation and management measures. A different approach has been taken by SEAFO, one of the most recent RFMOs to enter into force. At its second meeting in October 2005, the SEAFO Commission's response to a request from Japan to be accorded the status of co-operating non-Party was to direct its Executive Secretary '…to inform Japan that it did not envisage the introduction of such a mechanism' (SEAFO, 2005). Instead the Commission urged Japan to become a SEAFO Party (SEAFO, 2005).

A related issue is that some RFMOs have set a higher standard for the participation of vessels from co-operating non-members than that required for members. For example, both ICCAT and WCPFC require details to be provided on historical fisheries, including nominal catches, number/type of vessels, fishing effort and fishing areas, for the consideration of their commissions before a State is granted co-operating non-member status. Further, both ICCAT and WCPFC have provisions to take into account the applicant's record of compliance with the conservation and management measures of other RFMOs. The same vetting process is not in place for members.

Attempts by RFMOs to encourage States to become members or co-operating non-members have often relied on mechanisms first being in place to identify those non-member States having an impact on the effectiveness of a commission's conservation and management measures. CCAMLR's CDS revealed the role of certain States in the trade chain for toothfish products, while a similar trade-related measure implemented by CCSBT identified and provided more detailed information on non-members' involvement in the catch and export to Japan of Southern Bluefin Tuna.

The question of how to accommodate Taiwan, as a significant world fishing entity, has vexed a number of RFMOs. Article 1.3 of the UNFSA provides that the Agreement '…applies *mutatis mutandis* to other fishing entities whose vessels fish on the high seas'. However, difficulties have been encountered in reflecting this at the level of RFMOs. CCSBT developed an innovative solution whereby an Extended Commission and Extended Scientific Committee were created of which Taiwan could be a member. In the WCPFC, specific provisions were incorporated in its convention text to enable Taiwan to participate, as Chinese Taipei, with virtually identical rights and responsibilities to States. The People's Republic of China is a member of the WCPFC. By comparison, the IOTC, created under the auspices of the FAO, continues to struggle with how to deal with Taiwan, whose fishing vessels exert significant fishing pressure in the Indian Ocean, although, at its 2005 meeting, agreement was reached to initiate moves to become independent from FAO (IOTC, 2005a), in large part to facilitate participation by Taiwan.

Lessons Learned and Best Practice

There is a conservation cost associated with a lack of mechanisms or an unwillingness to address the requirements of new members, whether as developing States, States seeking membership with attendant fishing opportunities or the inclusion of Taiwan as a significant world fishing entity.

As demonstrated by CCAMLR, there is a need for the flexibility to include States beyond fishing and coastal States, whose co-operation is required for effective implementation of conservation and management measures, particularly port and market States. Although political challenges exist, the all-inclusive approach taken from the commencement of negotiations of the proposed South Pacific RFMO may signal a more general move in this direction.

Mechanisms designed, in part, to reveal the role of non-member States in influencing the effectiveness of conservation measures have played an important part in a number of RFMOs. In some cases, States themselves were ignorant of their role in facilitating IUU fishing; for example, several east African States, which were being used as transshipment ports for illegally-caught toothfish. Understanding the dynamics of those countries engaged in the trade chain for illegally-sourced products is of growing importance and keeping pace with the changing methods used by IUU operators in gaining access to markets is crucial. In the absence of mechanisms such as CCAMLR's CDS or CCSBT's trade information scheme to reveal these dynamics, steps to address gaps in membership or co-operating non-membership could not have been taken.

With respect to Taiwan, the potential for this significant world fishing fleet to operate outside the obligations and rights of RFMOs detracts from the effectiveness of these organizations. Creative solutions are required. RFMOs must find ways to ensure that Taiwan is bound to observe their conservation and management measures, if these are to be effective.

The move towards conferring co-operating non-member status within RFMOs may be somewhat of a double-edged sword; on the one hand, such co-operation may result in the strengthening of an RFMO's measures while on the other may be seen as conferring the benefits of access to the resource without a requirement to contribute to the associated cost of conservation and management. As the HSTF stated in its final report 'Co-operating non-party status may in some cases be able to be justified as an interim solution, but the only long-term solution is for co-operating non-members to become full members of the RFMO' (HSTF, 2006).

If disincentives exist for a State to become a member of an RFMO, for example owing to a lack of fishing opportunities, the RFMO must have in place concomitant compliance and enforcement measures to ensure the integrity of its conservation and management measures. Further, targeted capacity-building may be required to assist developing States to meet their obligations as commission members.

Summary of Recommended Best Practice:

- Provisions governing the membership of commissions must be flexible enough to reflect the full range of States influencing the effectiveness of RFMOs measures, particularly with respect to port and market States
- Targeted capacity-building should be available for either prospective or existing developing State members
- Mechanisms, including schemes to track product through trade chains to the market-place, should be implemented so as to identify changing dynamics in those States influencing the effectiveness of conservation and management measures
- Recognition of co-operating non-member status under an RFMO should only be used as an interim step towards full membership, rather than being a continuing privilege
- Creative solutions, such as the use of extended commissions, or the inclusion of suitable phrasing when drafting governing conventions, are required to facilitate the participation of Taiwan in RFMOs and to ensure it is bound by conservation and management measures
- Effective compliance and enforcement measures to detect and deter IUU fishing must be in place where RFMO membership or co-operating non-membership is not comprehensive, to ensure that benefits of membership, and therefore a willingness to comply, are not dissipated

b) Co-operation between RFMOs

Experiences of RFMOs

There is no part of the world's oceans that is not included under the mandate of an RFMO; indeed, much of the world's marine environment is subject to more than one. For example, a fishing vessel operating on the high seas in the south-east Atlantic could be fishing under the auspices of ICCAT, SEAFO or CCSBT. The nature of the overlaps is often geographical though, in some cases, involves dual responsibility for the management of a species or even stock. This raises the need for clarity in the mandate and responsibilities of RFMOs in such cases.

In the Indian Ocean, IOTC has responsibility for all tuna and tuna-like species. CCSBT has responsibility for Southern Bluefin Tuna in those same waters. Both the IOTC Agreement and the CCSBT Convention contain general provisions relating to the need to collaborate with other inter-governmental organizations to promote complementarity and avoid duplication of effort. This has been operationalized with IOTC making a decision at its First Special Session in 1997 to recognize the prime responsibility of CCSBT for conservation and management of Southern Bluefin Tuna (IOTC, 1997). In turn, CCBST provides reports on the status of Southern Bluefin Tuna to IOTC.

A similar overlap occurs between the Inter-American Tropical Tuna Commission (IATTC) and the more recently established WCPFC. Not only does the geographical area of the latter include some waters covered under the IATTC, some of the highly migratory fish stocks, primarily tunas, under the mandate of both organizations are pan-Pacific in nature. The WCPFC Convention contains specific recognition of this, stating that '…the Commission shall initiate consultation with the Inter-American Tropical Tuna Commission with a view to reaching agreement on a consistent set of conservation and management measures, including measures relating to monitoring, control and surveillance, for fish stocks that occur in the Convention Areas of both organizations'. Steps have already been taken to implement this provision in the form of a memorandum of understanding.

While the inclusion of such provisions in governing convention texts provides the basis for collaboration, conflict has arisen in practice. For example, there is no formal agreement or recognition of primacy between CCAMLR and CCSBT. At its 2005 annual meeting, CCAMLR noted reports of vessels fishing for Southern Bluefin Tuna within the CCAMLR convention area. Although it appeared that the vessels were duly authorised under CCSBT they were not authorised under CCAMLR's provisions. CCSBT agreed at its 2005 annual meeting to write to CCAMLR '… seeking their agreement that CCSBT have the primary management responsibility for SBT' (CCSBT, 2005a). CCAMLR's response was to agree to work with CCSBT inter-sessionally to reach agreement for fishing for Southern Bluefin Tuna within the CCAMLR convention area and that, in the interim, all vessels fishing for Southern Bluefin Tuna within its convention area must do so in compliance with CCAMLR's conservation and management measures (CCAMLR, 2005).

As noted, in addition to the need for collaboration in relation to target species where there is explicit, physical overlap there is also a need for collaboration on non-target and associated or dependent species. Highly migratory species, such as marine turtles and seabirds, regularly migrate through the waters of two or more RFMOs, and therefore co-ordinated conservation measures are vital. For example, species such as the Leatherback *Dermochelys coriacea* and the Loggerhead *Caretta caretta* are pan-Pacific in nature and threatened by fisheries, whether longline or purse seine, and thus co-operation between WCPFC and the IATTC on mitigation measures is crucial. Conservation efforts of one RFMO can be rendered virtually ineffective by inaction or adoption of a lower standard of mitigation by another.

In addition to collaboration on non-target and associated or dependent species, detection and elimination of IUU fishing, global vessel registers, standardized documentation for trade-related measures, standardization of assessment methodology, and operational-level data requirements are some further issues that would benefit from greater collaboration and co-operation among RFMOs. These are discussed in more detail later in the paper.

Lessons Learned and Best Practice

The best practice with regard to dealing with the need for co-operation between RFMOs is for clear and mutual agreement to be reached about which organization has primacy where there are overlaps in species or geographical area. With the advent of the proposed South Pacific RFMO, potentially covering all living marine resources on the high seas of the Pacific Ocean south of

the equator, such clarity will be of paramount concern. This was recognized at the first meeting to discuss the possible establishment of a South Pacific RFMO with the report of that meeting noting that '…provisions for co-operation with existing regional fisheries management organisations and other arrangements in the region…' was a key issue and would need further discussion (Anon., 2006a).

Clarity with regard to primacy is only a small component of what is needed for close co-operation between RFMOs. There is a need for inter-RFMO collaboration with regard to sharing of experiences and solutions to common issues. While there is evidence of some degree of uptake and modification of measures adopted in one RFMO in another (e.g., in the cases of shark by-catch and finning resolutions, trade documentation schemes) this is likely to have more to do with individual members promoting the results of discussions in other RFMOs of which they are a member, rather than a systematic approach to information-sharing and technology transfer. The main benefits of a more systematic approach include: helping to drive the adoption of 'best practice' on an issue across RFMOs; reducing expenditure through the adoption of already-developed measures; and providing for the application of consistent management responses to common issues across geographical areas. Japan's initiative in hosting a meeting of RFMOs with a mandate for the conservation and management of tuna resources, planned for January 2007, provides an opportunity to institutionalize such an approach, perhaps eventually resulting in the formation of a quasi-global tuna commission. In addition, there is a planned informal meeting of those RFMOs with a mandate to conserve and manage tuna immediately prior to the UNFSA Review Conference in May 2006. The biennial meetings of the Regional Fisheries Bodies Secretariats Network, held immediately following meetings of the FAO Committee on Fisheries (COFI), present additional opportunities to cement a more systematic approach to information-sharing and collaboration. With regard to the last meeting of the Network, the latitude and mandate provided to secretariats by their respective RFMOs varied across organizations. The ability of secretariats to play a more meaningful role in enhancing co-operation between RFMOs would require their respective members to provide them with a sufficient level of authority to do so, without overly burdensome bureaucratic processes or a reliance on commission decisions accompanying each activity or proposed initiative.

Summary of Recommended Best Practice:

- Explicit agreement on primacy and/or responsibilities between existing RFMOs with regard to overlapping jurisdiction for species, geographical area or ecosystems is needed through, for example, memorandums of understanding
- For any new RFMOs, the relationship with other RFMOs and measures for addressing collaboration should be considered during the negotiations for, and form an integral component of, the resulting convention text
- A systematic approach for RFMO collaboration is required that includes supporting structures for co-operation, for example regular meetings of those RFMOs managing the same species in different oceans
- Existing processes should be given more focus and emphasis as vehicles to facilitate co-operation, such as the biennial meeting of the Regional Fisheries Bodies Secretariats Network

II. Conservation and Management

a) The Precautionary Approach

Experiences of RFMOs

The UNFSA clearly envisages that a precautionary approach (see Box 1) should be taken to management of the target stocks of RFMOs, as well as to non-target and associated or dependent species, and the broader marine environment. The precautionary approach is therefore an integral part of an ecosystem approach to fisheries. The discussion in this section focuses on the application of the precautionary approach in relation to target species. Its application to non-target and associated or dependent species and the broader marine ecosystem is discussed in Section 4 II (b) on the application of the ecosystem approach.

The objectives of most RFMOs are framed in terms of management, conservation, sustainable use, and/or optimum utilization. These objectives are consistent with the objectives of the UNFSA and the application of the precautionary approach espoused by it. Yet many target stocks managed by RFMOs are not fished sustainably. For example, a recent assessment of the status of tuna and tuna like species managed by RFMOs found that '… most stocks of tuna are fully exploited, some are over-fished and a few are depleted' (UNGA, 2006b).

Given the poor or uncertain biological status of many stocks managed by RFMOs, and recalling the objectives of these organizations, there is a pressing case for the application of the precautionary approach. RFMOs may not be legally obliged to apply the precautionary approach, either because their convention pre-dates the UNFSA, or because many of their members are not signatories to the UNFSA. However, it is harder to explain why RFMOs have apparently shown such a low level of commitment to the pursuit of the objectives specified in their own conventions and agreements.

It is difficult to identify examples of sustainable management of target stocks by RFMOs. Many stocks are over-fished despite the objectives of the responsible organization. For example, the spawning stock of Southern Bluefin Tuna is between 5 and 12% of its unfished level despite CCSBT's objective requiring it to ensure, through appropriate management, 'conservation and optimum utilisation of southern bluefin tuna'. Similarly, Bigeye Tuna *Thunnus obesus* and Yellowfin Tuna *T. albacares* in the Eastern Pacific Ocean are over-fished despite IATTC's[6] current objectives requiring it to 'maintain populations of Yellowfin and Skipjack

Box 1 - The Precautionary Approach

The most widely acknowledged statement on the precautionary approach is that contained in Principle 15 of the Rio Declaration on Environment and Development of 1992:

'in order to protect the environment the precautionary Approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.'

The first embodiment of the precautionary approach to management of fish stocks in international law was in the UNFSA. Article 5 requires the application of the approach and Article 6 interprets the approach as follows:

'States shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures'.

Annex II of the UNFSA provides guidance on the application of the precautionary approach and requires that States and RFMOs apply precautionary limit and target reference points[1] to the management of stocks and specifies that the fishing mortality (F) that generates maximum sustainable yield (MSY) should be regarded as the minimum standard for limit reference points. Where a stock is over-fished, the UNFSA indicates that the biomass that would produce MSY (Bmsy) can serve as a rebuilding target.

The UNFSA interpretation has since been reflected in the FAO's CCRF and the various implementation guidelines and IPOAs associated with it, in particular the Precautionary Approach to Capture Fisheries and Species Introductions (FAO 1996b).

A central consequence of the adoption of the precautionary approach is the placement of the burden of proof on fisheries managers. The UNFSA requires managers, States and RFMOs to act in the face of uncertainty rather than to wait for proof that continuation or commencement of fishing will not have unacceptable consequences. Instead, managers are required to prove in advance the consequences of fishing.

[1] Reference points generally define target and limit levels for biomass (B) and target and limit rates for fishing mortality (F)

[6]The most recent iteration of the Convention, the Antigua Convention, has not yet come into force. Discussion of the IATTC in this report is based, unless otherwise indicated, on the provisions contained in the Antigua Convention.

Tuna as well as other species taken by tuna vessels'. Blue Ling *Molva dypterygia* in the North East Atlantic is considered over-fished, despite the North East Atlantic Fisheries Commission's (NEAFC) objectives requiring it to 'promote conservation and optimum utilisation of fishery resources'.

There are many other examples of over-fished stocks (e.g., Albacore *Thunnus alalunga* and Swordfish *Xiphias gladius* in the North Atlantic, Atlantic Bluefin *T. thynnus* in the West Atlantic, Blue Marlin *Makaira nigricans* and White Marlin *Tetrapturus albidus* in the Atlantic (ICCAT), Patagonian Toothfish in parts of FAO Area 58 (CCAMLR), Hake *Merluccius merluccius* and Red Mullet *Mullus barbatus* in the Mediterranean (General Fisheries Commission for the Mediterranean (GFCM))).

The status of many other stocks is classed as 'uncertain'. Under such circumstances, the precautionary approach would invoke the introduction of management measures to minimise the risk of over-fishing. However, conservation and management measures are in place for very few of these stocks.

Over-fishing of stocks managed by an RFMO can occur for a range of reasons, including fundamental flaws in the structure and operation of RFMOs, or the commitment or capacity of their members. Many of these shortcomings, including in participation, scientific advice, decision-making, compliance and enforcement, and resourcing, are discussed elsewhere in this report. Another major cause of over-fishing is the failure to apply the precautionary approach in the face of uncertainty. This can be reflected by any one or more of the following:

(i) Failure to account for all sources of fishing mortality (e.g., IUU fishing, recreational catch, catch under other RFMOs, predation data, deficiencies in data collected from members) in setting catch and effort levels

(ii) Failure to account for uncertainty (e.g., stock structure, catch/effort data) in stock assessments

(iii) Insufficient precaution where data is inadequate or advice is uncertain

(iv) The lack of an agreed management strategy including precautionary reference points and pre-determined management responses

The application of the precautionary approach by RFMOs is discussed below by reference to:

- RFMO responses to uncertainty
- Development of management strategies
- Management of new and exploratory fisheries

1. RFMO Responses to Uncertainty

Despite the requirements of the UNFSA and the objectives of RFMOs, experience shows that a lack of information generally results in a lack of action by RFMOs. For many species classified as 'uncertain' or 'unknown' status there are no reference points, provisional or otherwise and no management measures in place, precautionary or otherwise. In many cases the data and/or resources are not available to undertake assessments; in others the level of uncertainty in the assessments is so high that it is not possible to determine status. For example, there are no assessments available for 10 of the 16 species under the management mandate of the IOTC and there are no management measures in place for these species. In the IATTC there are no recent assessments available for Black Marlin *Makaira indica* or Sailfish *Istiophorus albicans.* In ICCAT the status of Albacore, a range of small tunas, some Shortfin Mako *Isurus oxyrinchus* stocks, Sailfish, Swordfish in the South Atlantic and the Mediterranean, Atlantic Bluefin in the East Atlantic and Skipjack Tuna is uncertain, either because there are no assessments, because assessments are dated, or because of uncertainty in the stock assessments.

RFMOs have generally delayed or failed to implement conservation measures because of uncertainty in, or lack of, scientific advice. Examples are:

- In 2004, the CCSBT Scientific Committee reiterated earlier concerns that there may have been several years of markedly lower recruitment among younger year classes and that, if reduced recruitment continued into the future, then under current catch levels the stock would certainly decline. The Scientific Committee judged that the probability of further stock decline under current catch levels was greater than in 2001, when an increase or decline under current catch levels was considered equally likely. In response to this advice, the Commission noted that 'a decision on an adjustment to the TAC would have significant impacts on the fishery and the communities that relied on it. Any decision to reduce the TAC as a management response could not, therefore, be taken lightly and must be taken on the best scientific advice. It was noted that evidence of low recruitment was cause for serious concern' but that additional data were needed to

[6]The most recent iteration of the Convention, the Antigua Convention, has not yet come into force. Discussion of the IATTC in this report is based, unless otherwise indicated, on the provisions contained in the Antigua Convention.

confirm whether this was 'a continuing event' (CCSBT, 2004a). Total allowable catch (TAC) reductions have not yet been implemented.

