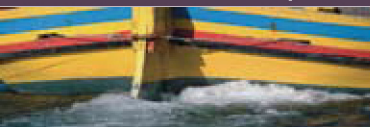


ICTSD Project on Fisheries, Trade and Sustainable Development



Trade and Marketplace Measures to Promote Sustainable Fishing Practices



By Cathy Roheim and Jon G. Sutinen
University of Rhode Island



International Centre for Trade
and Sustainable Development

Issue Paper No. 3



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By **Cathy A. Roheim and Jon G. Sutinen**
University of Rhode Island, USA



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International Centre for Trade and Sustainable Development (ICTSD)

International Environment House 2

7 chemin de Balexert, 1219 Geneva, Switzerland

Tel: +41 22 917 8492

Fax: +41 22 917 8093

E-mail: ictsd@ictsd.ch

Internet: www.ictsd.org

Executive Director:

Ricardo Meléndez-Ortiz

Programme Manager:

Heike Baumüller

High Seas Taskforce

2, rue André Pascal

75016 Paris Cedex 16 , France

Tel: + 33 1 45 24 14 56

Fax: + 33 (0) 1 45 24 84 08

<http://www.high-seas.org>

Director:

Simon Upton

For more information about ICTSD's programme on fisheries, visit our web site:

<http://www.trade-environment.org> , and on the High Seas Task Force, visit <http://www.high-seas.org>.

ICTSD welcomes feedback and comments on this document. These can be forwarded to Heike Baumüller, hbaumuller@ictsd.ch.

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CONTENTS

ACRONYMS & ABBREVIATIONS	iv
FOREWORD	v
EXECUTIVE SUMMARY	vii
1 INTRODUCTION	1
2 MEASURES USED BY REGIONAL FISHERIES MANAGEMENT ORGANISATIONS	2
2.1 Catch Documentation Schemes	2
2.2 Prohibitions on landings and transhipments	5
2.3 Trade-restrictive measures	5
2.4 Other trade-related measures	6
3 MEASURES UNDER OTHER FISHERIES MANAGEMENT AGREEMENTS	8
3.1 UN Fish Stocks Agreement	8
3.2 FAO Code of Conduct for Responsible Fishing	8
3.3 FAO International Plan of Action on IUU Fishing	8
4 RFMOS AND MULTILATERAL TRADE RULES	10
4.1 International trade obligations	10
4.2 Analysis of compatibility	11
4.3 RFMOs as Multilateral Environmental Agreements	12
4.4 Conclusions on compatibility	14
5 NGOS' MARKETPLACE MEASURES TO PROMOTE SUSTAINABLE SEAFOOD PRODUCTS	15
5.1 Boycotts	15
5.2 Seafood guides	17
5.3 Ecolabelling	18
5.4 NGO pressure on retailers	27
5.5 Conclusions on NGO initiatives	27
6 THE SEAFOOD INDUSTRY'S MARKETPLACE MEASURES TO PROMOTE SUSTAINABLE FISHING	29
6.1 Unilever's Fish Sustainability Initiative (FSI)	29
6.2 J Sainsbury plc – United Kingdom	30
6.3 Royal Ahold (Netherlands) – owners of Stop & Shop Supermarkets (USA)	30
6.4 Whole Foods Market – United States	31
6.5 Seafood industry views on IUU fishing	31
6.6 Conclusions on impacts of seafood industry measures	31
7 MARKET REWARDS FOR SUSTAINABLE FISHING	33
7.1 Corporate Social Responsibility	33
7.2 Consumer demand for sustainable seafood	34
7.3 Conclusions on market rewards for sustainable fishing	36
8 IMPLICATIONS OF TRADE AND MARKETPLACE MEASURES FOR DEVELOPING COUNTRIES	37
8.1 RFMO measures	37
8.2 NGO and industry measures	37

8.3	Conclusions on developing country concerns	38
9	FINAL CONCLUSIONS AND RECOMMENDATIONS	39
9.1	NGO measures – ecolabelling programmes	39
9.2	Seafood industry measures – Corporate Social Responsibility	39
9.3	RFMO measures	39
9.4	Measures to reduce IUU fishing and trade	40
	ENDNOTES	43
	REFERENCES	44
	BOXES	
Box 1	Case Study- Ecolabelling, the MSC and IUU Fishing	23