- The IOTC Scientific Committee has expressed concern about the status of Swordfish stocks since 2001. In 2001, the Scientific Committee indicated that 'until the missing data are obtained and stock assessment is achieved, and although a reduction of catch and effort is the preferable measure, at least no increases in catch and effort should be allowed.'(IOTC, 2001). This advice was noted by the Commission. In 2003 and 2004, the Scientific Committee recommended that management measures focussed on controlling and/or reducing effort in the fishery targeting Swordfish in the southwest Indian Ocean be implemented. In 2003, the Commission noted the technical recommendations made by the Scientific Committee. In 2005, the Commission agreed that 'issues of local depletions were serious and requested the Scientific Committee to undertake area-specific analyses, with particular emphasis for the south-west Indian Ocean, for the Commission's future consideration' (IOTC, 2005a). No species-specific management measures for Swordfish have yet been implemented.
- The first meeting of the Scientific Committee for the WCPFC (WCPFC, 2005b) recommended that fishing mortality on Bigeye Tuna and Yellowfin Tuna be reduced. The need for capacity reduction in the western and central Pacific Ocean has been recognized by the now-members of the Commission for some time (Anon., 1999). In response to the scientific advice, the Commission in 2005 agreed only that 'the total level of fishing effort for bigeye and yellowfin tuna in the Convention Area shall not be increased beyond current levels' (WCPFC, 2005b).

An examination of the responses of RFMOs to scientific advice urging precautionary management action in the face of uncertainty suggests that common responses include:

- Noting the advice
- Seeking further scientific advice or analysis
- Seeking limitations on the fishing effort of non-members
- Attempts to address IUU fishing
- Seeking more specific consideration and advice on conservation and management options
- Limiting fishing capacity of contracting and co-operating non-contracting parties

While all, except the first of the above responses, has the potential to make some contribution to the conservation and management of high seas fish stocks, they fall short of precautionary management action, since none have a high probability of achieving an immediate limit on the catch of or effort on target stocks.

Gaps in data, particularly data on total removals of target species, is a common source of uncertainty in determining stock status in RFMOs. Catch of highly migratory species by recreational fishers, by IUU fishers, and by legal fishing under the control of other RFMOs is often not known or poorly estimated. Observer programmes are not in place in all RFMOs and, where they are, the quality and level of coverage is variable. Serious concerns exist in many RFMOs about the accuracy of their own members' catch data. In particular, there are concerns in some RFMOs about the by-catch of species for which catch limits are set. In NAFO, for example, moratoria are in place for a range of stocks yet many continue to be taken as by-catch in other target fisheries. There is concern that, given the historically low levels of biomass of these stocks, and the continued low recruitment in some, by-catch removals could be having a significant impact on the rebuilding process (Rosenberg *et al.,* 2005). Similar issues exist in relation to by-catch of other species fished under TACs. However, accounting for the impact of this by-catch is very difficult because there is no consistency in how it is reported, owing to the absence of a systematic approach to recording the information and the inconsistent way in which such data are submitted by the member States to the NAFO Secretariat (Rosenberg *et al*., 2005).

2. Development of Management Strategies

The failure of most RFMOs to manage stocks sustainably is linked closely to the lack of agreed decision-making frameworks in which conservation and management decisions are taken. This leaves the way open for members to use uncertainty, allocation issues, cost and economic and social concerns as reasons for delaying management actions or to justify the taking of less than precautionary management decisions.

In the absence of management strategies that prescribe particular actions in response to a stock reaching or approaching a precautionary reference point, the implementation of a precautionary response by RFMOs

cannot be guaranteed. Very few RFMOs have developed management strategies, including decision-making frameworks based on precautionary reference points, for target stocks. Exceptions are CCAMLR, NEAFC and NAFO, for a very limited number of stocks and, most recently the CCSBT (although implementation has not yet occurred).

Among the RFMOs, CCAMLR has perhaps the most precautionary approach to management. While the application of the precautionary approach is not explicitly reflected in the CCAMLR Convention the principles of the Convention implicitly support actions consistent with the precautionary approach. Relatively early in its development, CCAMLR grappled with how best to deal with uncertainty and has operationalized an approach that reflects the principles of what are now known as the precautionary and ecosystem approaches. CCAMLR has agreed that Article II of the Convention requires that 'management should follow a precautionary approach, according to which decisions taken should have a low risk of long-term adverse effects. This approach has important implications when working with uncertainty in information, for instance when the actual size of exploited stocks is not known precisely, or when new stocks are being targeted' (CCAMLR, 2006a). CCAMLR has incorporated the precautionary approach into stock assessment and decision-making and all regulated fisheries under its jurisdiction are subject to precautionary catch limits consistent with advice from its Scientific Committee. Krill *Euphausia superba*, Antarctic and Patagonian Toothfish and Mackerel Icefish *Champsocephalus gunnari* stocks are subject to agreed decision rules (UNGA, 2006b). This has been achieved despite CCAMLR's coming into effect before UNCLOS and the UNFSA.

The practice in other RFMOs is variable:

- NEAFC receives scientific advice from the International Council for Exploration of the Sea (ICES), based on the precautionary approach, but has an active management strategy in place for only one species, Mackerel *Scomber scombrus.* Changes to the NEAFC convention to include a provision to apply the precautionary approach are pending.
- ICCAT has an ad hoc Working Group on the Precautionary Approach, but it does not meet regularly. In 1999, it was noted that ICCAT's Standing Committee on Research and Statistics (SCRS) could not advance its application of the approach without clear guidance from the Commission (ICCAT, 2005a). A proposal in 2004 by Canada to get specific endorsement of the precautionary approach failed to get the support of the Commission. Other delegations were of the opinion that ICCAT was 'unlike any other organization' in that it had 'clear management objectives' and was 'historically rich in data'. It was felt that the SCRS was 'sufficiently qualified to determine relevant biological references for management decisions, and that the proposal made by Canada was not appropriate' (ICCAT, 2005a). ICCAT interprets maximum sustainable yield (MSY) as a target rather than a limit reference point. ICCAT has, however, agreed to consider, in 2006, its conservation and management programme against the requirements of relevant international fisheries instruments.
- CCSBT has not adopted the precautionary approach formally and the available evidence suggests the Commission pays scant attention to the approach or its intent. Despite increasingly pessimistic assessments of the status of Southern Bluefin Tuna and of the capacity of the over-fished stock to rebuild at current catch levels, the Commission has failed to reduce its TAC for original members since 1988 and has increased the TAC to allow for the inclusion of new members into the Commission. CCSBT has abandoned its rebuilding objective, in place since 1994, of rebuilding the spawning biomass to its 1980 level by 2020, acknowledging that rebuilding has failed. In 2001, the Commission noted the Scientific Committee's advice 'that there is a 50 per cent chance that the SBT spawning stock will be smaller in 2020 than it is today and that there is little to no chance that the SBT spawning stock will be rebuilt to 1980 levels by 2020 (CCSBT, 2001). The absence of a rebuilding strategy is likely to have contributed to this failure. The objective was set, but there were no agreed indicators of progress or triggers for management responses. In 2005, the CCSBT agreed to reduce catches for the 2006/07 season and to a management procedure to guide TAC setting from 2009. The management procedure will be tuned so that there is an estimated 90% probability that the 2022 biomass will be at or above the 2004 biomass (CCSBT, 2005a). This means, in effect, that there is an estimated 10% chance that the stock will be below the 2004 level in 2022. The stock is currently estimated to be between 5 and 12% of the pre-fished biomass (CCSBT, 2005b).
- The IOTC has been in operation since 1996 and is responsible for management of a range of tuna and tuna-

like species. The IOTC has specifically incorporated uncertainty in its scientific advice, but it was not until 2005 that it implemented its first management measure for one of these species, Bigeye Tuna. The IOTC Scientific Committee recommended in 1999 that, in line with a precautionary approach, increases in catches of Bigeye Tuna be halted immediately and since 2001 has called for reductions in the catch of Bigeye Tuna from all fishing gears as soon as possible. In 2005, the Scientific Committee noted that while catches had 'decreased for two of the past three years', it was likely that current catches were still above MSY and it was possible that fishing effort had 'exceeded the effort that would produce MSY' (IOTC, 2005b). In 2005, the IOTC took a management decision on Bigeye Tuna to 'limit catch to recent levels reported by the Scientific Committee' (IOTC, 2005a).

- The Scientific Council of NAFO adopted a precautionary approach framework in 2004 but the organization has so far adopted this for only two stocks, 3LNO Yellowtail Flounder *Limanda ferruginea* and 3M Shrimp *Pandalus* spp. A key concern for other stocks managed by NAFO relates to the take of species subject to TACs and, in some cases, moratoria, as by-catch. The Scientific Council recommends TACs that incorporate by-catch and other removals. However, these TACs are fully allocated for target catch (Rosenberg, *et al.*, in prep.). Inevitably, the TACs are exceeded. An extension of the precautionary approach framework to other species was discussed at the September 2005 meeting where parties were asked to develop advice on prioritizing fish stocks for reference point determination (Rosenberg, *et al*., in prep.).
- The Methods Working Group of the WCPFC Scientific Committee has been charged with developing appropriate biological reference points for target and non-target species. The Scientific Committee is currently using Bmsy as the limit reference point.

The development of target and limit reference points for all target species is a requirement of all RFMOs under UNFSA. However, until such time as they are developed, there is nothing to stop intuitive application of precautionary management responses by RFMOs. It has, for example taken five years for the CCSBT to develop a management procedure. In that time, no management decisions have been made in relation to its primary management tool, the TAC. Experience shows that lack of action usually results in over-fishing. The clear message is for early management. The development of management strategies should not be used as yet another excuse to delay precautionary management decisions.

3. Management of New and Exploratory Fisheries

Article 6 of the UNFSA requires that, for new and exploratory fisheries, States shall 'adopt as soon as possible cautious conservation and management measures, including, *inter alia*, catch limits and effort limits. Such measures shall remain in force until there are sufficient data to allow assessment of the impact of the fisheries on the long-term sustainability of the stocks, whereupon conservation and management measures based on that assessment shall be implemented. The latter measures shall, if appropriate, allow for the gradual development of the fisheries.'.

New high seas fisheries might emerge because of the discovery of a new stock, the development of markets for a species previously discarded, the use of new technology or expansion into new areas. Over the last decade, the management of high seas stocks has been increasingly challenged by the expansion of bottom-trawling into deep-water to target new stocks (e.g., CCAMLR, NEAFC, NAFO and the GFCM) and the implications for management of existing target species by the adoption of new fishing methods such as fish aggregating devices (FADs) (e.g,. in IATTC and the WCPFC) and the 'farming' of these species (CCSBT and ICCAT).

The expansion of deep-water fisheries over the last decade provides a good basis from which to assess the application of the precautionary approach to new fisheries. These fisheries operate in waters greater than 400 m and up to 2000 m, targeting deep-sea species, such as Orange Roughy *Hoplostethus atlanticus* and Alfonsino *Beryx* spp., that aggregate around seamounts. It is widely acknowledged that these species are vulnerable to over-fishing. The serial depletion of Orange Roughy stocks around the world is evidence of this (Lack *et al*., 2003).

The UNFSA does not specifically relate to discrete high seas stocks (its focus being straddling and highly migratory stocks) and it has been argued that its provisions do not impose obligations on States, either individually or collectively, to manage, for example, deep-water stocks. Articles 117 and 119 of UNCLOS are, however,

generally regarded as imposing obligations in relation to such stocks and there is increasing consensus that the principles of the UNFSA should also apply. For example, the UNGA has called upon States to recognize that the general principles of the UNFSA should also apply to discrete fish stocks in the high seas (UNGA, 2006a).

Only some RFMOs (CCAMLR, NEAFC, NAFO, SEAFO and GFCM) have the mandate to manage high seas deep-water species. Negotiations to establish RFMOs with a mandate to manage deep-water fisheries are under way in both the Indian and South Pacific Oceans. Most RFMOs have been slow to adopt any management measures for these species and the measures adopted are often more reactionary than precautionary. Many NGOs believe that the precautionary approach demands the introduction of an interim prohibition on destructive fishing practices on the high seas until effective management is implemented. Similar views have been expressed by the parties to the CBD, who have called upon the UNGA and other relevant international and regional organizations 'to urgently take the necessary short-term, medium-term and long-term measures to eliminate/avoid destructive practices, consistent with international law, on a scientific basis, including the application of precaution, for example, consideration on a case by case basis, of interim prohibition of destructive practices adversely impacting the marine biological diversity' in marine areas beyond the limits of national jurisdiction, in particular areas with seamounts, hydrothermal vents, cold-water corals, other vulnerable ecosystems, and certain other underwater features (CBD, 2004).

RFMOs have also been challenged to manage development in existing fisheries, such as the increased focus on tuna farming and the increased use of FADs in purse seine fisheries. In the case of tuna farming, this has resulted in a change in the size/age of fish captured with implications for stock assessment. In addition, there are implications for the adequacy of catch and mortality monitoring during the catch, towing and farm transfer operations. With respect to the use of FADs, there are significant implications for by-catch. For example, in both the Indian and Pacific Oceans the use of FADs for targeting Skipjack Tuna *Katsuwonus pelamis* has been accompanied by high catch rates of juvenile Bigeye Tuna, with obvious implications for the status of that stock. RFMOs have generally been slow to identify and respond to the management challenges posed by these 'new fisheries'.

CCAMLR appears to be the only RFMO that has specific policies in place to manage new and exploratory fisheries. CCAMLR's approach is to ensure that new and exploratory fisheries do not develop faster than the ability of the Commission to evaluate their potential consequences for the ecosystem in which they operate. In other RFMOs it appears that there are little or no constraints on the development of fisheries for new stocks or of new methods of exploiting known target species.

Lessons Learned and Best Practice

Most RFMOs have failed to meet their own objectives with respect to the target stocks for which they are responsible. Far from being managed sustainably, many stocks are assessed as over-fished or of uncertain status. There are a range of reasons for this failure, one of which is the lack of precaution applied by RFMOs in the face of the need to rebuild stocks or to ensure, in the face of uncertainty, that other stocks do not become over-fished.

Few RFMO conventions make explicit reference to the application of the precautionary approach. Of 12 RFMOs examined, only four (WCPFC, SEAFO, GFCM and the Antigua Convention for IATTC) refer to the application of the precautionary approach. Of those, only three are active and, since all three have come into force since 2004, it is too soon to tell whether the incorporation of the concept in the mandate makes a difference to management outcomes. Experience of those RFMOs where the precautionary approach is not explicitly mandated by the conventions (e.g., in CCAMLR, CCSBT, ICCAT, IOTC, NAFO, NEAFC, NPAFC and IATTC (under its current convention)) confirms that its application is not necessarily precluded. CCAMLR has, for example, incorporated the application of the precautionary approach as an integral component of its ecosystem approach to conservation and management.

Overall there are very few species managed by RFMOs for which target and limit reference points have been established. Management strategies based on precautionary reference points (reflecting a sufficiently high probability of sustainability) have not been established for all target stocks. Where species are over-fished, explicit rebuilding target and measures to assess progress have been developed in very few cases.

Experience suggests that precaution is more likely to

be recommended by those groups providing advice to RFMOs than it is to be practised by the organization. Advice from scientific and stock assessment groups is increasingly clear about uncertainty and promotes the application of precaution in the face of it. However, rarely do RFMOs take decisions that reflect the precautionary advice they receive.

Very few RFMOs have applied a precautionary approach to the exploitation of new and exploratory fisheries. This has resulted in ongoing and, in some cases, serial depletion of new high seas fisheries. The impact of this has been most marked in fisheries for deep-sea species. RFMOs have, in the main, failed to adopt approaches that allow fishing in new and exploratory fisheries only under agreed precautionary management arrangements that ensure the rate of expansion is consistent with the best available scientific information on the fishery. Where new and exploratory fisheries are not under the mandate of an RFMO, States with an interest in the fishery have been slow to develop an RFMO and States have failed to take action in the interim with respect to their own nationals to ensure the conservation of the living resources of the high seas as required under UNCLOS.

There have been some recent, positive examples of moves by RFMOs to incorporate the precautionary approach in their decision-making. Reform processes underway in NEAFC, NAFO and ICCAT all hold the promise of more explicit recognition of the precautionary approach as a basis for management. Progress towards a management procedure in CCSBT has been slow but it appears likely that it will be implemented in the near future. Moves to develop new RFMOs to address gaps in coverage on the high seas are underway in the South Pacific and South West Indian Oceans.

The decisions of RFMOs reflect the commitment of their members to legally-binding conventions to which they are a party and to internationally-agreed standards. In 2005, there were just over 100 members of RFMOs. Of those, fewer than half had signed both UNCLOS and the UNFSA. Many members therefore have no obligation to apply principles such as the precautionary approach. This leaves those members who do have such obligations in a position where they are obligated, in the absence of precautionary decisions by the RFMO, to take those decisions themselves in relation to exploitation of the stocks by their nationals. However this does not appear to be occurring. Rather, there are examples, such as CCSBT, where members, legally bound by the UNFSA, have failed to apply precautionary measures in respect of their own fisheries, despite the acknowledged failure of the RFMO to do so on a regional basis. It is also apparent that there is some inconsistency in the level of precaution prepared to be supported by members across RFMOs. For example, four of the five members of CCSBT are also members of CCAMLR, yet these two RFMOs have very different approaches to precaution. More than 60% of the members of the WCPFC have signed the UNFSA. It will be interesting to see whether this relatively high level of legal commitment will translate into more precautionary management decisions by the WCPFC.

Summary of Recommended Best Practice:

- The application of the precautionary approach should be an integral part of new RFMO conventions
- Established RFMOs should institutionalize the use of the precautionary approach through explicit recognition of its adoption by either amendment of the convention or a formal resolution
- Management strategies based on precautionary reference points (reflecting a sufficiently high probability of sustainability) should be established for all target stocks. Where species are over-fished, explicit rebuilding targets and measures to assess progress should be developed
- In the absence of management strategies, RFMOs should adopt precautionary management measures, based on the best scientific advice available to them
- RFMOs and, in their absence, individual States fishing on the high seas, should take immediate action to ensure that the resources in new and exploratory high seas fisheries are subject to precautionary management

b) The Ecosystem Approach to Fisheries Management

Experiences of RFMOs

Articles 5 and 6 of the UNFSA explicitly require RFMOs to assess the impacts of fishing on, and apply the precautionary approach to, species belonging to the same ecosystem as, or associated with, or dependent upon the target stocks. These requirements are consistent with what is now recognized as an ecosystem approach. Both the FAO (2003a) and Ward *et al*. (2002) have developed detailed frameworks for operationalizing an ecosystem approach and ecosystem-based management, respectively. The US Department of Commerce (1999) has also developed an interpretation of ecosystem-based fisheries management.

The application of an ecosystem approach by RFMOs appears to be proceeding even more slowly than the application of the precautionary approach. This may be in part due to most RFMO mandates being expressed in terms of target species, and in part due to a lack of consistent understanding as to what is required by an ecosystem approach and how to operationalize it. Further, there may also be a belief that an ecosystem approach is mainly relevant to non-target and associated or dependent species, rather than also including the target species. However, the ecological health of target species is potentially the most critical factor in delivering a healthy ecosystem.

As acknowledged in NAFO recently, the absence of a specific mandate need not necessarily constrain an RFMO from adopting an ecosystem approach. Norway noted that, despite the absence of a mandate in the NAFO convention, 'if the NAFO Parties "agree to agree", there is probably sufficient space for a possible interpretation in the Convention itself' (NAFO, 2005). However, factors such as the availability of human and financial resources may constrain the capacity of an RFMO to extend its scope to cover ecosystem-wide impacts consistent with an ecosystem approach, especially in those RFMOs with an extensive developing State membership.

With regard to understanding what is required by an ecosystem approach, it appears that there is concern among RFMOs as to how widely the concept is understood or defined (FAO, 2003c). However, the FAO's Technical Guidelines on the ecosystem approach (FAO, 2003a) provide a common reference point for RFMOs. Moreover, there is nothing to prevent an RFMO articulating its interpretation of the concept and how it intends to apply it within any constraints imposed by its mandate. For example, NEAFC's decision in 2004 to close, for three years, five high seas areas to fishing with all types of bottom fishing gear in order to protect vulnerable deep-sea habitats was, in effect, an extension of NEAFC's mandate for the protection of habitats and operationalization of at least some elements of an ecosystem approach.

Some RFMOs do have an ecosystem approach embedded in their mandate. The conventions of CCAMLR, WCPFC, SEAFO and the Antigua Convention all require actions consistent with an ecosystem approach. The WCPFC has established an Ecosystem and Bycatch Specialist Working Group whose recommendations have already supported Commission resolutions in 2005 on seabirds, turtles and non-target fish species. Discussions at the second meeting of the WCPFC also indicated that the observer programme under development will have a strong by-catch focus (WCPFC, 2005c). However, CCAMLR is the only one of the above RFMOs that has sufficient experience to demonstrate the routine and comprehensive application of an ecosystem approach to fisheries management.

Concerns about the impact on dependent species of fishing for krill were the main driver for the formation of CCAMLR (CCAMLR, 2006b). CCAMLR's approach to management of other target species has been formulated on the same principles. CCAMLR has:

- Taken a precautionary approach to exploitation of all target species
- Developed by-catch and ecosystem data collection programmes. By-catch data are collected through the regional observer programme
- Undertaken research on the impact of fishing on non-target species as well as mitigation measures
- Provided for by-catch issues to be assessed through the Working Group on Incidental Mortality Associated with Fishing and the Working Group on Fish Stock Assessment
- Implemented extensive seabird by-catch mitigation measures and precautionary management measures for fish (mesh size restrictions) and skates and rays (by-catch limits, in particular, by small-scale management units)

CCAMLR's application of an ecosystem approach is supported by the CCAMLR Ecosystem Monitoring Programme, which has been in place since 1985. The Programme's major function is to monitor the key life-history parameters of selected dependent species.

Few other RFMOs match any of the data collection, validation, research, analysis and response elements of CCAMLR's ecosystem approach. In other RFMOs, the extent of both the mandate and the will to implement an ecosystem approach vary. CCSBT, for example, has a mandate to collect data on non-target and associated or dependent species but the collection of such data by members is voluntary. Its commission has an Ecologically Related Species Working Group (ERSWG), but the Group

has not been able to agree on measures to improve aspects of data collection on non-target and associated or dependent species, such as quality and level of resolution (CCSBT, 2004b), since there are significant differences of opinion between members on the importance of such information. In addition, the Group does not meet regularly and hence assessment of available data and development of advice to the Commission is sporadic. The Commission appears to give little consideration to the reports of the Group. For example, in 2004 the Commission simply adopted the ERSWG report and made no response to the concerns expressed in the report about provision of by-catch data and the resultant difficulties the Group had in meeting its terms of reference. CCSBT has not implemented or amended any by-catch mitigation measures since it implemented, what are now regarded as minimal, mitigation measures for seabirds in 1995.

While the IOTC's mandate is restricted to tuna and tuna-like species, the Commission has authorized the collection of data on non-target and associated or dependent species. However, the data have 'not been well reported and it is not possible to estimate reliable levels of by-catch because the data are highly incomplete and there is little information at the species level' (IOTC, 2005c). There is no observer programme in place. The IOTC agreed to establish a Working Group on Bycatch in 2002, but the Group did not meet until 2005 and has not yet reported to the Commission. In 2005 the IOTC adopted a resolution on the conservation of sharks caught in association with fisheries managed by IOTC and recommendations on sea turtles and incidental mortality of seabirds. No other by-catch mitigation measures are in place despite the available by-catch data indicating that a range of other finfish, including Dolphinfish *Coryphaena hippurus,* Rainbow Runner *Elagatis bipinnulata*, Oilfish *Ruvettus prettiosus,* Escolar *Lepidocybium flavobrunneum*, Triggerfishes *Canthidermis maculatus* and *Aluterus* spp., Barracuda *Sphyraena* spp. and marine mammals such as dolphins, are taken as by-catch in IOTC managed fisheries (IOTC, 2005c).

In some RFMOs, collection of data and management of non-target and associated or dependent species has focused on particular species. For example, the IATTC has conducted extensive scientific research and adopted comprehensive measures to mitigate the effect of purse seining on dolphins. Full observer coverage on large-scale purse seiners provides comprehensive and reliable by-catch data on that sector of the fishery. However, there are very few data collected on non-target and associated or dependent species in the longline sector of the fishery. In 2004, IATTC passed a three-year programme to mitigate the impact of tuna fishing on sea turtles. However the resolution is only voluntary in nature and 'encourages' contracting parties to collect and provide data on turtle interactions and to develop mitigation measures (IATTC, 2004). A similarly voluntary resolution on incidental mortality of seabirds was adopted by IATTC in 2005 (IATTC, 2005a). In the same year, the IATTC adopted a stronger resolution on sharks that requires full use of retained catches of sharks, encourages the release of live sharks and development of more selective fishing gear and requires the reporting of data on catch, effort by gear type, landings and trade of shark species.

CCAMLR's area of jurisdiction is defined by the oceanographic delineation of the Antarctic Convergence and thus the Antarctic ecosystem. The area of most other RFMOs has reflected factors including political compromise, the distribution of target stocks and the existing jurisdiction of other RFMOs for similar species. As a result, most RFMOs have no clear ecosystem boundaries within which to operate. It is notable that at the first meeting to form the proposed South Pacific RFMO there was some discussion of whether there was a natural ecosystem boundary that might define the RFMO's area of jurisdiction in the north (L. Hitch, WWF Australia, *in litt*., 17 March, 2006). This is indicative perhaps of a shift in the thinking of those involved in RFMOs towards an ecosystem approach.

NEAFC, NAFO and ICCAT have each included the need for consideration of the application of an ecosystem approach in the reform and review processes they have initiated. To date each of these commissions has taken *ad hoc* actions (e.g., closure of seamounts to protect deep-water habitats, resolutions on sharks, seabirds and turtles, by-catch limits in conjunction with the move-on (i.e., cease fishing an area with high by-catch) provisions) that acknowledge the need for management of non-target and associated species and habitats. However, as in most other RFMOs, there is little evidence to date of the adoption of a systematic approach that formalises the application of an ecosystem approach and incorporates it into data collection, advisory and decision-making processes so that its application is well supported and routine rather than *ad hoc*.

Bottom trawling in deep water has a relatively high impact on by-catch and discard species because the mortality rate of fish trawled from deeper waters is very high, if not 100%. CCAMLR has closed some areas to bottom trawling and requires that measures have to be in place before other areas can be opened to fishing for Toothfish. In contrast, NEAFC and NAFO have taken steps to regulate bottom trawling only in recent years despite advice on the nature and extent of by-catch and other ecosystem impacts of bottom trawling, especially in vulnerable habitats around seamounts, having been available for some time, and which might have informed their actions. While these

measures will have a positive impact on the level of by-catch and discards (UNGA, 2006b), they have not been imposed in the proactive way required by an ecosystem approach.

Despite the development of IPOAs for seabirds and sharks, no RFMO has developed a regional plan of action, although CCAMLR's extensive mitigation measures for seabird by-catch provided the basis for the IPOA–Seabirds. The extent to which shark and seabird by-catch are issues for RFMOs varies according to the fishing methods used and the geographical extent of the fisheries managed. Despite the absence of regional plans, actions are under way to address the issues in many RFMOs, although the effectiveness of the measures is variable.

Birdlife International has conducted a recent evaluation (Small, 2005) of the performance of RFMOs in fulfilling their obligations to minimise by-catch, especially of albatross. The review found that, of the top five RFMOs whose areas overlap with albatross distribution:

- CCAMLR had been most effective
- CCSBT had established measures but was not monitoring compliance with or effectiveness of the measures and had not taken on a central role in collecting data on by-catch
- Neither IOTC nor ICCAT had established mitigation measures to reduce by-catch of non-target species
- WCPFC had laid solid foundations to manage by-catch, but had not been in place long enough for its effectiveness to be assessed.

The UNGA has noted that there has been little progress with respect to the conservation and management of sharks since the adoption of the IPOA in 1999 (UNGA, 2004). The UNGA assessment of measures adopted by RFMOs in relation to sharks did not identify any mandatory regulations regarding the mitigation of shark by-catch. Many RFMOs have agreed to resolutions requiring full use of sharks and encouraging data collection and research and the development of by-catch mitigation measures. Such actions fall well short of the requirements of the IPOA-Sharks.

Lessons Learned and Best Practice

The standard of collection and validation of data on non-target and associated or dependent species across RFMOs is generally poor. Collection of data is often voluntary and, in the main, catches are not monitored or validated through observer programmes. There is little research conducted and that which is conducted by member States is not driving management within RFMOs. The establishment by RFMOs of specific groups to deal with by-catch and ecosystem issues is more common. But without systematic, mandatory and credible data collection, such groups struggle to provide meaningful recommendations and management action is unlikely. Further, unless the role of these groups is clearly articulated and prioritised in RFMO decision-making structures there is a high risk of their efforts being ignored and poorly resourced. Most of the management responses by RFMOs in relation to non-target and associated or dependent species have related to seabirds, sharks and turtles. Very little has been done to minimize the catch and discards of other finfish or to understand the more complex ecological relationships that may influence target species sustainability. There are also relatively few examples of research into broader ecosystem impacts of fishing on habitat or trophic relationships.

The implementation of an ecosystem approach to management is not without its costs. It is likely that the scope of data collection, research and monitoring, compliance and enforcement will need to be broadened to underpin the approach. Given that some RFMOs already struggle to service their target species focus adequately, the adoption of an ecosystem approach will require some careful allocation of human and financial capacity. Under such circumstances, RFMOs should consider whether a more precautionary approach to management of target species may in fact be a cost-effective approach to addressing broader ecosystem impacts.

The incorporation of ecosystem-wide information into decision-making may also require changes to the structure of advisory processes and the skill set of the individuals that participate in those processes. Canada has noted that the adoption of an ecosystem approach may involve the 'need to broaden the scope of the information collected and the methods of collecting it so that the impacts of fishing on target stocks and dependent and associated species and ecosystems may be assessed and results provided to managers as factors to be taken into consideration in their decision-making' (NAFO, 2005).

The range of impacts of fishing on non-target and associated or dependent species and ecosystems is wide. Uncertainty will be high and the research to reduce this expensive. Realistically it will not be possible to collect species-specific data and undertake research on all habitat and trophic impacts. This should not be used as an excuse not to adopt an ecosystem approach to management. Species-specific measures may not be necessary. Precautionary approaches that, for example, place limits on groups of by-catch species together with move-on provisions, may deliver satisfactory outcomes, particularly when combined with effective monitoring and adaptive management.

Of all the RFMOs, ecosystem management is most entrenched in CCAMLR, the raison d'etre of which was to manage the impacts on Antarctic marine ecosystem rather than its fisheries. The formation of CCAMLR in 1982 represented an attempt to preserve what was regarded as a unique ecosystem. Since that time the importance of maintaining or restoring all ecosystems has become more widely accepted. The CCAMLR approach has largely been proven as a successful regional ecosystem management model. It has proven that a focus on ecosystems and precautionary management can deliver biologically and commercially viable fisheries. Given that few other RFMOs have successfully delivered sustainable fisheries this must surely be a salutary lesson.

In the absence of specific ecosystem management it has been argued (e.g., ICES, 2001; Sissenwine and Mace, 2001) that cautious implementation of single-species management models is likely to make a positive contribution to addressing impacts on the broader ecosystem. While it would be hard to argue that stronger management of target species and efforts to reduce IUU fishing will not make a positive contribution to management of the ecosystem, it must be remembered that RFMOs have rarely taken precautionary approaches to single-species management. In addition, information on non-target and associated or dependent species and ecosystem impacts is even less available and robust than that for target species. Uncertainty will therefore characterise their management and the application of a precautionary approach will be even more critical to their sustainable management. Experience suggests that RFMOs are unlikely to be willing to reflect this level of precaution in their management strategies. The HSTF (2006) has suggested that reference points for target species should also be linked to the sustainability of non-target and associated or dependent species, especially those of special concern. However, as noted earlier in this report, most RFMOs do not have reference points even for target species. There is some way to go, then, before this approach is likely to contribute to sustainable ecosystem outcomes.

The failure to apply an ecosystem approach to established fisheries has implications for the sustainable development of new fisheries, many of which are in deeper waters and in more vulnerable habitats. While there have been some responses to stop fishing in such areas, for example NEAFC's closure of some seamounts, only CCAMLR has a proactive approach to ensuring that unacceptable ecosystem impacts are not incurred by new fisheries.

Given that some RFMOs are responsible for certain species in defined geographic areas and that RFMOs overlap geographically, there are obvious opportunities for collaboration and co-operation between RFMOs in seeking to improve their understanding of the ecosystem in which they operate and the impacts of fishing on it. Such co-operation may also reduce the costs associated with research into ecosystem-wide issues. The IATTC and WCPFC are developing a memorandum of understanding regarding co-operation that will include aspects of ecosystem impacts (A. Wright, Executive Director, WCPFC, *in litt.* to A. Willock, 14 April, 2006).

Summary of Recommended Best Practice:

- The application of an ecosystem approach should be an integral part of new RFMO conventions and require that fisheries management be conducted in the context of the ecosystem rather than in the context of the target stocks
- Established RFMOs should institutionalize the use of an ecosystem approach through explicit recognition of its adoption through either amendment of their conventions or through formal resolution
- An ecosystem approach should be incorporated into advisory structures and supported by adequate data collection, research and analysis
- Ecosystem information should be incorporated in the mainstream scientific analysis of target species, to ensure that management measures for those species reflect the broader ecosystem impacts of fishing
- Acknowledging the demands on resources of RFMOs, mechanisms should be established to identify the relative risks of ecosystem impacts and used as a basis for prioritizing resources devoted to research and development, enforcement and monitoring of mitigation measures
- RFMOs should acknowledge that the precautionary approach is an integral component of an ecosystem approach to fisheries management and consider whether precautionary management of target stocks may be a cost-effective first step towards mitigation of ecosystem impacts
- Where new fisheries or new methods are proposed, RFMOs should ensure that the impacts are assessed and, where necessary, mitigation measures applied and their effectiveness monitored
- RFMOs with overlapping responsibilities for ecosystems and/or species should collaborate in order to maximise the returns to research and monitoring of ecosystem impacts of fishing

c) Scientific Advice

Experiences of RFMOs

The nature and value of the scientific advice provided to RFMOs is shaped by factors including the institutional and operational arrangements established by the RFMO, how the advice is framed and the quality and timeliness of data underlying the advice. Institutional and operational arrangements include the structure for development of scientific advice and the charter of the group charged with providing it. The value of the scientific advice is also influenced by its clarity as a basis for taking management decisions and the extent to which uncertainty is explicitly assessed. Quality and timeliness of data will depend on the data collection mechanisms and standards established, and compliance with these by members.

The UNFSA (Article 5) requires that RFMOs base conservation and management measures on the best available scientific advice. While most RFMO instruments reflect the need to take account of scientific advice, relatively few reflect the requirement of Article 5. However, of the five conventions/agreements developed or amended since the UNFSA was agreed in 1994, all but the IOTC acknowledge the need to base management and conservation measures on the best available scientific advice and consideration is currently being given to changes to the NAFO convention to reflect this.

Common mechanisms for providing scientific advice to RFMOs include:

- The 'national scientists model', whereby scientists of member countries bring the results of research to a scientific committees established as a subsidiary bodies of commissions (e.g., IOTC, ICCAT, CCSBT, NAFO, GFCM and CCAMLR). In some instances (e.g., CCSBT, CCAMLR and GFCM), a sub-committee of the scientific committee deals with stock assessment.
- The 'scientific staff model', whereby the RFMO (e.g., IATTC and the International Pacific Halibut Commission (IPHC)) employs a permanent scientific staff.
- The 'independent scientist model', whereby independent scientists or scientific organizations provide scientific advice (e.g., in the cases of WCPFC and NEAFC).

Experience indicates that the 'national scientists model' is frequently characterized by disputes over stock status arising from the research of national scientists (e.g., CCSBT and ICCAT) and subsequent failure to develop agreed scientific advice for commissions to consider. Because it relies on research by members the model is susceptible to influence by 'political' factors reflecting national aspirations to avoid reductions in catch or more stringent management controls. It also potentially disadvantages those members who have limited capacity to undertake scientific research. In some cases, members of the scientific committees also attend meetings of the commissions, and this further compromises the 'independence' of the advice (May *et al*., 2005). The situation is compounded where the RFMO makes no, or no regular, provision for peer review by independent scientists. Few RFMOs (CCSBT, NEAFC and WCPFC are exceptions) provide for regular peer review of scientific advice. The experience of CCSBT demonstrates the value of such an approach.

In 2000, after a period of protracted dispute in CCSBT, the Commission established an Advisory Panel to the scientific process, comprising external scientists. The Panel is required to participate in all meetings of the Stock Assessment Group and Scientific Committee; to help consolidate parties' views to facilitate consensus; to incorporate their views in the reports of the Stock Assessment Group and the Scientific Committee; and to provide the Scientific Committee and the CCSBT with their own views on stock assessment and other matters. While not a panacea, the appointment of the Panel has significantly improved the level of consensus within the Stock Assessment Group and Scientific Committee, and resulted in agreed advice on stock status being provided to the Commission and has facilitated the development of a management procedure for CCSBT. Despite this, the Commission has still failed to reach agreement on a TAC for its single target species, Southern Bluefin Tuna, for the 2001, 2002, 2003 and 2006 fishing years. This highlights the fact that the best scientific advice does not, on its own, deliver good conservation and management measures.

Experience with the 'scientific staff' and 'independent scientists' models is more positive, with far less evidence of disagreement about the nature of the advice. Experience suggests that these models are more likely to arrive at agreed scientific advice. There have generally been no difficulties in provision of such advice in NEAFC and IATTC and the short history of WCPFC suggests that the independent, external advice is highly regarded. The WCPFC model of scientific advice is in fact a hybrid model

that provides for the engagement of scientific staff, a Scientific Committee comprising national scientists and for independent scientific advice to be provided directly to both the Commission and the Scientific Committee. This model provides for direct engagement by national scientists in the development of advice but ensures that independent advice is not 'filtered' by the Scientific Committee before it reaches the Commission.

Annex 1 of the UNFSA specifies standard requirements for the collection and sharing of data. Of the RFMOs, only one of the most recently formed, the WCPFC, requires through its convention, the submission of information in accordance with Annex 1. Regardless of the standard of scientific modelling and analysis, the outcomes will reflect the quality of the data underlying it. May *et al*. (2005), in discussing scientific advice in NAFO, noted that 'The history of modelling and analysis within NAFO scientific meetings matches any of the other international fisheries bodies. Unfortunately, the quality of the data to be analysed does not meet the same high standards'.

Many RFMOs suffer from problems associated with failure of member States to submit data or late submission and poor data quality. For example, there are concerns about accuracy (mis-reporting and non-reporting), timeliness of data and inconsistencies in data reported to NEAFC. It is also recognized that data quality is deteriorating for some important stocks (NEAFC, 2004). Similar concerns have been noted in NAFO and GFCM, both of which have initiated processes to address these concerns.

The difficulties faced by RFMOs in getting timely and accurate data from their members are illustrated by IOTC. In 2001, the IOTC adopted a resolution on mandatory statistical data reporting that provides a sound basis for data collection. The resolution specifies the nature of data to be provided by the longline and the purse seine fleet on catch, effort, fish size and, where appropriate, FAD use. The resolution also imposes deadlines on the submission of the data. Despite this, the IOTC reported in 2005 that:

- There was an increasing trend for tardy submission of data and, in some cases, the delays had extended to more than two years
- The level of discards was extremely difficult to estimate because skippers rarely entered such data in logbooks and currently there was no statistical system in the area designated to record them
- IOTC data correspondents were requested to indicate clearly whether the data they supplied were actual landed weights or nominal catch estimates. However, these data were often very difficult to obtain (Anon., 2005b).