ACRONYMS & ABBREVIATIONS

CCAMLR	Convention for the Conservation of Antarctic Marine Living Resources
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CDS	Catch Documentation Scheme
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CSR	Corporate Social Responsibility
CTE	WTO Committee on Trade and Environment
CTESS	WTO Committee on Trade and Environment in Special Session
CofC	chain-of-custody
COLTO	Coalition of Legal Toothfish Operators
DTS	Documentation and Traceability Schemes
FAO	UN Food and Agriculture Organization
GATT	General Agreement on Tariffs and Trade
GSGSSI	Government of South Georgia and the South Sandwich Islands
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Convention for the Conservation of Atlantic Tunas
ICTSD	International Centre for Trade and Sustainable Development
IOTC	Indian Ocean Tuna Commission
ITLOS	International Tribunal for the Law of the Sea
IUU	Illegal, unreported and unregulated fishing
LSTLV	Large-scale tuna longline vessel
MEA	Multilateral Environmental Agreements
MFN	Most Favoured Nation
MRAG	Marine Resources Assessment Group (consultants)
MSC	Marine Stewardship Council
NAFO	North Atlantic Fisheries Organization
NGO	Non-governmental Organization
OECD	Organisation for Economic Co-operation and Development
RFMO	Regional Fishery Management Organization
SBT	Southern bluefin tuna
TAB	Technical Advisory Board of the MSC
TBT	Agreement on Technical Barriers to Trade
UNCLOS	UN Convention on the Law of the Sea
VMS	Vessel Monitoring System
WTO	World Trade Organization

FOREWORD

Fish and fish products provide important trade and livelihoods opportunities in many coastal developing countries. Nearly 40 percent of fish output is traded internationally with an export value of US\$ 58.2 billion, making seafood one of the most extensively traded commodities in the world. Exports of fish products from developing countries today comprise 20 percent of agricultural and food-processing exports - more than tropical beverages, nuts, spices, cotton, sugar and confectionary combined. These exports are likely to increase as demand for fish products continues to increase. In addition to providing a significant source of export revenue for developing countries, the fishing sector also constitutes a vital component of domestic food intake and an important provider of local livelihoods.

Meanwhile, fish stocks around the world are under significant pressure with some disappearing or becoming economically unviable. The UN Food and Agriculture Organization estimates that as much as 75 percent of global marine fish stocks are now fully exploited, over-exploited or depleted, confirming a consistent decrease since 1974 in marine fish stocks with little or no potential for further exploitation. Poor fisheries management and inappropriately designed subsidies to fishing industries have been widely recognised as the key economic drivers of overexploitation of fisheries resources by contributing to significant overcapacities of fishing fleets, particularly in developed countries. Large-scale industrial fleets combined with poor or no management have also contributed to secondary pressures on marine resources, such as increased levels of bycatch - that is, species that are caught unintentionally by fishing gear - and the use of destructive fishing practices which harm non-target species and marine ecosystems.

As part of a broader suite of management measures, a number of trade and marketplace measures have been implemented to address some of the sustainability challenges. These measures can be used to pursue a variety of objectives, such as to combat illegal, unreported and unregulated (IUU) fishing by verifying the legitimacy of the catch or traded product; ensure that the import complies with nationally, regionally or internationally set conservation goals; or help the consumer to identify sustainably harvested products. Some Regional Fisheries Management Organisations (RFMOs), for instance, have put in place import bans on fish products managed by the RFMO from countries that have been found to contravene its management arrangements or regulations. At the domestic level, some countries have introduced traceability and labelling schemes for fish and fish products. Marketplace measures, such as eco-labelling schemes or other industry initiatives, aim to provide appropriate market incentives by offering a competitive advantage for sustainably harvested fish products.

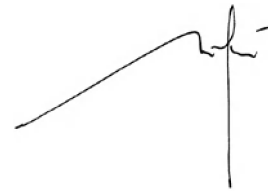
However, a number of issues have been raised as to the effectiveness of trade and marketplace measures. It remains unclear to what extent such measures have actually been effective in encouraging sustainable fisheries management and providing a sufficient market advantage and price premium for sustainably harvested fish products. Developing countries in particular lack the capacity to take advantage of market opportunities and to comply with multilateral management requirements. Questions also remain over the compatibility of these measures with the rules of the World Trade Organization (WTO). Speculation on the compatibility of these measures has been fuelled by a number of high-profile WTO cases challenging unilateral trade measures used to impose fisheries conservation requirements in other countries. Ongoing negotiations on the relationship between trade-related measures under multilateral environmental agreements and WTO rules - launched in 2001 as part of the Doha round of trade negotiations - could go some way towards clarifying countries' and RFMOs' flexibilities to employ trade and marketplace measures for conservation purposes.