CCAMLR has improved the quality of its data by requiring the deployment of international observers in its finfish fisheries.

The quality and timeliness of data and the amount of time that scientists have to analyse, query and apply it to stock assessment models affects the quality of the scientific advice available to commissions. At a minimum, it affects the level of certainty attaching to the advice. Unless the RFMO is reflecting this in a precautionary approach to management, over-fishing can result.

It appears that scientific advice provided to RFMOs is generally regarded as a clear and effective basis for taking management decisions on target stocks and that the level of uncertainty associated with stock assessments is explicitly stated in that advice. However the value of this advice is largely dependent on whether management decisions are made in an agreed decision- making framework such as a management strategy. Regardless of the quality of the advice or the level of uncertainty attaching to it, the absence of such a framework creates an environment in which decisions can be delayed or avoided. This may explain why, for example, in IOTC, despite the scientific advice being regarded as clear and uncertainty explicitly acknowledged, no management decisions in response to the scientific advice on over-fished stocks were taken in 10 years.

Another factor affecting the capacity of RFMOs to make management decisions on the basis of the scientific advice before them is the lack of objective and comprehensive assessment of the management options available to them. The extent to which the scientific processes advising RFMOs comment on the nature of alternative management responses varies considerably. It is also questionable as to whether this is, in any case, an appropriate role for scientists. There is increasing recognition of the need for the decision-making body to be provided with management advice as well as scientific advice. For example, the Technical and Compliance Committee of the WCPFC has identified the need for the secretariat to prepare a paper on management options for Bigeye and Yellowfin Tuna. In 2005, the IOTC agreed to establish a Working Party on Management Options

to 'provide the Commission with a comprehensive assessment of management options and indicate the most suitable measures to ensure the management of fisheries in the Indian Ocean under the mandate of the Commission, having in consideration Control and Compliance matters' (IOTC, 2005a).

The scope of the scientific advice provided is usually dictated by the terms of reference developed by the RFMO for its scientific advice provider, regardless of the model adopted. Article 5 of the UNFSA requires that RFMOs 'assess the impacts of fishing, other human activities and environmental factors on target stocks and species belonging to the same ecosystem or associated with or dependent upon the target stocks'. Despite this, the terms of reference of most RFMO scientific committees generally require scientific advice to focus on target species; inclusion of non-target and associated or dependent species or broader ecosystem impacts are secondary, if included at all. For example, the functions of the IOTC's Scientific Committee include 'To assess and report to the Commission on the status of stocks of relevance to the Commission'. The CCSBT convention does provide a role for the consideration of non-target and associated or dependent species in specifying the functions of the Scientific Committee by including reporting on 'its findings or conclusions on the status of the southern bluefin tuna stock and, where appropriate, of ecologically related species'. The terms of reference for NAFO's Scientific Committee, set out in its convention, are framed in the context of 'the fisheries of the Convention Area, including environmental and ecological factors affecting these fisheries'. In that case, the nature of the inclusion of the reference to environmental and ecological factors is in fact the reverse of the intention of the UNFSA.

There is generally poor institutional support and limited expertise in RFMOs for data collection and analysis on non-target and associated or dependent species, other than for some threatened species, and on broader ecosystem impacts. The exception to this is CCAMLR. CCAMLR's convention provides explicitly for its Scientific Committee to consider ecosystem impacts by requiring that it 'regularly assess the status and trends of the populations of Antarctic marine living resources; analyse data concerning the direct and indirect effects of harvesting on the populations of Antarctic marine living resources; assess the effects of proposed changes in the methods or levels of harvesting and proposed conservation measures;'. The Scientific Committee has established the Working Group on Ecosystem Monitoring and Management and the Working Group on Fish Stock Assessment to assist it in formulating scientific advice on key areas of its responsibility (CCAMLR, 2006c). The WCPFC has established an Ecosystem and Bycatch Specialist Working Group, charged with reviewing the impact of fishing on components of the ecosystems not targeted by fishing and interactions between climate and environmental factors and target and non-target species and developing ecosystem-based models (WCPFC, 2005b).

Lessons Learned and Best Practice

The experience of RFMOs suggests that reliance on national scientists, especially where there is no provision for peer review or involvement of independent scientists, may impede the delivery of agreed scientific advice to the RFMO.

Scientific advice needs to facilitate decision-making, but scientists are unlikely to be best placed to develop management advice or assess management options. The addition of another step in the decision-making process may act as a circuit breaker and an opportunity to provide considered and objective assessment of management options to the RFMO. The inclusion of a mechanism to deliver considered management advice to the commission is also likely to generate more productive and transparent deliberations in the commission. Such a process could also be charged with responsibility for assessing whether agreed conservation and management measures have had the intended effect. Management advice could be obtained by employment of suitable staff in the secretariat, by external independent analysts, or through the creation of an additional subsidiary body within the RFMO.

Most RFMOs have difficulty in obtaining high quality and timely data from members. The development of standards for the collection and submission of data and the creation of a central data exchange, such as those used by NAFO and CCSBT, are essential first steps in addressing these problems. Few pre-UNFSA RFMOs require data collection, verification and exchange procedures consistent with Annex 1 of the UNFSA. In addition, there is little recognition of the limited capacity

of many developing States to collect and verify data, although there are some exceptions. For example, Australia has committed considerable resources to assist capacity-building in Indonesia in order to improve monitoring of the Indonesian catch of Southern Bluefin Tuna. ICCAT and WCPFC have established funds to build capacity, including in data collection, fishery monitoring and science, in developing States.

There is an urgent need to broaden the scope of scientific advice from the focus on target stocks, in order to gain greater recognition of ecological elements. In the short term, this may necessitate RFMOs' prioritising expenditure and effort towards data collection and analysis in relation to non-target and associated or dependent species and broader ecosystem impacts.

The returns to the significant investment in scientific advice made by RFMOs and or member States will be maximised where that advice is considered in the context of an agreed management decision-making framework. A management procedure, such as those in place for some species in CCAMLR, NEAFC and NAFO and that being developed for CCSBT, which specifies management responses when agreed triggers are reached, is required in order to maximise the value of well-founded scientific advice.

Summary of Recommended Best Practice:

- Mechanisms should be established to provide independent scientific advice or regular peer review and allow for that advice to be provided directly to the commission
- RFMOs should consider the establishment of technical, subsidiary bodies charged with developing options for conservation and management measures in response to scientific advice
- Standards for the collection, verification and exchange of data consistent with the requirements of Annex 1 of UNFSA should be established in existing RFMOs and specified in the convention text of new ones
- The scope of data collection and scientific advice should be broadened to include mandatory collection of non-target and associated or dependent species and broader ecosystem impacts
- Appropriate advisory bodies should be established, or the terms of reference of existing bodies extended, to ensure that responsibility for providing advice on the ecological impacts of fishing is assigned
- In line with the precautionary approach, management strategies should be developed to provide a context in which scientific advice can be considered and decisions taken

d) Allocation of Fishing Opportunities[7]

Experiences of RFMOs

The allocation of fishing opportunities, or participatory rights, within RFMOs has proven to be one of the most contentious issues dealt with in these forums. Experience has shown that it has the potential to dominate debate, undermine conservation measures and virtually render an RFMO moribund. An inability to agree on TACs, an unwillingness to accommodate new members, non-compliance with national allocations and undermining of scientific advice are some of the attendant impacts of the allocation issue.

Within CCSBT, the failure to agree to a reduction in the TAC and establish a harvest strategy to rebuild Southern Bluefin Tuna in part results from problems arising from national allocations. One key issue has been the absence of an agreed formula on how any reductions in the TAC would be shared by the members. In 2002, CCSBT members finally agreed on the status of the stock and that a rebuilding strategy needed to be adopted, including reductions in TAC (and, since the original allocations had been agreed as tonnages rather than percentages of the TAC, therefore national allocations). However the willingness of members to agree to such measures appears contingent on the outcome of a review of national allocations with one member noting that '… the Convention's allocation criteria, and the provisions of UNCLOS on coastal States' rights, must be better taken into account before a management procedure can be settled' (CCSBT, 2003). This issue remains unresolved in CCSBT.

The same trend is also evident in NAFO. In its opening statement to the most recent NAFO General Council meeting, Canada summed up the link between member tensions over allocation issues and the negative impact on the stocks, stating that 'Overcapacity is directly linked to access and allocation. It is a challenge for all countries but we cannot continue to look to the resource or access to another country's allocations to solve this overcapacity problem' (NAFO, 2005).

One of the main factors driving higher levels of catch and effort is the need to accommodate new members and co-operating non-members. Even where scientific advice is that stocks are over-fished, commissions repeatedly choose to increase TACs rather than reduce the quotas of existing members. In the ICCAT forum, South Africa expressed concern that there had been 'a disturbing tendency to repeatedly increase TACs during recent efforts to develop sharing arrangements, in an effort to accommodate new members without reducing allocations to existing participants'. This, it reported, amounted to 'nothing less than ICCAT-sanctioned over-fishing, in complete violation of our convention' (ICCAT, 2003a). Similarly, in CCSBT the agreed tonnages for two new members were added to the existing TAC, despite scientific advice that the spawning biomass of Southern Bluefin Tuna has been reduced to a low fraction of its original biomass.

By contrast, NAFO's response to potential new members seeking allocations has been to agree a resolution advising any such 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… and the 'Others' category under the NAFO Quota Allocation Table' (NAFO, 1999). Vessels from non-contracting parties are known to be active in the high seas of the NAFO convention area (NAFO, 2004). This is of concern, given that Oceanic Redfish *Sebastes mentella* is a prime target for IUU operators and, while it is not known what impact IUU fishing has on moratorium stocks it is assumed that some level of Atlantic Cod *Gadus morhua* by-catch is occurring during unregulated redfish fishing in areas where Atlantic Cod is under a moratorium (Rosenberg *et al*., in prep.).

A crucial subset in accommodating new members and co-operating non-members within existing allocations is developing countries. Allocation has generally been based on historical catch which has meant that States not actively fishing over the historical period used did not receive an allocation. This failed to recognize either the rights over resources within a country's EEZ or the dynamic nature of flag State activities on the high seas. This was raised, for example, at ICCAT's annual meeting in 2004, with the Philippines stating 'We believe that this Resolution is discriminatory and does not reflect the principles of giving special recognition to developing States' (ICCAT, 2004).

Non-compliance with allocations under RFMOs is a further issue. The experience of RFMOs has been that the consequence of providing members and co-operating non-members with inadequate quotas is that these are simply not complied with. For example, within ICCAT, Trinidad and Tobago noted in its statement that 'the repeated problem of overages' indicated clearly that 'the current catch limit threatens the economic viability of our swordfish fishery' (ICCAT, 2003a). In other RFMOs, for example NAFO, dissatisfied members simply opt out of the quota decision and unilaterally set their own.

A lack of an effective monitoring and reporting regime to ensure members maintain catches within quotas has also been problematic. For example, despite the implementation of a trade information scheme in 2000, a recent comparison between publicly available market data and catch reported to CCSBT has indicated that

[7]This Section draws on Willock, A. and Cartwright, I (in prep.). Conservation Implications of Allocation under the Western and Central Pacific Fisheries Commission. TRAFFIC Oceania and WWF Australia.

'…in the last three years, auction sales of frozen SBT in Japan appear to greatly exceed the quantity expected from CCSBT catch data' (CCSBT, 2005c). Japan has since confirmed that it has exceeded by at least 1500 t its annual national allocation of 6065 t of Southern Bluefin Tuna in 2004/05 (Anon., 2006b). The implications for stock assessment advice have not yet been analysed. Similar issues are also apparent within ICCAT where evidence has emerged that some parties have laundered catches of Bigeye Tuna taken in the Atlantic Ocean through misreporting these as having been taken in the Indian Ocean where no catch limits apply (ICCAT, 2005b). ICCAT has taken steps to require such catches to be repaid in subsequent fishing years (ICCAT, 2005b).

Lessons Learned and Best Practice

Experience in RFMOs has shown that gaining agreement on the basis of allocations, acceptance of outcomes of an allocation process, and then control of the resulting impacts on the fishery, are extremely difficult, with potentially negative consequences for target species and non-target species, as well as the broader marine environment.

Accommodating new members has been a major problem and experience to date has shown a general willingness to transfer risk to the stock rather than to members' short-term fishing interests. The approach used by NAFO, of effectively closing the door on new members demanding fishing opportunities on the high seas, may prove problematic in other regions in failing to recognize legitimate expectations of developing countries to be afforded the right to participate in high seas fisheries, as specified under the UNFSA. Further, this approach may increase pressure for fishing opportunities to be able to be widely traded; particularly for highly migratory fish stocks where these move between the waters under the jurisdiction of coastal States and the high seas. The ability to trade national allocations has already been raised within CCSBT and is likely to be an issue within the WCPFC.

Well-developed monitoring, control and surveillance measures are required. Otherwise, experience has shown that a high level of non-compliance can be expected by both members and non-members. The ability to impose some form of sanctions or penalties linked to non-compliance with quotas, or indeed reductions in quota as a response to other breaches of members' broader obligations, should be regarded as an integral component of any allocation of fishing opportunities and should be provided for in conventions.

No doubt in recognition of the problems caused in other RFMOs, the conventions governing both SEAFO and WCPFC include detailed guidance on the allocation of fishing opportunities, with criteria drawing heavily on those contained within the UNFSA. The SEAFO Convention goes further, specifying the possibility of setting aside quota for non-members and providing for the review of allocations taking into account '… information, advice and recommendations on the implementation of, and compliance with, conservation and management measures by Contracting Parties'. The WCPFC has already sought external advice on allocation issues, including an 'overview and assessment of the experience of other RFMOs, particularly tuna RFMOs, in addressing allocation; potential models for allocation within WCPFC; and an outline of potential processes for the Commission to make progress on allocation' (WCPFC, 2005b). Given the contentious nature of the allocations and experiences in other RFMOs, it may be useful to consider an arbitrated negotiation process and/or the establishment of an advisory panel of external experts in order to facilitate a more transparent and focused discussion.

Summary of Recommended Best Practice:

- New RFMOs should move rapidly to allocate – delays have seen over-fishing and a reduced likelihood of agreement in the face of more drastic reductions in catch and/or effort
- New RFMOs should consider an arbitrated negotiation process and the establishment of an advisory panel of external experts to facilitate decisions on allocation
- An RFMO member's record of compliance with conservation and management measures, not limited to those relating specifically to catch and/or effort, should be a key criterion in allocation
- RFMOs should agree in advance how allocations will apply to new members, particularly mechanisms to facilitate participation of developing States in high seas fisheries
- RFMOs should agree up-front how any increases or decreases in catch or effort limits will be distributed across members, including how the aspirations of developing States might be reflected in this
- Negotiations over allocations should be transparent and separate from decisions on the level of catch or effort
- Strong measures to ensure the integrity of allocations should be implemented, including penalties for breaches of national allocation and reductions in allocations for breaches of other conservation measures

III. Compliance and Enforcement

The past decade has witnessed an unprecedented rise in the attention given to compliance and enforcement within RFMOs. This increased attention can be explained in part by increasing evidence of the depletion of target stocks and a need to address the causal factors. Non-compliance with conservation and management measures is viewed as a key factor in the over-fishing of stocks. The codification of non-compliance through the language of the FAO's International Plan of Action on Illegal, Unreported and Unregulated Fishing (IPOA-IUU), adopted in 2001, has provided a rallying point for action.

Much effort has been expended in analysing the incentives for IUU fishing, the mechanisms and systems supporting it, its impact on global marine fisheries and possible solutions for addressing it. As mentioned in this report, one such recent and far-reaching initiative has been the Ministerially-led Task Force on IUU Fishing on the High Seas. The HSTF focused on analysing the problem and developing practical and innovative responses. The final report of the HSTF was released in March 2006 and contains targeted proposals for action to combat IUU fishing activity. This section draws heavily on and reinforces those proposals.

a) Co-operative mechanisms to detect non-compliance

Experiences of RFMOs

Ensuring the integrity of conservation and management measures is essential and RFMOs have, with mixed success, implemented a vast range of compliance and enforcement mechanisms designed to achieve this.

The measures of most RFMOs reflect a heavy reliance on flag State control by members. For example, vessel monitoring systems (VMS) have been broadly adopted by RFMOs over the past few years with most of those providing data only to flag States, or via flag States to commissions (e.g., NAFO, NEAFC, CCAMLR and ICCAT). In contrast, the convention establishing the WCPFC includes an explicit requirement for the data to be sent to the Commission, and simultaneously to the flag State, if it so desires. With respect to the IOTC, despite both the constant concerns expressed by that commission about IUU fishing activity and the experience of other RFMOs on which it could readily draw, IOTC has only moved so far as agreeing, in 2001, to implement a two-year pilot programme of a VMS to be run by the respective flag State. At its 2005 annual meeting, the Commission agreed to recommend that its contracting parties and co-operating non-contracting parties implement VMS on all their authorized fishing vessels (IOTC, 2005a). VMS in the IOTC would therefore appear to rely on voluntary implementation by flag States. There would also seem to be an absence of any formalized approach to the sharing of any resulting data within the Commission.

Experience with VMS provides an example of RFMOs' applying different standards of compliance and enforcement. VMS, black and white vessel lists, reporting formats, trade documentation measures and boarding and inspection regimes are some of the common compliance and enforcement tools used by RFMOs, yet the approach taken in their implementation differs. Not only does the lack of consistency mean that national authorities, including port, customs, management and enforcement agencies, then have to deal with the administration of a range of different compliance requirements, it also opens the way for IUU fishing to use the lowest common denominator in getting their catch into the market-place. For example, ICCAT has limits on catch combined with a well-established, trade-related mechanism for Bigeye Tuna. The absence of such measures in other oceans resulted in systematic laundering of Atlantic-caught Bigeye through the Indian and Pacific Oceans. Japan has provided extensive analyses of this issue, drawing on its domestic trade data, and estimated that 15 000–19 000 t of Atlantic Bigeye Tuna was imported into Japan in 2003 under the guise of Indian Ocean product (ICCAT, 2005b). At the time this laundering occurred, IOTC had in place a Statistical Document Programme for Bigeye Tuna but no catch limits were in place.

The ability to detect non-compliance is of paramount importance, not only to gain better information for stock assessment purposes but to target compliance responses. CCAMLR's CDS provides a very good example of this. The implementation of the CDS in 2000, with its ability to track toothfish products from the catching vessel through to the final market-place, not only enabled CCAMLR to obtain better estimates of the level of IUU fishing but also information on how the IUU fishing system worked. This has since enabled the Commission and its members to implement further, targeted monitoring, control and surveillance measures which, in combination, are considered to have helped

contribute to observed declines in IUU fishing for toothfish (CCAMLR, 2005).

Lessons Learned and Best Practice

Illegal fishing, especially on the high seas, is a cross-border activity and therefore requires co-operation between authorities, sharing information to enable them to act. RFMOs, by definition, provide a forum through which not only co-operative measures can be agreed but also information can be shared. For example, early on, CCAMLR recognized the importance of information exchange in developing effective responses to IUU fishing and agreed to provide co-operating non-members (Mauritius and Namibia) with access to information about Contracting Parties' vessels licensed to fish in the Convention Area (CCAMLR, 1998).

Given the mobility of fishing fleets and the multinational nature of the controlling interests in IUU fishing (see for example, HSTF, 2006 and Gianni and Simpson, 2005), information exchange between RFMOs is also essential for detecting non-compliance. There are already signs that organizations are moving towards this. For example, at its 2005 annual meeting, NEAFC discussed options for sharing information and co-operating with other RFMOs with respect to vessel lists, with the development of a global register of vessels authorized to fish by RFMOs one such option (NEAFC, 2005). ICCAT already provides links to the IUU vessel lists of other RFMOs where these are publicly available (currently, CCAMLR, IATTC, IOTC and NEAFC). NAFO, however, has not yet moved to make its IUU vessel list publicly available. The initiative of Japan to host a meeting of the RFMOs with a mandate for tuna fisheries is also indicative of a recognition that increased co-operation is required between RFMOs.

A specific initiative to improve the sharing of information has been the establishment of the International Monitoring, Control and Surveillance Network for Fisheries Related Activities (MCS Network) in 2000. The MCS Network was established to '…improve the efficiency and effectiveness of fisheries-related MCS activities through enhanced co-operation, co-ordination, information collection and exchange among national governmental organizations and institutions responsible for fisheries related monitoring, control and surveillance' (Anon., 2006c). Although voluntary in nature to date, the Network provides the basis for improved information-sharing and enhanced compliance and enforcement. The potential for the MCS Network to play an expanded role in combating IUU fishing has been recognized by the HSTF, the members of which have committed to work with like-minded countries to provide resources to achieve that end (HSTF, 2006).

There is mixed experience with regard to the level of effort that RFMOs have exerted to collate data and information on compliance. CCAMLR, for example, established a subsidiary body in the 1980s that has considered issues relating to compliance and provided advice to the Commission annually. Similarly, NAFO's more recent efforts in this direction produced its first compliance report in 2004. CCSBT established a compliance committee in 1997, with a requirement that it provide an annual report to the Commission, but to date this committee has never met. With respect to the most recent RFMOs, SEAFO and WCPFC, at its 2005 annual meeting SEAFO considered that '…in the absence of conservation measures it was premature to establish the Compliance Committee' and therefore deferred the issue to the 2006 meeting (SEAFO, 2005). In contrast, the Technical and Compliance Committee established under the WCPFC is already active and provided advice on a range of compliance measures to the second meeting of the Commission in December 2005.

Experience suggests that flag States can not totally be relied upon to ensure compliance by their vessels; the widespread use of the term 'flags of convenience' is ample evidence of this. Therefore, while responsible flag States must be provided with the agreed standards for compliance and enforcement within an RFMO, there is also a need for measures that are independent from the flag State.

The HSTF provides the following consolidated list of the main governance-related problems constraining co-operative mechanisms to detect non-compliance, drawn from its analysis of discussions in recent international forums:

- Failure by some States to participate in existing multilateral instruments as a critical constraint to effective implementation and enforcement

- Inadequate implementation of existing instruments at the regional level, including lack of effective institutional arrangements, conservation and management measures that do not meet the standards set by the existing legal framework, lack of co-ordination between regional bodies and inadequate harmonization of measures
- Inadequate flag State control over fishing vessels
- The existence of geographical and structural gaps in the system of high seas governance
- Subsidies and other perverse signals that displace, rather than eliminate unsustainable fishing

b) Co-operative measures to deter non-compliance

Experiences of RFMOs

Once IUU fishing has been detected, the obvious next step is to implement measures to deter such non-compliance.

RFMOs have generally concentrated their efforts to deter non-compliance on non-members. The most common, and most recent, measure to be widely adopted is the creation of lists of vessels from non-member States considered to have engaged in IUU fishing within an RFMO's convention area. ICCAT, CCAMLR, IOTC and NEAFC have all established and published IUU vessel lists. Mechanisms such as imposing bans on the importation or transshipment of catch from vessels included on IUU vessel lists are then often implemented. CCAMLR also has a list of IUU fishing vessels comprising vessels flagged to its members, while IATTC provides for any vessel to be included in its list. However, the recommendation providing for the establishment of ICCAT's IUU vessel list is specific to vessels flagged to non-contracting parties (ICCAT, 2002), as is that established by NEAFC under its 'Scheme to promote compliance by non-Contracting Party vessels with recommendationsestablished by NEAFC' (NEAFC, 2006).

ICCAT has taken its measure one step further and has scope to implement trade-restrictive measures for entire flag States, including those of its contracting parties. In the case of Belize, ICCAT implemented a prohibition on the importation of Atlantic Swordfish, Atlantic Bluefin Tuna and Bigeye from Belize in the mid 1990s. Belize subsequently took steps to strengthen control of its fleet and removed a significant number of vessels from its register. In recognition of these efforts, ICCAT agreed to suspend the import bans on Belize from 1 January 2004 and Belize has since become a contracting party to the ICCAT convention. More recently, in 2005, the IATTC adopted a similar resolution to ICCAT, allowing it to implement non-discriminatory trade restrictive measures against contracting parties, co-operating non-parties, co-operating fishing entities and regional economic integration organizations (IATTC, 2005b).

As noted in Section 4 II(d), non-compliance by members and co-operating non-members with national allocations is a significant issue. At its 2005 annual meeting, ICCAT took action against over-quota catches, including a yearly deduction of 1600 t from Taiwan's annual catch limit for the next five years, in response to the over-harvest by Taiwan of 8000 t in 2003.

While not an RFMO, in 1991 the Pacific Islands Forum Fisheries Agency (FFA) implemented Harmonized Minimum Terms and Conditions for Foreign Fishing Vessel Access for access to the EEZs of its 17 members. These include the Regional Register of Fishing Vessels and any foreign fishing vessel included on the Register is considered to be in 'good standing'. Non-compliance with any one FFA member's national management measures results in a loss of good standing on the Register and thereby the loss of access to the waters of any of the seventeen FFA members (Pacific Islands Forum Fisheries Agency, 2006). Similarly, in the early 2000s, the 19 members of the South African Development Community finalised a Protocol on Fisheries which makes specific reference to provisions for law enforcement and, among other things provides for co-operation in the use of surveillance resources, sharing of databases and information, harmonizing technical specifications for VMS and setting common penalties for non-compliance (SADC, 2006). The Protocol also requires co-operation, including through RFMOs, to ensure compliance with and enforcement of applicable international management measures (SADC, 2006).

Lessons Learned and Best Practice

The mobility of fleets, particularly those engaged in IUU fishing, requires that the same standards of deterrence be applied between RFMOs. For example, with respect to those RFMOs with responsibility for tunas the same

species are involved, the same markets are involved and the same flag States are involved, yet there are differences in the approaches taken to compliance and enforcement. The forthcoming meeting of the tuna RFMOs will provide an opportunity to discuss and, it is hoped, agree to some standards in monitoring, reporting and sharing of information. Related to this, the Japanese Government has not only undertaken work with the controlling flag States of vessels to address tuna laundering activities between oceans, but has also taken steps more broadly to raise the awareness of this issue in the RFMOs of which it is a member.

While there are examples of reductions in fishing opportunities as a penalty for over-harvest, listing of vessels flagged to members in IUU 'black lists', the potential for trade measures to be taken against contracting parties and citations for infringements resulting from inspection schemes, sanctions against members appear rare. The reason for this is likely to be found in the fact that there remains a high level of reliance on enforcement of RFMOs conservation and management measures by members with respect of their own fishing vessels.

However, in recent years there has been a gradual evolution from a reliance on unilaterally-applied measures that rely on flag State enforcement to measures that are regional in nature (e.g., catch documentation schemes, centralized VMS, black and white vessel lists). In addition, both the UNFSA and the IPOA-IUU envisage compliance measures that could be applied on a regional and, potentially, global level, (e.g., boarding and inspection regimes and port State measures). The difficulty lies in the general lack of ability to enforce measures at a multilateral level.

Compounding this problem is the fact that inter-RFMO co-operation remains lacking with respect to sharing of information, adopting standardized approaches and transference of best practice across RFMOs. There are, however, some positive signs that organizations are moving towards increased co-operation, such as the agreement by NAFO's General Council at its 2005 meeting to provide its list of IUU fishing vessels to other RFMOs on an annual basis (NAFO, 2005). There have also been suggestions for the development of globally-applied measures. For example, the HSTF has proposed the development of '…a publicly-available, Internet-based, database of information relating to the global high seas fishing fleet' (HSTF, 2006), as well as a global tuna register, bringing together information from all of the RFMOs with a mandate for tuna in a comparable way.

Summary of Recommended Best Practice:

- RFMOs should implement compliance measures that are applied and enforced through the commission as a whole rather than rely on flag State enforcement, drawing on measures described in the UNFSA and the IPOA-IUU
- There is an urgent need to strengthen provisions for information exchange both between members of an RFMO and between RFMOs
- Work should be undertaken to standardize compliance and enforcement measures between RFMOs, including focus on common standards for VMS, reporting formats, criteria for inclusion on black and white lists, trade documentation schemes and standardized penalties for non-compliance
- RFMOs should strengthen their institutional capacity to analyse compliance and enforcement information, including through the establishment and resourcing of technical subsidiary bodies

In addition, in its final report, the HSTF identified the following mechanisms to improve detection and deterrence of IUU fishing:

- strengthening the International MCS Network
- establishing a global information system on high seas fishing vessels
- promoting broader participation in the UNFSA and the FAO Compliance Agreement
- adopting guidelines on flag State performance

IV. Performance Review and Evaluation

Experiences of RFMOs

Increasing concerns about the status of straddling and highly migratory stocks under the management mandate of RFMOs has led to calls by groups such as the United Nations General Assembly, COFI, the participants in the 2005 Conference on Governance of High Seas Fisheries and the UNFSA, and the HSTF for increased monitoring of RFMO performance against the objectives of relevant international obligations. Further, Article 13 of the UNFSA requires States to co-operate to strengthen RFMOs, in order to improve their effectiveness in establishing and implementing conservation and management measures for straddling and highly migratory fish stocks.

In 2001, at the second meeting of FAO and Non-FAO Regional Fishery Bodies or Arrangements, representatives of regional fishery bodies indicated, in principle, support for the development of performance indicators and guidelines, but expressed concerns about the feasibility and cost of developing and applying indicators that were generally applicable to RFMOs. The 26th meeting of COFI (COFI 26), held in March 2005, strongly supported the establishment of principles to review the performance of RFMOs in meeting their objectives and the obligations and principles set forth in relevant international instruments (FAO, 2005). The Committee agreed that it could extend an invitation to RFMO members and other interested parties, encouraging them to participate in the development of parameters for the assessment of the performance of RFMOs, possibly through an urgent, expert consultation, followed by a technical consultation. The fourth meeting of Regional Fisheries Bodies was held immediately after COFI 26 and discussed the COFI proposal. The meeting saw a need for 'clarification of the nature, process and uses of the outcome' and noted that the FAO could initiate a performance review only for RFMOs established under the FAO. The less-than-positive response may suggest a degree of reluctance on the part of RFMOs to benchmark their performance against others, with a view to identifying how their performance could be strengthened.

There are, however, some signs that the RFMO community is accepting the need to strengthen and review the mandates of their organizations. The most recently negotiated RFMO conventions have avoided replicating structures and processes that have clearly impeded decision-making in earlier RFMOs (see Section V(a) below) and have explicitly reflected critical provisions of the UNFSA. However, neither the SEAFO nor the WCPFC convention includes provision for regular review of the performance of the organizations.

Currently, no RFMOs undertake regular self-assessment of overall performance. NEAFC has however, asked its Working Group on the Future of NEAFC to develop a mandate for a process of regular external review of NEAFC and has agreed to a number of changes to the convention to expand the mandate to include explicit recognition of the precautionary and ecosystem approaches consistent with its international obligations. Both NAFO and ICCAT have initiated processes to develop recommended changes to their respective conventions, with a view to strengthening the organizations' capacity to meet their international obligations. CCAMLR also held a symposium in 2005 to consider various aspects of its performance and its future. These reviews are not, however, being conducted in the context of a review of performance against agreed indicators and it is possible that, in the absence of a full review, the opportunity for significant, long-term improvements to performance might be lost.

There are a range of potential avenues for performance evaluation, including:

(i) internal or external review of specific functions of the commission (e.g., compliance in ICCAT and NAFO)

(ii) internal or external review of conservation and management measures (either on an *ad hoc* or prescribed basis)

(iii) internal or external review of the efficiency and effectiveness of the institutional components of an RFMO (e.g., secretariat, scientific committee, decision-making body)

(iv) internal or external review of effectiveness of an RFMO against its objectives

(v) internal or external review of the extent to which an RFMO complies with international obligations.

Lessons Learned and Best Practice

There appears to be some reluctance to, or at least nervousness about, establishing a standard set of performance indicators against which RFMOs might be held accountable and their performance compared. However, within RFMOs there is an increasing recognition of the need to review their performance and to consider the appropriateness of their mandates to the

legal obligations and the expectations of the broader global community now faced by their members. That environment will continue to evolve and any performance review mechanism adopted, either internal or external, will need to evolve with it.

Performance review will add another task to the already full work programmes of RFMOs. While regular review is to be encouraged, the frequency of review needs to be given careful consideration. Annual review, for example, would be onerous and unlikely to be productive. A balance needs to be struck between accountability, and maximising opportunities for continuous improvement, and the need to allow responses to review findings to be reflected in the operation and outcomes of RFMOs. The critical issue is that a review and response cycle is formalised and implemented. Given the current lack of formal review processes, it is, however, imperative that such processes are established and that an initial review of performance is conducted as soon as possible.

The credibility of the review of RFMO performance will be increased when it is conducted by independent externals and where it draws on the views of a range of stakeholders, including members, observers from inter-governmental organizations and NGOs, and other RFMOs. The value of such exercises would be enhanced if a framework for performance assessment has been developed (objectives, outcomes, performance indicators). In the case of an assessment against international obligations, a strong case can be made for a standard set of performance criteria to be applied. This approach would allow RFMOs to benchmark their performance against that of others and encourage continuous improvement. These approaches are supported by the HSTF (2006) which:

- Recommends best practice guidelines for RFMOs to assist in and encourage ongoing self-evaluation
- Supports the development of a model RFMO based on more comprehensive analysis of best practices
- Supports regular independent review of RFMO performance

With respect to the proposal of a model RFMO, it is worth noting that, while it is possible to develop a best practice model on paper, the best outcomes will be dependent on the implementation of the model. Changes to conventions to reflect international obligations will not, in themselves, deliver the outcomes sought. It is arguable that, even without such changes, there is little to stop an RFMO from implementing, for example, a precautionary or ecosystem approach, if the will exists within the members to do so. A best practice model will only be as strong as the collective will and commitment of RFMO members to implement it.

Summary of Recommended Best Practice:

- New RFMOs and those reviewing their conventions should incorporate provisions for regular, transparent review of performance and consider the need for external review
- When incorporating performance review into the routine operations of an RFMO, the process for consideration and response to the outcomes of such reviews should also be clearly established
- Performance should be assessed against international obligations, as well as the objectives specified in conventions
- A standard set of criteria framed around international obligations should be developed to allow consistent performance evaluations and maximise opportunities for benchmarking and continuous improvement
- RFMOs should, regardless of the availability of a standard framework and consistent with the recommendation of the HSTF, undertake a review of their performance by July 2007

V. Institutional Mechanisms

a) Decision-making

Experiences of RFMOs

The decision-making processes of RFMOs are often identified as primary drivers of weak and inadequate conservation and management measures that result from these. The various conventions from which RFMOs draw their authority establish a number of different decision-making models, the main ones being:

- Consensus on matters of substance (e.g., IATTC, CCSBT, CCAMLR, SEAFO and NPAFC)
- Voting procedure (e.g., IOTC, ICCAT, NAFO (FC))
- Mixture of mandatory consensus and voting (e.g., WCPFC)

A crucial adjunct to the decision-making process is the ability of a member to then opt out of or object to a decision, with the result that that member is not bound by the commission decision. All of the RFMOs identified that have a voting procedure (IOTC, GFCM, NAFO, ICCAT and NEAFC) also provide for a member to opt out of decisions, with the exception of the WCPFC. Further, CCAMLR provides for a member to opt out, despite its decisions being taken by consensus, but, to date, this provision does not appear to have been used. SEAFO also provides for opt-out, although exercise of this provision is subject to specific conditions. The existence of an opt-out provision may have dissuaded commissions from moving issues to a vote. For example, the IOTC appears to have voted only once[8] in the eight years it has been in force, despite being faced with over-fished stocks and an urgent need to take action in response. This may have been favoured practice on the basis that there is little to gain from forcing a vote if dissatisfied members will simply opt out of the eventual decision and thereby undermine its effectiveness, or it may simply reflect an unwillingness to make a decision. In other RFMOs, members have routinely objected to decisions. According to statistics compiled by the Canadian Department of Fisheries and Oceans, there was an average of 10 objections per year by NAFO members during the late eighties and nineties and an average of two to four objections per year during the last decade (Department of Fisheries and Oceans, Canada, 2004).

The consensus process is also not always conducive to the development of sound conservation and management measures. For example, operating on a consensus basis, the CCSBT has only reached agreement on a total allowable catch for Southern Bluefin Tuna five times in its 13 years of operation. This is despite scientific advice that the spawning biomass of Southern Bluefin Tuna has been reduced to a low fraction of its original biomass and the fact that for much of this period there were only three Commission members. By contrast, experience within the CCAMLR forum provides a much more positive perspective on consensus. CCAMLR has managed to adopt innovative and far-reaching conservation measures rapidly, within a relatively short time frame. For example, the CDS, which aims to monitor and control access of toothfish products to international trade, was first discussed at CCAMLR's annual meeting in 1998 and subsequently adopted as a binding measure at the 1999 meeting, following intersessional work (CCAMLR, 1998; CCAMLR, 1999). There have, however, been a number of recent examples where the adoption of new conservation measures or strengthening of existing measures has not been achieved because consensus could not be achieved. For example, at the 2003 CCAMLR meeting there was one dissenting member to the adoption of a centralised VMS. In response to these situations, there appears to be a pattern emerging within CCAMLR, whereby intersessional work continues in relation to conservation measures that are not adopted at a meeting with the measure often then being agreed at the next meeting of the Commission, as occurred with the centralised VMS.

It is interesting to note that one of the newest RFMOs, the WCPFC, adopts a mix of mandatory consensus for certain decisions dealing with what might be considered more controversial issues, such as determining the annual budget and the allocation of fishing opportunities, but there are voting procedures for other issues where consensus can not be reached. These include those relating to the adoption of conservation and management measures, such as setting total allowable catch and effort limits. Further, the WCPFC does not contain opt-out or objection procedures. The voting procedures have not been used in the two Commission meetings to date and a range of conservation and management measures were adopted by consensus at its second meeting, providing a basis for further refinement.

With respect to review mechanisms, conventions governing the more recently-established RFMOs, the WCPFC and SEAFO, provide for internal review of decisions. The WCPFC Convention provides for the appointment of an *ad hoc* expert panel and specifies the grounds on which a member may seek review. The SEAFO Convention provides for Parties to work together to resolve any disputes, assisted if necessary by '… negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or other peaceful means of their own choice'. SEAFO also provides recourse to an internal review process of technical disputes through an expert panel.

[8] The vote, by secret ballot, was taken at its first session in 1996 and was to determine the location of the secretariat.

Review mechanisms go hand-in-hand with those for dispute resolution yet a number of RFMOs (e.g., ICCAT and NAFO) have no dispute resolution procedures. In others, non-binding dispute settlement procedures are in place (e.g., CCAMLR, CCSBT, IOTC and IATTC (Antigua Convention)) however there would appear to be a trend towards having '... as a last resort, binding third-party dispute settlement' (McDorman, 2005).

Lessons Learned and Best Practice

Perhaps the most pertinent indicator of lessons learned from the experience of RFMOs is the fact that the most recently established organization, WCPFC, adopts what might be considered as a radical departure from past practice; not relying on consensus for conservation and management measures and not providing for members to opt out or object to decisions. While this new approach is yet to be fully tested, and some key decisions such as those relating to the budget and allocations require mandatory consensus, on paper it arguably represents an evolution in thinking on effective decision-making structures within RFMOs.