As a contribution to these debates, this issue paper - published in the context of the ICTSD project on Fisheries, International Trade and Sustainable Development and the High Seas Task Force- aims to support the use of trade-related fisheries policies and rules that are supportive of sustainable resource management objectives. To this end, Cathy Roheim and Jon Sutinen - a fisheries experts from the University of Rhode Island - describe and assess trade measures currently employed under multilateral fisheries management agreements to promote sustainable fishing, and consider the compatibility of trade measures within fishing agreements with these international obligations. They then go on to look at the role of civil society groups and private sectors in promoting sustainable fishing through marketplace measures. The paper wraps up with a set of conclusions and recommendations for improving and expanding the use of these measures.

We hope that you will find this paper to be stimulating and useful for your work.



Ricardo Meléndez-Ortiz
Executive Director, ICTSD



Simon Upton
Director, HSTF

EXECUTIVE SUMMARY

This report examines the current range of trade and marketplace measures being used by individual states, regional fisheries management organizations (RFMOs), the fishing industry and non-governmental organisations (NGOs) to reinforce international fisheries conservation and management provisions, achieve fisheries management and sustainability objectives and minimise illegal, unreported and unregulated (IUU) fishing. These measures take the form of various policies and practices to monitor and track seafood products from the time the fish are caught to when they are sold to final consumers, including border controls that allow countries or territories to regulate, restrict or prohibit trade in these products.

The trade and marketplace measures used by RFMOs include catch documentation schemes (CDS), vessel monitoring systems (VMS), vessel lists, restricting non-compliant operators' access to goods and services (fuel, landing, insurance, communications and navigation services etc.) and import bans. Evidence exists, albeit often anecdotal, that these measures can help promote sustainable fishing and strengthen the disincentives for IUU fishing practices. Nonetheless, they can all too easily be tampered with or evaded by, for example, fishing under flags of convenience or frequently changing vessel names.

For many years there has been significant concern over the potential for conflict between trade measures used in the pursuit of environmental protection and the trade rules of the GATT and the WTO. Indeed, if viewed exclusive of their context, several of the RFMO trade and marketplace measures appear to violate various articles of the GATT and therefore conflict with international obligations. These measures include: refusing to allow landing and transshipments, refusing port services, discriminating against vessels of particular nations, and imposing import bans. However, each of these measures could potentially qualify as 'exceptions' under Article XX of the GATT. The conclusion on this conflict issue is therefore unclear.

Civil society groups, for their part, have played a significant role in promoting sustainable seafood products, primarily by raising public awareness of the issue and continually placing it on the agenda of governments and regional fisheries management organizations. The main marketplace measures used by NGOs in this area include organised boycotts of specific seafood species, consumer guides with recommendations on which species to purchase, ecolabelling programmes and most recently, pressuring retailers not to carry particular species that the NGOs involved have deemed 'unsustainable'. Two recent campaigns in the US (*Give Swordfish a Break* and *Take a Pass on Chilean Sea Bass*) certainly raised the awareness level among consumers and the food retail and service industry but seem to have had little market impact.

Seafood guides are a more direct consumer education effort by NGOs and aquaria, listing which species to avoid (because of problems such as over-fishing, by-catch issues, habitat destruction, marine pollution or use of chemicals) and which species to prefer, as they are deemed 'sustainable'. However, neither consumer boycotts nor seafood guides discriminate between responsible and irresponsible fishing operators, imposing an economic cost on the responsible fishing operators. Other problems with the consumer guides include the inconsistent definitions of 'sustainable' used by the different groups involved and the lack of transparency and stakeholder consultation in the preparation of the guides.