Regardless of what decision-making structure is in place, the scope to argue and undermine the basis on which a decision is to be made is key. RFMOs that have well-established supporting structures for decisions would appear to fare best in this respect. For example, despite being a consensus-based organization, CCAMLR is a recognized leader on many of the issues facing RFMOs, including seabird by-catch mitigation, application of the precautionary approach and trade-related measures against IUU fishing. CCAMLR has strong institutional structures that reduce the scope for members to mount credible arguments against the adoption of recommended measures, such as well-established scientific advice and agreed harvest strategies. Other RFMOs, particularly those reliant on national scientists providing stock assessment advice, have broad scope to undermine, not agree with, or simply ignore advice, and so reject any resulting recommendations.

Where opt-out or objection procedures do exist, the approach agreed by NEAFC since 2004 of requiring Parties to provide a written statement identifying the reason for objection; their intentions; and, alternative conservation and management measures (Meltzer, 2005) represents a potentially positive step forward. This requirement not only adds a degree of transparency to the process but also a basis for follow-up work to be done seeking to address what may be the legitimate concerns of a member. A secondary implication is that this would then provide an opportunity to examine the level of consistency between the exercise of a member's right to opt out of a conservation and management measure and the exercise of its obligations under international fisheries law, most importantly its duty to co-operate in the conservation and management of marine living resources on the high seas under UNCLOS.

What appears to be lacking in a number of RFMOs is a willingness to utilise the voting procedures that are available to them. Although, in combination with opt-out provisions, forcing issues to a vote may not result in an effective conservation and management outcome, there may be a number of advantages in countries supporting the need for management to force issues to a vote. First, there would be a decision. The danger in continually revising conservation and management measures to remove the grounds for objections of limited numbers of parties means that, when finally adopted by consensus, such measures are unlikely to be effective. Ineffective measures are then adopted as the commission standard. By contrast, voting on issues provides a degree of transparency, identifying which countries are the outliers, and so the basis for targeted response and lobbying.

Finally, the availability of some form of review mechanism for aggrieved members appears crucial, specifically one that offers independent, impartial review to facilitate greater acceptance of the outcomes. Further, the review processes in the convention texts of both WCPFC and SEAFO, as well as the recently adopted procedures within NEAFC, place the onus on the objecting member to provide reasons for its non-acceptance of a commission decision. This represents a change from the practice in other RFMOs, whereby the right of a member to object is not qualified. With regard to dispute resolution, inclusion of procedures appears to be a growing trend, with a move towards compulsory dispute settlement as a potential incentive for reaching acceptable decisions within RFMOs.

Summary of Recommended Best Practice:

- Strong institutional structures to support integrity of advice on which decisions are based are required, including science and pre-agreed harvest strategies
- A requirement for a dissenting party to provide reasons for opting out, including reasons for objection, their intentions, and alternative conservation and management measures should be implemented
- Where procedures allow, supporting countries should move issues to a vote rather than continually weaken measures to gain consensus
- Internal review mechanisms, with the grounds for review clearly specified, should be adopted
- New RFMOs should provide for voting procedures, with no opt-out or objection provisions and an internal review mechanism

b) Resourcing

Experiences of RFMOs

The availability of human, financial and time resources is critical to the effective functioning of an RFMO. In many cases, these resources will be insufficient to meet all of the demands of the organization, in which case a logical assumption is that there will be some priority setting process to direct their use. Funding for RFMOs is generally drawn from two sources: assessed/ compulsory contributions and voluntary contributions from members.

There is evidence that a lack of funds has been a constraint to the operations of a number of RFMOs. For example, in CCSBT, at its 11th meeting in 2004, concerns were raised by members over the escalating costs of the Commission and steps were taken to reduce these, including deferring the meeting of the ERSWG and reducing funding for the attendance of a prospective new member, Indonesia, at CCSBT meetings (CCSBT, 2004a). In IOTC, in 2004 and 2005, 76% of the budget was for staff costs (IOTC, 2005a), leaving virtually no discretionary budget.

One means by which RFMOs complement compulsory contributions is to provide for voluntary contributions. In CCAMLR, WCPFC and IATTC, for example, substantial voluntary contributions have been made by members. In CCAMLR, under its financial regulations, voluntary contributions are accepted if the purpose is consistent with the '… policies, aims and activities of the Commission'. CCSBT has a similar provision. Recent voluntary contributions in the CCAMLR forum have been towards the development of an electronic CDS by the USA, the main proponent of the system. In IATTC, annual voluntary contributions of USD1 million are made by the USA to support tuna-dolphin work.

Despite limited resources, there is little evidence of explicit priority setting within these limitations, although this is implicit in the outcomes. For example, as noted, one of the ways CCSBT chose to address rising costs was to defer the meeting of its ERSWG. Given this Group has met only six times in the 13-year history of the CCSBT it would appear that its work is afforded a low priority within the Commission. With respect to the IOTC, despite three-quarters of the budget being taken up with staff costs, it was reported at the IOTC's 2005 annual meeting that the '…technical activities of the Secretariat were dominated by its role in co-ordinating' a tagging programme (IOTC, 2005a). It would appear that the tagging programme is a high priority for the Commission, given the level of its limited resources devoted to it. CCAMLR has, however, developed, and now fully implemented, a Secretariat Strategic Plan to guide priority setting against service delivery in response to a management review of the secretariat in 1997 (CCAMLR, 1997; CCAMLR 2005).

Facilitating the participation of developing States in the work of a commission is a crucial issue with respect to the budget. In the case of the WCPFC, the Convention provides for the establishment of a separate fund for this purpose. This approach already appears to be working as intended with, for example, Japan announcing a contribution of USD2 million to this fund '…to support capacity-building in the areas of fisheries statistics, regulation and enforcement' at the Commission's second meeting in December 2005 (WCPFC, 2005b). Albeit for a more specific purpose, ICCAT has also established a fund to assist developing States with the collection of data (ICCAT, 2003b). CCSBT has provided support to Indonesia, as a developing country, for its attendance as an observer at past Commission meetings although, as noted, in the face of budgetary constraints this support was reduced.

Lessons Learned and Best Practice

Voluntary contributions targeted at particular issues appear to have the potential to accelerate the development of an issue or afford a higher priority to one that might not otherwise enjoy a sufficient level of funding. It is not possible to determine the extent to which voluntary contributions are used to circumvent disagreement about expediting the development of such measures or due to budgetary constraints. What is clear is that voluntary contributions have the potential to drive an organization's agenda. This raises two key issues. The first is that processes must be in place to ensure that the use of funds from voluntary contributions are closely aligned with the agreed priorities and work programme of the relevant commission. The second issue is one of equality. Clearly, developing countries do not have access to the same level of resources and are unlikely to be in a position to make substantial voluntary contributions to ensure that work is done on issues of primary concern to them. Although experience to date would suggest that voluntary contributions have enabled measures in response to high priority issues to be expedited, there is a need to have processes in place to ensure that the agenda of the commission is not subordinate to the agendas of its better-resourced members.

Leading on from this there appears to be limited use of explicit priority-setting by commissions in the face of limited resources beyond short-term work plans. For example, despite having recognized and taken steps to address budgetary constraints, CCSBT has no apparent process for determining expenditure priorities in the Commission. Similarly, there is no such explicit process in IOTC. Decisions on budget expenditure appear to be dominated by short-term, ad hoc considerations in some RFMOs. In the absence of a formalised, medium to long-term mechanism to set priorities and direct funding it could be expected that much of the resources of RFMOs will continue to be devoted to science related to target stocks at the expense of other needs.

Quarantining funds for developing countries appears to be an innovative step towards securing the participation of such States in commissions and, importantly, for the effective implementation of the measures adopted. Many RFMOs have substantial membership drawn from developing States and the effective participation of these States is arguably essential to the success of these organizations, particularly given that a large proportion of the resource is likely to be found within waters under their jurisdiction. Indeed, the practical requirement to ensure participation by developing States is underscored by the legal requirements under UNFSA (Articles 24 and 25) which provide for, among other things, States to give full recognition to the special requirements of developing States and provide assistance to them to conserve and manage straddling and highly migratory fish stocks, including financial assistance.

Finally, as noted in Section 4 I on co-operation, much more could be done in the way of inter-RFMO collaboration that could result in a lessening of costs, particularly with regard to sharing of experiences, solutions to common issues and common research initiatives. Along with likely benefits of improved conservation and management, an increase in collaboration may reduce expenditure through the transferral of already-developed measures.

Summary of Recommended Best Practice:

- Establish five-year strategic operational plans, identifying priority issues for research and management, to assist in directing the resources of the organization and the alignment of voluntary contributions
- Provide assistance to facilitate the participation of developing States in the work of commissions, including through the establishment of a special fund, as well as targeted assistance with respect to specific conservation and management measures
- RFMOs should seek ways in which co-operation and collaboration with other organizations can contribute to a reduction in costs

VI. Cross-cutting Issues

a) Special Requirements of Developing States

When many RFMOs were negotiated, the needs of and responsibilities towards developing States were not well recognized. The result was that there is a generally poor articulation of the special requirements of developing States in most of the conventions governing RFMOs. Since that time, there has been a growing recognition of these requirements. In particular, the UNFSA contains specific articles (Articles 24 and 25) setting out the responsibilities of States towards developing States. These provisions are currently being put into operation by newer RFMOs, such as the WCPFC.

The experiences considered, lessons learned and best practice discussed in this report provide some direction for RFMOs with regard to better meeting the obligations in the UNFSA. These include:

Summary of Recommended Best Practice:

- Assistance to facilitate the participation of developing States in the work of commissions, including through the establishment of a special fund, as well as targeted assistance with respect to specific conservation and management measures, should be provided by RFMOs and their members
- Targeted capacity-building for either prospective or existing members which are developing States should be supported by RFMOs and their members
- RFMOs should provide assistance to developing States to accede to the UNFSA and the FAO Compliance Agreement and, for those developing States that have acceded, provide ongoing support to strengthen implementation of these agreements
- RFMOs should agree up-front how any increases or decreases in catch or effort limits will be distributed across members, including how the aspirations of developing States might be reflected in this

b) Transparency

Experiences of RFMOs

The UNFSA (Article 12) places obligations on RFMOs to provide for participation by inter-governmental organizations and NGOs, whether conservation or industry, and for timely access to records and reports for these organizations. Further, it requires that such participation is not 'unduly restrictive'. Article 10 requires that RFMOs publicise their conservation and management measures.

Provisions relating to transparency are generally specified in the rules of procedure of RFMOs, although there is a recent trend for transparency to be mandated in the convention (e.g., WCPFC and the Antigua Convention). All RFMOs have provisions relating to participation of observers, although some are more restrictive then others. In some cases, provision has been made relatively recently; for example, NEAFC first made provision for attendance of NGO observers in 2001. Restrictions relate to the obligations (e.g., length of time required prior to the meeting for applications to attend, the nature and extent of the information required to support the application, provisions under which an application can be rejected and fees payable) and the rights of observers (e.g., access to specified meetings, leave to address meetings and circulate documents, nature and timing of access to meeting documents).

At one end of the spectrum, CCSBT imposes quite restrictive provisions, including: a very long lead time for applications to attend; the possibility of applications being rejected on the basis of an objection by a single member; the requirement 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 the possibility of excluding observers 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 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).

At the other end of the spectrum, the WCPFC Convention specifically provides for the participation of a range of organizations in meetings of the Commission and its subsidiary bodies, subject to 45 days notice. Rejections of applications require objections by a majority of members. Once granted, observer status remains in effect, unless decided otherwise by the Commission. Provision is made for NGO observers to make oral 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. The Antigua Convention contains very similar provisions, reflecting a marked improvement in transparency provisions over the existing IATTC convention. Experience at the first two meetings of the WCPFC indicates that there has been active participation by observers and that no application has been refused.

Provisions for transparency are also often open to interpretation and members can choose to interpret them more or less restrictively depending on the circumstances or issues under discussion. This can create a good deal of uncertainty as to what level of participation will be provided to observers. Over time, and as the difficulty of agreeing on management measures has increased, so has the amount of time spent in closed sessions in some RFMOs. For example, while observers, including those from NGOs, have been allowed to attend meetings of CCAMLR's Standing Committee on Inspection and Compliance since 2000 without objection from any member, the Commission continues its practice of negotiating the detail of conservation measures in closed session.

Other indicators of transparency relate to access to meeting documents and reports. Access varies considerably across RFMOs. In NEAFC, for example, not all reports are available to observers and observers do not receive meeting papers prior to the meeting. Most RFMOs have a publicly accessible website with up to date information on issues such as membership, stock status, conservation and management measures and meeting reports of decision-making, scientific and technical advisory bodies and, increasingly, catch and effort data. Access to data from trade information schemes such as those operated by CCAMLR and CCSBT is partially restricted. Public access to background and working papers is less common. NAFO, IATTC and the WCPFC provide a good level of access to these documents.

Lessons Learned and Best Practice

A number of RFMOs have taken recent initiatives to improve transparency in their decision-making, including reducing lead times for applications, providing for longer term participation by observers and reducing the justification required for obtaining observer status. Others, such as CCSBT, have not. With regard to CCSBT, given that the last application for observer status was in 1998, it remains to be seen whether more recent, general moves for increased transparency would be reflected in that forum.

Experience suggests that when contentious issues are under consideration there is a tendency for RFMOs to employ procedures that exclude observers from the deliberations. Reversion to meetings from which all but heads of member delegations, often accompanied by a technical advisor, are excluded is one such means by which the rationale behind decision-making becomes opaque. Such practices should be removed, as it is critical that transparency applies to important decisions likely to be contentious (e.g., conservation and management measures) rather than just operational issues.

Summary of Recommended Best Practice:

- Processes for application for observer status should be streamlined (i.e., minimise lead times, information required and justification)
- Long-term approval of observer status should be provided, rather than being granted on year-by-year basis
- RFMOs should ensure that observers have access to all documents (noting the need for confidentiality in some areas) in the same time frames as members
- RFMOs should minimise the capacity for meetings to be selectively closed to observers
- Up-to-date statistics on catch, effort and trade should be accessible on websites
- All meeting documents, including background and meeting papers, should be publicly available

5. Discussion and Conclusions

There are ongoing discussions at the highest levels of government concerning improvements to the effectiveness of governance of the world's oceans. These discussions have canvassed a wide range of institutional and legal reforms, including the establishment of an overarching global oceans governance commission, new implementing agreements for discrete high seas stocks and port State measures, and a single governance body for all tunas. While there is undoubtedly merit in many of these suggested approaches, the time frame within which such significant reform could be negotiated and implemented is a lengthy one. Given this, RFMOs are the available vehicle through which strengthened conservation and management measures for the world's living marine resources can be achieved in the short- to medium-term, if not for decades to come.

This review of the experiences of RFMOs and the impact of their collective actions is sobering. It is clear that, given the perilous overall state of marine fisheries resources and the continuing threats posed to the marine environment from over-fishing and damaging fishing activity, the need for action is immediate. As long as there is sufficient will from members, it would appear that, by and large, RFMOs already have the mandate and responsibility to act. Given that many of the stocks under the jurisdiction of RFMOs are over-fished and much of their respective ecosystems degraded, it is relatively easy to find fault with RFMOs. What is more challenging, and more productive, is to identify practical ways in which RFMOs might address current deficiencies. That has been the focus of this report.

Trends in Best Practice

This report has identified that some RFMOs are already moving towards some form of internal reform, with evidence that these rather insular, inward-looking bodies are increasingly responsive to external views and are seeking to embrace more recent developments in international law, both hard and soft.

The experience of RFMOs clearly shows that best practice is not a static thing. The dynamic nature of fishing, fluctuations in stock availability, changes in market demand, technological advances and international developments all influence both the effectiveness of existing conservation and management measures as well as attitudes to whether these represent 'best practice'.

Individual RFMOs have, to some extent, shown a willingness to innovate and adapt their management responses; for example, advances in the use of trade-related measures and the development of black and white lists. While there have been useful advances in compliance and enforcement measures in recent years, there would appear to be a need to test more broadly some of the more recent and innovative initiatives under international law. Specifically, the balance between the concept of freedom of fishing on the high seas and the fact that, given the depleted state of the world's marine fisheries, this freedom is now so over-subscribed as to make its exercise by States a contravention of their obligations (see for example Rayfuse, 2006). Evidence from reports such as that by the HSTF and Gianni and Simpson (2005) would suggest that freedom of fishing is now exercised by multinational companies, facilitated by flags of convenience, rather than a provision through which States can rationally and responsibly share in the benefits derived from the world's high seas resources.

The newest RFMO to enter into force, the WCPFC, reflects some of the lessons learned from other organizations, instituting a scientific committee, a technical and compliance committee, and making provision for independent scientific advice within its governing convention. Despite this convention only having been in force since mid-2004, these subsidiary bodies are already functioning, providing advice and recommendations to the Commission. Further, the WCPFC also reflects lessons learned and evolving best practice in other areas, including innovative decision-making provisions, explicit recognition of developing States, transparency, and 'hard-wiring' crucial elements of compliance and enforcement into the convention text.

One of the oldest organizations, CCAMLR, demonstrates that application of the ecosystem approach and the precautionary approach can deliver strong fisheries and ecosystem outcomes. It provides clear guidance for other RFMOs on the structures, processes and innovative thinking that are required to operationalize these concepts.

Political Will and Capacity

The experience of RFMOs clearly shows that 'where there's a will there's a way'. In very few instances is there evidence of an RFMO being constrained by its mandate. In the main, RFMOs are constrained predominantly by the lack of political will, commercial motivations, or the

capacity of their members. There appears to be little evidence that governing convention texts present a barrier to action. The adoption of innovative approaches to, for example, membership and IUU fishing indicate that, if commission members want to do something, they can. There would, however, appear to be value in individual RFMOs giving formal and explicit recognition to such fundamental issues as the application of the precautionary approach and the adoption of an ecosystem approach to remove any ambiguity when conservation and management decisions are taken. This potentially could be achieved through the adoption of specific resolutions or commission decisions rather than through requiring amendments to the conventions themselves.

RFMOs are, in effect, the sum of their parts. The conservation and management measures adopted by an RFMO are a reflection of the collective will of its individual State members. However, these individual States have obligations and responsibilities under international law, therefore a failure of collective action through RFMOs to meet these obligations should not be a reason for inaction at the individual level. In addition to the specific obligations imposed under fisheries law, the broader level of policy cohesion within a State is also an important issue. States that are members of a range of multilateral environmental agreements, such as CBD, CMS and CITES, must adopt an approach to fisheries issues that is consistent with their obligations under other agreements. Further, improved knowledge and understanding across the spectrum of multilateral environmental agreements by those engaged in fisheries, and *vice versa*, would be beneficial in delivering a more co-ordinated and effective approach to marine fisheries conservation and management, as well as a more informed response to oceans' issues within non-fisheries specific forums.

Decision-making processes within RFMOs have been the target of sustained criticism as a core factor in the poor performance of these organizations. These processes are well-entrenched and there is little immediate prospect of change. However there have been positive moves to, for example, make the process of opting out or objection more transparent, including through a requirement for the reasons for the exercise of the opt-out option, and so provide scope to address these. An interesting finding of this analysis has been that, despite the fact that many RFMOs have a voting procedure, such provisions have been rarely used, indicating a reluctance of members to force issues to a vote. In some forums, accommodating the positions of a small minority of members to achieve consensus has meant a watering down of conservation and management measures to the point where these are not effective, or a failure to make a decisions at all. Moving issues to a vote would at least improve transparency and provide a basis for targeted responses and lobbying. Such an approach would go some way to addressing the HSTF's finding that there was a need for clarity in decision-making.

Comprehensive membership of all States with the potential to influence the effectiveness of an RFMO's conservation and management measures is a pre-requisite. Of particular note here is the need for developing States and for port and market States to participate in RFMOs. Currently, the needs of developing States are not well articulated, despite the specific obligations contained within the UNFSA. Consideration of developing States in the allocation of fishing opportunities (particularly coastal States), targeted capacity-building and in facilitating effective participation are necessary elements for most RFMOs to improve their overall effectiveness. In this respect, the better resourced States should note their responsibility to assist developing States to accede to relevant international agreements.

An increasingly important aspect of membership relates to port and market States. A greater reliance on trade-related measures and in-port compliance is already manifesting itself in greater calls for States beyond those fishing on the high seas or those which are coastal States to co-operate or become members. RFMOs will need to exercise some degree of flexibility with regard to membership and be ready to respond to the potential for these States to request to share in some of the benefits arising from co-operation.

Precautionary and Ecosystem Approaches

RFMOs are clearly at different points on the spectrum in terms of the maturity of approaches to the application of the precautionary approach and an ecosystem approach to management. CCAMLR is the most advanced in this regard, which is perhaps unsurprising given that it is the only organization whose governing convention is framed around an ecosystem rather than species. In early discussions for the proposed South Pacific RFMO, the need for it to be aligned with the ecosystem rather than target species has been raised, although there will be difficulties in achieving this in a meaningful way because

of already-existing, and so potentially geographically-overlapping, organizations.

Experience suggests that most RFMOs struggle to reach a common understanding of what is required by the application of the ecosystem approach. There may be merit in the UNFSA Review Conference considering whether guidance on the application of the ecosystem approach should be included in the Agreement, along the lines of Annex II on the precautionary approach, and elaborating on the inherent role of the precautionary approach within the former. This would at least provide a consistent basis for its application and remove any doubts or debate about what is required of RFMOs in this respect.

The experiences of RFMOs suggest that the best outcomes arise from those organizations that have in place well-developed supporting structures: independent or peer-reviewed sources of advice, particularly for science; functioning and resourced subsidiary bodies addressing ecosystem issues, non-target species and compliance; and secretariats mandated to undertake analyses of data. Such supporting structures appear to ensure the provision of robust advice to decision-makers and so narrow down the scope for debate and reduce delay at the political level of the commission.

The HSTF (2006) identified the need for further definition of the linkages between scientific advice and decision-making, the role of the secretariats; and clarity in decision-making. The analyses in this report suggest that each of these issues has implications for the capacity of RFMOs to implement precautionary and ecosystem-based conservation and management decisions.

Failure to agree on conservation and management measures is a characteristic of most RFMOs that severely compromises the sustainable management of stocks and the ecosystem. The experience of RFMOs suggests that the development and implementation of management strategies have a key role in linking scientific advice and management decision-making. By providing a context in which the best available scientific advice can be considered, with uncertainty and risk explicit, and with management actions in response to that advice pre-agreed, a management strategy can streamline decision-making. Further, scientific advice needs to be provided in the context of the ecosystem impact of target fisheries rather than the two issues being divorced and therefore providing potentially competing advice to decision-makers. This may require a broadening of the skill set of the advisory committees or new mechanisms. There would also appear to be an inadequate skills set in the provision of advice to decision-makers relating to the development of options for conservation and management measures in response to scientific advice. While some RFMOs have at times established ad hoc working groups to consider management options, in most cases such options are developed at the political level of commissions, supported by informal discussions among technicians in the margins of the meeting. Greater rigour and transparency in the development of conservation and management measures is required, potentially through the establishment of a specialist subsidiary advisory body.

The dynamics of fishing, market-places and technology means that there is constant potential for new and exploratory fisheries to emerge, yet only one RFMO (CCAMLR) has any systematic and explicit process in place to manage this. RFMOs must manage new and exploratory fisheries with the level of precaution reflecting the risk and uncertainty associated with such fisheries and, in the absence of information, RFMOs and those States fishing on the high seas should take immediate steps to ensure that such resources and areas are subject to precautionary management.

While there is no doubt that IUU fishing is a major threat facing RFMOs in many fisheries, efforts directed at IUU fishing do little to address issues such as vast over-capacity in authorised fleets, over-fishing of stocks under TACs established by a commission and the virtual absence of robust rebuilding strategies for seriously depleted stocks. Indeed, the experience of RFMOs to date would suggest that, even if efforts to prevent, deter and eliminate IUU fishing were entirely successful, this would not, in and of itself, deliver healthy and sustainable marine fisheries. That is, 100% legal, reported and regulated fishing activity would still result in unsustainable fishing in the absence of improved decision-making and the robust application of the precautionary approach. Given the limited resources available to RFMOs, there is a need to ensure that a balance is maintained between efforts to detect and deter IUU fishing and those directed at ensuring that RFMO-sanctioned fishing is conducted sustainably.

Collaboration

There is an urgent need for best practice to common

issues to be transferred and applied in other forums. There is also a need for each RFMO to have objective information available to them regarding the weaknesses in and problems of the measures adopted others. At present, the transfer of experience and best practice is largely *ad hoc,* relying heavily on individual countries, who may be members of two or more RFMOs, to bring the experience of one organization into another. Budgetary constraints combine with accepted practice to create the situation whereby a member State will act as the official RFMO observer to another RFMO where it is also a member. In such circumstances, it is highly unlikely that the observing State will report back any deficiencies or weaknesses in the decisions taken by the other RFMO, given that it will have been a party to those decisions. As a result, it is possible that information transferred may not necessarily represent best practice.

Data collection and the lack of formal processes for the exchange of information between members and between RFMOs is a constraint to effective conservation and management. This review has identified that secretariats could play a much more active role in delivering good management outcomes if they were resourced to do so. There would appear to be a growing expectation that secretariats will have a more proactive role, particularly as collators, analysts and disseminators of information. The apparent evolution towards more regionally-agreed and applied measures, such as regional black and white lists, centralised VMS, reporting on trade-related measures, leads to an increased role for secretariats and concomitant requirements for more resources to undertake this role. There is also opportunity for secretariats to assist in meeting the increasingly urgent need for strengthened collaboration and information exchange between RFMOs. One potential avenue is through an invigorated Regional Fisheries Bodies Secretariats Network.

It is interesting to note that, external to any RFMO, like-minded States have already co-operated on a number of initiatives to develop improved responses to common issues, guidelines for best practice and strengthen data and information exchange. Recent examples include the Ministerially-led Task Force on IUU Fishing on the High Seas and the International Monitoring, Control and Surveillance Network for Fisheries Related Activities. The initiative of Japan in hosting a meeting of those RFMOs with a mandate for conservation and management of tunas is also a further example of individual States stimulating action.

With the world's oceans already covered by a patchwork of RFMOs it is imperative that there be greater complementarity of management measures between RFMOs and better specification of primary responsibility where jurisdictional overlaps exist in terms of species and/or geographical area. These issues will be further exacerbated by moves to address current 'gaps' in management, most notably with respect to the benthic environment, which may result in RFMOs effectively being defined by depth.

There is little doubt that there will be a need for an overall rationalisation of these arrangements in the longer term, but such a major change in governance arrangements will take some time to achieve. Until such rationalisation is achieved, complementary arrangements are required; not least to prevent IUU fishing operators from taking advantage of the 'lowest common denominator' in accessing markets.

Transparency and Accountability

Transparency in the decision-making or the factors influencing those decisions within RFMOs has generally been poor. Some organizations have never allowed NGOs to attend (e.g., CCSBT) as observers, while others have only recently made provision for NGO participation (e.g., NEAFC). Even where provisions do exist, there is a need for these to be revised in such areas as providing access to meeting papers, allowing sufficient lead times for decisions on attendance and raising the threshold required for observers to be excluded. Transparency should become the normal mode of doing business rather than the exception.

Closely linked with transparency is a need for an increased focus on performance assessment and review. It would appear that no RFMO regularly undertakes an assessment of how it is performing against its mandate or against broader and evolving international obligations. There have been increasing calls from States in various international forums and from the NGO community for greater monitoring of RFMO performance along with a range of suggestions about how this might best be done. While discussions about the most appropriate methodology continue, it is apparent that the credibility of any such review process will be enhanced where there is regular, external assessment framed around a standard set of criteria.

6. Recommendations

There is considerable scope to improve the effectiveness of RFMOs. The above analysis has identified opportunities for improvement and, in particular, has identified a range of initiatives that individual RFMOs have developed to address challenges that are common to many RFMOs and so could be applied elsewhere. In addition to the recommended best practice against each of the issues discussed in Section 4 of the report, the following, overarching recommendations are made with a view to strengthening the will and capacity of RFMOs and their members to act, promoting the adoption of precautionary and ecosystem approaches to management, facilitating continuous improvement and accountability, and maximising opportunities for collaboration and transparency.

Political Will and Capacity

1. States should sign the UNFSA and the Compliance Agreement in order to strengthen the resolve of member States of RFMOs to meet the obligations imposed by these agreements and by related international standards and protocols. As accession to/ratification of such agreements increases, so too does the recognition of their provisions as customary law.

2. Developed States should provide targeted assistance to developing States to facilitate their accession to the UNFSA and the Compliance Agreement.

3. RFMOs and developed States should provide assistance to developing States in order to strengthen their capacity to meet their international obligations.

4. States/entities involved in developing RFMOs should ensure that legal obligations and best practice approaches are made legally binding through inclusion in the convention rather than relying on adoption of these by the RFMO at a later date.

5. Existing RFMOs should formally and explicitly, through amendments to conventions or agreed resolutions, reflect the obligations imposed by international law, standards and protocols as a consistent and binding basis for decision-making.

6. RFMOs should ensure that they have the flexibility to include port and market State members in response to the changing dynamics of fishing and trade.

Precautionary and Ecosystem Approaches

7. States/entities developing new RFMOs should ensure that the governing conventions explicitly provide for delivery of a precautionary and ecosystem approach to management.

8. RFMOs should establish management strategies, based on precautionary reference points (reflecting a sufficiently high probability of sustainability), for all target stocks. Where species are over-fished, explicit rebuilding targets and measures to assess progress should be developed.

9. RFMOs should adopt precautionary management measures, based on the best scientific advice available to them, until management strategies are developed for target stocks.

10. RFMOs and, in their absence, individual States fishing on the high seas, should take immediate action to ensure that fish stocks subject to new and exploratory high seas fisheries, and in particular deep-sea fisheries, are subject to precautionary management.

11. RFMOs should take transparent decisions about the allocation of fishing opportunities in the context of management strategies for target stocks, taking into account the legitimate aspirations of developing States.

12. RFMOs reviewing or making new allocations of fishing opportunities should consider the potential benefits to decision-making that might flow from arbitrated negotiation and the provision of independent external advice on allocation options.

13. States/entities developing new RFMOs should maximise the alignment of the organization's jurisdiction with known biogeographic boundaries and ecosystems, rather than with the distribution of target stocks, as a basis for adopting an ecosystem approach to management.

14. Existing RFMOs should review their instruments and structures to identify impediments to the development of integrated fisheries, ecosystem and management advice and, where necessary, develop approaches to strengthen delivery of that advice. In particular, RFMOs should consider institutionalizing and resourcing:

- the collection and analysis of data on no-target and associated species and broader ecosystem impacts of fishing

- secretariats to play a role as the central point for collection of scientific, ecosystem and compliance information

- the integration of advice, by appropriately qualified advisers, on ecosystem impacts and target stocks

- the establishment and operation of an advisory group charged with synthesizing the ecosystem and stock advice and developing management options for consideration by the commission

- mechanisms to ensure that the best available advice is provided to commissions by, for example, the inclusion of independent scientists or advisors and the incorporation of peer review

15. The UNFSA Review Conference should consider the merits of including guidance on the application of the ecosystem approach to fisheries management in UNFSA.

Collaboration

16. RFMOs should establish co-operative institutional mechanisms to facilitate the sharing of experiences, transfer of best practice approaches to common issues and collaborative research. The role of RFMO secretariats and, in particular, the Regional Fisheries Bodies Secretariats Network should be strengthened in this regard.

17. RFMOs should clarify responsibilities with regard to overlapping jurisdiction for species, geographical area and/or ecosystems through formal and mutual agreements.

Transparency and Accountability

18. RFMOs should ensure that their rules of procedure facilitate access to information by interested parties and organizations and enable effective participation in the decision-making forum.

19. RFMOs should instigate mechanisms for regular review of their performance. Such reviews should be based on a consistent set of agreed criteria to assess RFMOs' performance against international law, standards and protocols. Given the focus of the UNFSA on conservation and management of target stocks, non-target stocks and the marine ecosystem, consideration of the conservation status of stocks and the ecosystem should be an integral part of such reviews.

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Appendix I:

International fisheries management instruments, protocols and standards applying to RFMOs

1. International fisheries management instruments

The following instruments/agreements/protocols direct or provide guidance to RFMOs.

Principal Legal Instruments

- United Nations Convention on the Law of the Sea of 10 December 1982 (UNCLOS) (in force 16/11/1994).
- Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas (1993) (in force 24/4/ 2003)
- 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 (UNFSA) (1995) (in force 11/12/2001). The key articles of the UNFSA with respect to the formation and operation of RFMOs are:
  - Article 5: General principles and Annex 1 (Standard requirements for the collection and sharing of data)
  - Article 6: Application of the precautionary approach and Annex 2 (Guidelines for the application of precautionary reference points in conservation and management of straddling fish stocks and highly migratory fish stocks)
  - Article 7: Compatibility of conservation and management measures
  - Article 8: Co-operation for conservation and management
  - Article 9: Subregional and regional fisheries management organizations and arrangements
  - Article 10: Functions of subregional and regional fisheries management organizations and arrangements
  - Article 11:New members of participants
  - Article 12: Transparency in activities of subregional and regional fisheries management organizations and arrangements
  - Article 13: Strengthening of existing organizations and arrangements
  - Article 14: Collection and provision of information and co-operation in scientific research
  - Article 20: International co-operation in enforcement
  - Article 21: Subregional and regional co-operation in enforcement
  - Article 24: Recognition of the special requirements of developing States
  - Article 25: Forms of co-operation with developing States
  - Article 27: Obligation to settle disputes by peaceful means
  - Article 28: Prevention of disputes

Other Legal Instruments

- Conventional on International Trade in Endangered Species of Wild Fauna and Flora (1973, amended 1979) (CITES)
- International Convention for the Prevention of Pollution from Ships, 1973, as Modified by the Protocol of 1978 Relating Thereto (MARPOL 73/78) (Annex V, Prevention of pollution by Garbage from ships, came into force 31/12/1988)
- Convention on the Conservation of Migratory Species of Wild Animals (CMS) (1979, in force 1983)
- Convention on Biological Diversity (CBD) (1992, in force 1993)

Soft Law Instruments

- FAO Code of Conduct for Responsible Fisheries (FAO,1995)
  - Technical Guidelines for the Implementation of the Code of Conduct
  - International Plans of Action
- Guidelines to Reduce Sea Turtle Mortality in Fishing Operation (FAO, 2004)
- FAO Strategy for Improving information on Status and Trends of Capture Fisheries (FAO, 2003b)

Internationally endorsed declarations/resolutions

- Declaration of the International Conference on Responsible Fishing, Cancún, Mexico, 6-8 May 1992 (Declaration of Cancún)
- Rio Declaration on Environment and Development adopted by the United nations Conference on Environment and Development (UNCED) 3-14 June 1992
- Agenda 21 (Ch. 17: Programme of Action for Sustainable

Development for the Protection of oceans and Coastal Areas) adopted by the United Nations Conference on Environment and Development (UNCED) 3-14 June 1992

- The Rome Consensus on World Fisheries adopted by the FAO Ministerial Conference on Fisheries, Rome, 14-15 March 1995
- Jakarta Ministerial Statement on the Implementation of the CBD (the Jakarta Mandate) adopted by the Ministers participating in the Ministerial Segment of the Second Meeting of the Conference of the Parties to the CBD, Jakarta, Indonesia, 14-15 November 1995
- Reykjavik Declaration on Responsible Fisheries in the Marine Ecosystem adopted by the Reykjavik Conference on Responsible Fisheries in the Marine Ecosystem, 1-4 October 2001
- Johannesburg Declaration on Sustainable Development adopted at the World Summit on Sustainable Development in Johannesburg, South Africa, 2-4 September 2002
- World Summit on Sustainable Development Plan of Implementation adopted at the World Summit on Sustainable Development in Johannesburg, South Africa, 2-4 September 2002
- UNGA Resolution 58/14: Sustainable Fisheries, including through the 1995 Agreement for the Implementation of the provisions of the united Nations Convention on the Law of the Sea of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments. (November 2003)
- UNGA Resolution 46/215 Large-scale pelagic drift-net fishing and its impact on the living marine resources of the world's oceans and seas
- UNGA Resolution 49/118 Fisheries by-catch and discards and their impact on the sustainable use of the world's living marine resources
- UNGA Resolution 54/32 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
- UNGA Resolution 59/25 Sustainable fisheries, including through the 1995 Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea of10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, and related instruments

2. Reviews of RFMOs

The following reviews of RFMO implementation of various elements of international fishery instruments/protocols/ concepts were identified:

- BirdLife International (Small, 2005) has conducted an evaluation of the performance of RFMOs based on their performance in fulfilling the duties outlined in FAO's Code of Conduct for Responsible Fisheries and the United Nations Fish Stocks Agreement. The evaluation includes assessment of RFMOs in terms of participation and transparency, target fish management, measures to combat IUU fishing, and measures to reduce by-catch of dolphins, turtles, sharks and other fish, as well as RFMO performance in data–collection and mitigation measures for albatrosses and other seabirds
- United Nations General Assembly conducted a survey of States and RFMOs in 2004 in response to UNGA Resolution 58/14. The survey sought advice on progress on implementation of: the Johannesburg Plan of Implementation; the UNFSA; Code of Conduct; IPOAs; Compliance Agreement; Preventing large scale pelagic drift-net fishing; Reducing or eliminating by-catch, discards etc; Marine debris; Identification of risks to vulnerable marine ecosystems and measures to address these; Capacity building
- Swan (2004a) provides a global perspective on initiatives at the international level and by Regional Fishery Bodies or Arrangements (RFBs) to combat IUU fishing including implementation of the IPOA-IUU
- Swan (2004b) reviewed decision-making processes in 11 RFBs. The review considered the elements of decision-making in RFBs that are referred to in UNCLOS, UNFSA, Code of Conduct and IPOA-IUU
- Swan (2003) summarises information on establishment, area of competence, species membership and main objective and activities of the organizations. It contains responses of the organizations to a survey seeking information on (a) priority issues for the organization; (b) implementation of post-UNCED fishery instruments; and (c) activities, plans and priorities in relation to specific issues

- Swan and Gréboval (2003) addressed the questions:
  - What are the major obstacles to the implementation of major legal instruments (Compliance Agreement, UNFSA, Code of Conduct, and the four IPOAs)?
  - What are the main lessons learned and the possible paths to solutions for improved implementation?
  - What are the possible gaps that may exist in these instruments to guide the international community in improving the management of marine fisheries?

and considered a number of case studies presented according to a framework considering the biological, social, economic and institutional components of sustainability