Contrary to the 'negative' approaches of boycotts and consumer guides, ecolabelling is a market-based approach that involves the consumer rewarding those members of the fishing community who practice responsible fishing practices. Ecolabelling relies on third-party independent certifiers verifying that the products meet certain environmental criteria or standards. The Marine Stewardship

Council (MSC) is currently the only large and international ecolabelling organisation for capture fisheries and the MSC chain-of-custody (CofC) certification of the South Georgia toothfish fishery is examined in detail to show how CofC is a more rigorous and effective method of preventing IUU fish from entering the marketplace than, for example, catch documentation schemes.

While, ecolabelling and the MSC programme have their own limitations, they may be preferable for the fishing industry in comparison with other alternatives in the determination of sustainability. Only ecolabelling has in place the stakeholder consultations, the third-party independent certification, the accountability and the transparency in its process. The other approaches subject the fishing industry to far more risk, uncertainty, and frustration as to what the standards are, the qualifications of those setting the standards, the consistency of the standards across organizations, the ability of industry to provide input into the determination of whether a product is determined to be 'sustainable', and the accountability of those in the determination process.

The seafood industry itself has been spending considerable amounts of energy and resources to promote the purchase of seafood from sustainable sources. Particularly in Europe and North America, seafood companies have been increasingly scrutinizing their supply chains to check the legality of their seafood sources, announcing pledges to use sustainable sources or carry MSC-certified seafood, and dropping certain species from retail shelves due to their identification by some environmental groups as unsustainable. The environmental impacts of these industry initiatives are limited by the size of the market they represent, as unsustainable sources of seafood may still be able to find alternative markets for their products.

While corporate demand clearly seems to exist for sustainably-source seafood, the evidence of a similar consumer demand is less clear. The consensus within the MSC and seafood industry seems to be that a critical mass of species carrying the MSC logo is needed in order to attract the attention of consumers. Until 2004, most of the fisheries certified by the MSC were small-scale local fisheries. With the recent certification of additional large-scale fisheries and on-going assessment of still more, the increased quantities and variety will certainly help raise consumer interest and willingness-to-buy.

Developing countries have significant and often legitimate concerns about the trade and marketplace measures adopted by RFMOs, NGOs and the international seafood industry. Certainly, the costs of complying with RFMO measures such as CDS and VMS or NGO standards of 'sustainability' are less easily borne by resource-poor developing countries. Developing nations are also concerned about the level of transparency in the MSC, and about the ability of their fisheries to meet the current MSC standard. As the standard is written, it relies heavily on the collection of data - e.g. for determining the status of stocks - a very difficult and costly task for developing countries. Some of the developing country concerns might be addressed through the WTO, via negotiations over ecolabelling, for example, while others could be addressed more directly through technical assistance and cost-sharing in fisheries enforcement.

The report sets out several specific recommendations for strengthening and expanding the use of trade and marketplace measures to promote sustainable fishing and reduce IUU fishing.

1 INTRODUCTION

This report aims to identify measures and methods that can be applied to strengthen the linkages between trade policy, fisheries management and sustainable development objectives. The report examines the current range of trade and marketplace measures being used by individual states, regional fisheries management organisations (RFMOs), the fishing industry and non-governmental organisations (NGOs) to reinforce international fisheries conservation and management provisions, achieve fisheries management and sustainability objectives and minimise illegal, unreported and unregulated (IUU) fishing.

For the purposes of this study, trade and marketplace measures are taken to include all policies and practices that are used to track and regulate trade in seafood products from the time the fish are caught to when they are sold to final consumers, including border controls that allow countries or territories to regulate, restrict or prohibit trade in these products. These measures may include catch monitoring and enforcement measures, product tracking/chain-of-custody certification and labelling or similar product-identification schemes, and any other arrangements that may help regulators, traders, customs officials and consumers differentiate legal from illegal seafood products.

The study pays particular attention to trade and marketplace instruments that can impact the incentives available to IUU fishing operators and minimise the scope for their operations.¹

The first two sections of the report describe the trade measures that currently exist under RFMOs and other fisheries management agreements to promote sustainable fishing. The subsequent section then examines international obligations on trade measures under the WTO and considers the compatibility of trade measures within fishing agreements with these international obligations. The report then looks at the role of NGOs in promoting sustainable fishing through marketplace measures. We focus on the four main NGO-led activities in this area, namely organised boycotts of certain fish species, consumer guides to buying seafood products, ecolabelling programmes and exerting pressure on retailers. The report then turns to the private sector and in particular to the approaches adopted by seafood retailers to promote incentives for sustainable fishing. Pulling together all the trade and marketplace measures, we then explore their implications for developing countries. The report wraps up with a set of conclusions and recommendations for improving and expanding the use of these measures.