- COFI (2003) reports progress by RFBs in implementing and promoting the implementation of the Code of Conduct. Information is collated and analysed on the basis of self-assessment questionnaires provided by FAO
- Alder, Lugten, Kay and Ferriss (2001) reviewed compliance of North Atlantic countries with various instruments including the provisions of a number of RFMOs. It assesses the level of compliance with 15 international fisheries instruments (conventions, treaties or agreements) for countries bordering the North Atlantic
- FAO (2001b) briefly reviews the range of indicators that might be addressed (depending on the particular circumstances within a region) in performance assessments of RFBs and their clients. Three performance domains for a RFB are defined;
  - Performance as measured by the state of fishery conditions within the area - how well does the RFB meet its objectives of conservation and management?
  - Performance as measured by the degree to which the RFB fulfils its responsibilities - how well does the RFB function on behalf of its members?
  - Performance of RFB members in meeting their responsibilities to the RFB and assisting it to fulfil its activities on their behalf - how well is the RFB supported?
- UNEP/FAO (2001) considers the adoption of EBM by RFBs and the scope for collaboration between regional seas conventions and RFBs in order to implement EBM more effectively. In relation to RFBs, it discusses the extent to which they consider: impacts of fisheries on the ecosystem; the impact of other sectors on fisheries; the impact of climate, ozone depletion on fisheries; and ecosystem monitoring
- Swan (2000a) examines issues of governance in RFBs. These issues are related to specific areas of management – conservation of resources, control of catches and effort, fleet capacity, by-catch and discards, information and data collection, analysis and dissemination, illegal, unreported and unregulated fishing and monitoring, control and surveillance
- Swan (2000b) reviews the role of national fishery administrations in RFBs and the consequences when administrations do or do not take action to implement regionally agreed fishery measures. Focuses on RFMOs and IUU fishing
- Tsamenyi and Woodhill (1999) examines the extent to which regional fisheries agreements in the Indian and Southern Oceans provide a management framework to achieve sustainable use of large migratory fish. It considers the IOTC, CCSBT and WIOTO
- Lugten (1999) analyses the extent to which the requirements of legal and soft law instruments have, or have not, been implemented by both FAO and non-FAO regional fishery bodies with specific reference to: excess fleet capacity; by-catch and discards; monitoring, control and surveillance of fishing vessels; measures to enhance data collection; and application of the precautionary approach
- FAO (1992) outlines a number of measures required to make regional fisheries organizations more effective

Appendix II:

Summary of Recommended Best Practice

I. International Co-operation

a) Membership

Summary of Recommended Best Practice:

- Provisions governing the membership of commissions must be flexible enough to reflect the full range of States influencing the effectiveness of RFMOs measures, particularly with respect to port and market States
- Targeted capacity-building should be available for either prospective or existing developing State members
- Mechanisms, including schemes to track product through trade chains to the market-place, should be implemented so as to identify changing dynamics in those States influencing the effectiveness of conservation and management measures
- Recognition of co-operating non-member status under an RFMO should only be used as an interim step towards full membership, rather than being a continuing privilege
- Creative solutions, such as the use of extended commissions, or the inclusion of suitable phrasing when drafting governing conventions, are required to facilitate the participation of Taiwan in RFMOs and to ensure it is bound by conservation and management measures
- Effective compliance and enforcement measures to detect and deter IUU fishing must be in place where RFMO membership or co-operating non-membership is not comprehensive, to ensure that benefits of membership, and therefore a willingness to comply, are not dissipated

b) Co-operation with other RFMOs

Summary of Recommended Best Practice:

- Explicit agreement on primacy and/or responsibilities between existing RFMOs with regard to overlapping jurisdiction for species, geographical area or ecosystems is needed through, for example, memorandums of understanding
- For any new RFMOs, the relationship with other RFMOs and measures for addressing collaboration should be considered during the negotiations for, and form an integral component of, the resulting convention text
- A systematic approach for RFMO collaboration is required that includes supporting structures for co-operation, for example regular meetings of those RFMOs managing the same species in different oceans
- Existing processes should be given more focus and emphasis as vehicles to facilitate co-operation, such as the biennial meeting of the Regional Fisheries Bodies Secretariats Network

II. Conservation and Management

a) The Precautionary Approach to Fisheries Management

Summary of Recommended Best Practice:

- The application of the precautionary approach should be an integral part of new RFMO conventions
- Established RFMOs should institutionalize the use of the precautionary approach through explicit recognition of its adoption by either amendment of the convention or a formal resolution
- Management strategies based on precautionary reference points (reflecting a sufficiently high probability of sustainability) should be established for all target stocks. Where species are over-fished, explicit rebuilding targets and measures to assess progress should be developed
- In the absence of management strategies, RFMOs should adopt precautionary management measures, based on the best scientific advice available to them
- RFMOs and, in their absence, individual States fishing on the high seas, should take immediate action to ensure that the resources in new and exploratory high seas fisheries are subject to precautionary management

b) The Ecosystem Approach to Fisheries Management

Summary of Recommended Best Practice:

- The application of an ecosystem approach should be an integral part of new RFMO conventions and require that fisheries management be conducted in the context of the ecosystem rather than in the context of the target stocks

- Established RFMOs should institutionalize the use of an ecosystem approach through explicit recognition of its adoption through either amendment of their conventions or through formal resolution
- An ecosystem approach should be incorporated into advisory structures and supported by adequate data collection, research and analysis
- Ecosystem information should be incorporated in the mainstream scientific analysis of target species, to ensure that management measures for those species reflect the broader ecosystem impacts of fishing
- Acknowledging the demands on resources of RFMOs, mechanisms should be established to identify the relative risks of ecosystem impacts and used as a basis for prioritizing resources devoted to research and development, enforcement and monitoring of mitigation measures
- RFMOs should acknowledge that the precautionary approach is an integral component of an ecosystem approach to fisheries management and consider whether precautionary management of target stocks may be a cost-effective first step towards mitigation of ecosystem impacts
- Where new fisheries or new methods are proposed, RFMOs should ensure that the impacts are assessed and, where necessary, mitigation measures applied and their effectiveness monitored
- RFMOs with overlapping responsibilities for ecosystems and/or species should collaborate in order to maximise the returns to research and monitoring of ecosystem impacts of fishing

c) Scientific Advice

Summary of Recommended Best Practice:

- Mechanisms should be established to provide independent scientific advice or regular peer review and allow for that advice to be provided directly to the commission
- RFMOs should consider the establishment of technical, subsidiary bodies charged with developing options for conservation and management measures in response to scientific advice
- Standards for the collection, verification and exchange of data consistent with the requirements of Annex 1 of UNFSA should be established in existing RFMOs and specified in the convention text of new ones
- The scope of data collection and scientific advice should be broadened to include mandatory collection of non-target and associated or dependent species and broader ecosystem impacts
- Appropriate advisory bodies should be established, or the terms of reference of existing bodies extended, to ensure that responsibility for providing advice on the ecological impacts of fishing is assigned
- In line with the precautionary approach, management strategies should be developed to provide a context in which scientific advice can be considered and decisions taken

d) Allocation of Fishing Opportunities

Summary of Recommended Best Practice:

- New RFMOs should move rapidly to allocate – delays have seen over-fishing and a reduced likelihood of agreement in the face of more drastic reductions in catch and/or effort
- New RFMOs should consider an arbitrated negotiation process and the establishment of an advisory panel of external experts to facilitate decisions on allocation
- An RFMO member's record of compliance with conservation and management measures, not limited to those relating specifically to catch and/or effort, should be a key criterion in allocation
- RFMOs should agree in advance how allocations will apply to new members, particularly mechanisms to facilitate participation of developing States in high seas fisheries
- RFMOs should agree up-front how any increases or decreases in catch or effort limits will be distributed across members, including how the aspirations of developing States might be reflected in this
- Negotiations over allocations should be transparent and separate from decisions on the level of catch or effort
- Strong measures to ensure the integrity of allocations should be implemented, including penalties for breaches of national allocation and reductions in allocations for breaches of other conservation measures

III. Compliance and Enforcement

Summary of Recommended Best Practice:

- RFMOs should implement compliance measures that are applied and enforced through the commission as a whole rather than rely on flag State enforcement, drawing on measures described in the UNFSA and the IPOA-IUU
- There is an urgent need to strengthen provisions for information exchange both between members of an RFMO and between RFMOs
- Work should be undertaken to standardize compliance and enforcement measures between RFMOs, including focus on common standards for VMS, reporting formats, criteria for inclusion on black and white lists, trade documentation schemes and standardized penalties for non-compliance
- RFMOs should strengthen their institutional capacity to analyse compliance and enforcement information, including through the establishment and resourcing of technical subsidiary bodies

In addition, in its final report, the HSTF identified the following mechanisms to improve detection and deterrence of IUU fishing:

- strengthening the International MCS Network
- establishing a global information system on high seas fishing vessels
- promoting broader participation in the UNFSA and the FAO Compliance Agreement
- adopting guidelines on flag State performance

IV. Performance Review and Evaluation

Summary of Recommended Best Practice:

- New RFMOs and those reviewing their conventions should incorporate provisions for regular, transparent review of performance and consider the need for external review
- When incorporating performance review into the routine operations of an RFMO, the process for consideration and response to the outcomes of such reviews should also be clearly established
- Performance should be assessed against international obligations, as well as the objectives specified in conventions
- A standard set of criteria framed around international obligations should be developed to allow consistent performance evaluations and maximise opportunities for benchmarking and continuous improvement
- RFMOs should, regardless of the availability of a standard framework and consistent with the recommendation of the HSTF, undertake a review of their performance by July 2007

V. Institutional Mechanisms

a) Decision-Making

Summary of Recommended Best Practice:

- Strong institutional structures to support integrity of advice on which decisions are based are required, including science and pre-agreed harvest strategies
- A requirement for a dissenting party to provide reasons for opting out, including reasons for objection, their intentions, and alternative conservation and management measures should be implemented
- Where procedures allow, supporting countries should move issues to a vote rather than continually weaken measures to gain consensus
- Internal review mechanisms, with the grounds for review clearly specified, should be adopted
- New RFMOs should provide for voting procedures, with no opt-out or objection provisions and an internal review mechanism

b) Resourcing

Summary of Recommended Best Practice:

- Establish five-year strategic operational plans, identifying priority issues for research and management, to assist in directing the resources of the organization and the alignment of voluntary contributions
- Provide assistance to facilitate the participation of developing States in the work of commissions, including

through the establishment of a special fund, as well as targeted assistance with respect to specific conservation and management measures

- RFMOs should seek ways in which co-operation and collaboration with other organizations can contribute to a reduction in costs

VI. Cross-cutting Issues

a) Special Requirements of Developing States

Summary of Recommended Best Practice:

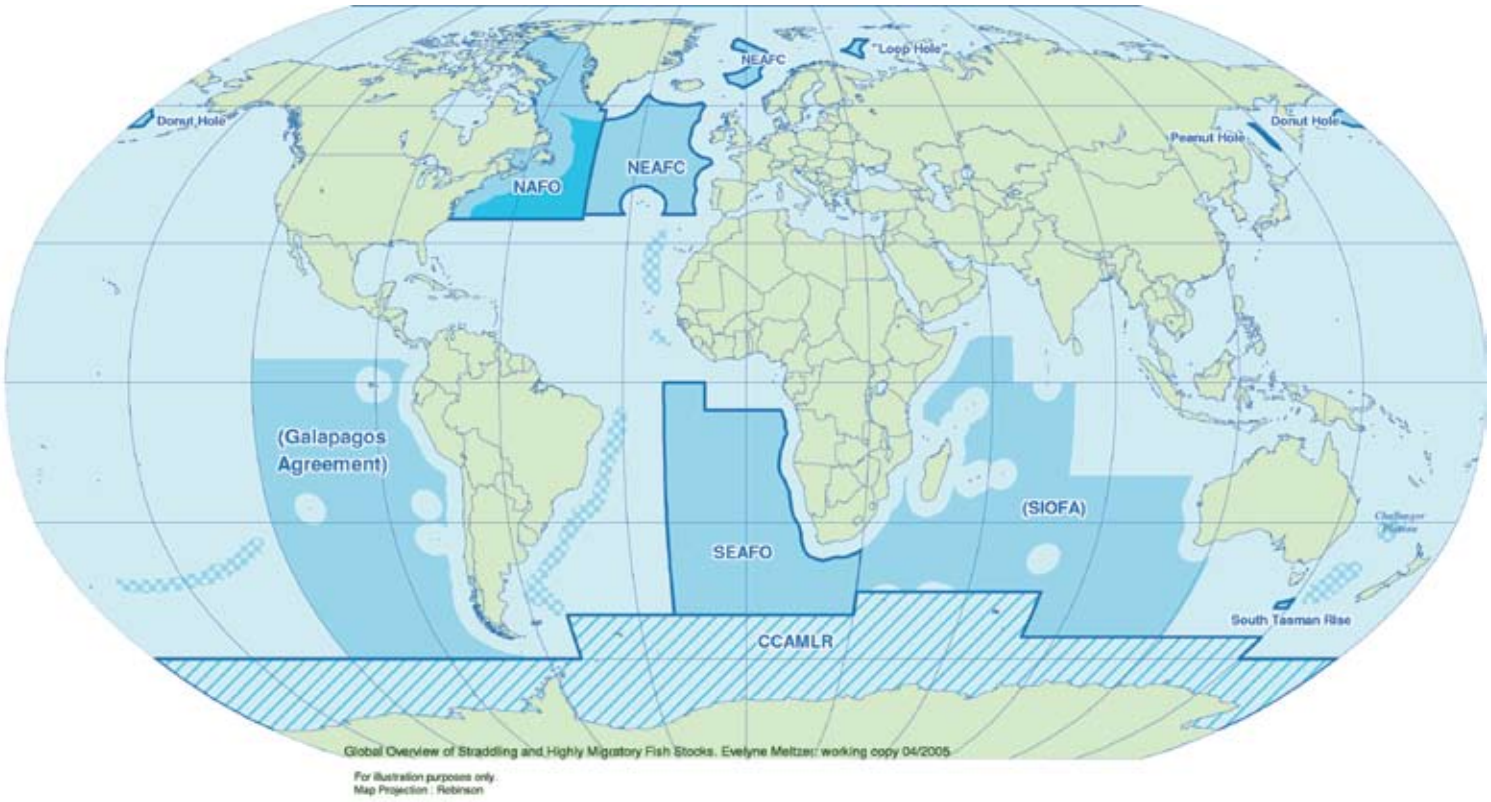
- Assistance to facilitate the participation of developing States in the work of commissions, including through the establishment of a special fund, as well as targeted assistance with respect to specific conservation and management measures, should be provided by RFMOs and their members
- Targeted capacity-building for either prospective or existing members which are developing States should be supported by RFMOs and their members
- RFMOs should provide assistance to developing States to accede to the UNFSA and the FAO Compliance Agreement and, for those developing States that have acceded, provide ongoing support to strengthen implementation of these agreements
- RFMOs should agree up-front how any increases or decreases in catch or effort limits will be distributed across members, including how the aspirations of developing States might be reflected in this

b) Transparency

Summary of Recommended Best Practice:

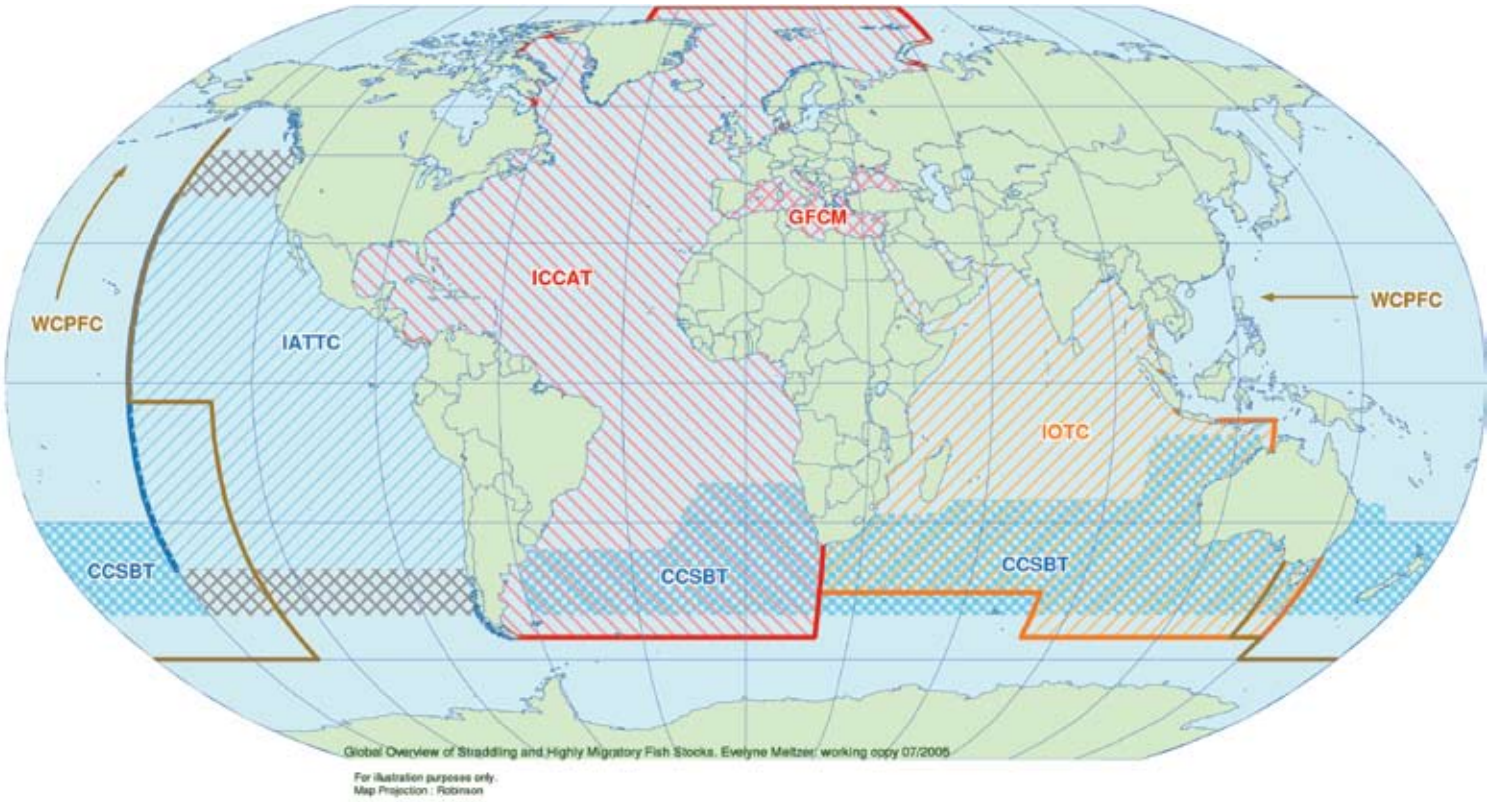
- Processes for application for observer status should be streamlined (i.e., minimise lead times, information required and justification)
- Long-term approval of observer status should be provided, rather than being granted on year-by-year basis
- RFMOs should ensure that observers have access to all documents (noting the need for confidentiality in some areas) in the same time frames as members
- RFMOs should minimise the capacity for meetings to be selectively closed to observers
- Up-to-date statistics on catch, effort and trade should be accessible on websites
- All meeting documents, including background and meeting papers, should be publicly available

Appendix III: RFMO Maps



Global Overview - Straddling Fish Stocks

- RFMO Boundary
- Proposed Regulatory Area (not yet adopted or not yet in force)
- Other Unregulated High Seas Areas where Straddling Fish Stocks Occur
- CCAMLR
- NAFO Regulatory Area



Global Overview - 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.

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For further information contact:

Global Marine Programme
WWF International
Avenue du Mont-Blanc
1196 Gland
Switzerland

Tel : +41 22 364 9111
Fax : +41 22 364 0526
Email: sbladen@wwfint.org
www.panda.org/marine

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For further information contact:

Senior Fisheries Advisor
TRAFFIC International
GPO Box 528, Sydney
NSW 2001, Australia

Tel: +61 2 9280 1671
Fax: +61 2 9212 1794
Email: awillock@traffico.org
www.traffic.org

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