2 MEASURES USED BY REGIONAL FISHERIES MANAGEMENT ORGANISATIONS

This section focuses on the trade and trade-related measures currently in place under RFMOs. These measures include (Tarasofsky, 2003):

- requiring specified documentation on catches from all vessels, as a condition of landing or transshipments;
- prohibiting landings and transshipments (to RFMO parties) from particular vessels; and
- enacting trade-restrictive measures such as import bans against parties or non-parties, in fish products covered by the RFMO.

Each of these measures is discussed in turn, within the context of one or more of three major RFMOs - the International Convention for the Conservation of Atlantic Tunas (ICCAT), the

Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT). ICCAT was formed in 1966 and has 39 signatories, 32 of whom are also Members of the WTO. Membership of ICCAT is open to any government which is a member of the United Nations (UN). CCAMLR was formed in 1980 and has 32 signatories, 29 of whom are also Members of the WTO. The Convention is open to any state interested in research or harvesting activities in relation to the marine living resources to which the Convention applies (WTO, 2005). The CCSBT was formed in 1994 and its members are Australia, Japan, New Zealand, Korea and Taiwan, with the Philippines as a formal cooperating non-member.

2.1 Catch Documentation Schemes

Catch documentation schemes (CDS) serve multiple purposes. They: (i) provide the management authorities with data to meet the management objectives; (ii) identify the origin of the fish entering the markets of importers (who are also contracting parties to the RFMO); (iii) determine whether the fish were caught in a manner consistent with the conservation measures of the fisheries management agreement; and (iv) reinforce the already-adopted fisheries management measures (Brack and Gray, 2003; Willock, 2002). CDS may also serve as a tool for traceability, in that the product can be tracked backwards via the documentation from the upper levels of the market to the vessel.² For some species and in some countries this information is provided to consumers via labelling for country of origin or location of capture.

Catch documents generally include details on the name, home port, national registry, call sign of the vessel; the reference number of the license or permit issued to the vessel; the weight of the each toothfish species landed or

transhipped by product type, by management subarea or division, or by FAO statistical area, subarea or division if caught outside the management area; dates of the catch; and date and port at which the catch was landed, or date and the vessels, its flag and national registry number, to which the catch was transhipped (Lack and Sant, 2001).

ICCAT's Bluefin Tuna Statistical Document Programme began in 1992 for frozen bluefin tuna and was extended to fresh bluefin tuna in 1993. In 2000, the programme added swordfish, bigeye tuna and other species managed by ICCAT. The programme calls on all importing parties belonging to ICCAT to ensure that all bluefin tuna have trade documents that are validated by government agencies. As tuna farming has become more common, the programme has adapted to account for this, particularly as the tuna is caught, held for fattening in cages and then transhipped for export. Most recently, transponder devices are being incorporated into the programme to prevent fish laundering.

In 2000, CCAMLR instituted a CDS for toothfish (*Dissostichus* spp), focussing particularly on the Patagonian toothfish, a heavily and frequently illegally fished deep-sea species. The scheme is designed to track the landings and trade flows of toothfish caught in the Convention area and, where possible, adjacent waters. CDS requires documentation of toothfish landed in the ports of CCAMLR parties, transhipped to their vessels or through their ports, or imported into their territories.

CCAMLR members are required to ensure that all of their flagged vessels fishing for toothfish are specifically authorised to do so, and complete catch document forms for all catches landed or transhipped. Document forms are not to be issued to non-authorised ships. All landings or transhipments of toothfish catches at CCAMLR members' ports are only permitted if they are accompanied by a valid form, and any export or re-export of toothfish must also be accompanied by the form countersigned by a responsible government official (Brack and Gray, 2003). Thus, one cannot sell toothfish unless one has the documentation to go with it; and anyone without the documentation is selling illegally-caught fish.

In 2000, the CCSBT instituted the Southern Bluefin Statistical Programme to collect data on the southern bluefin tuna trade and fishing. Similarly to ICCAT, the CCSBT has also had to incorporate methods to handle tuna farming by accounting for the imports of farmed tuna separately from the rest of the imports for each country and fishing entity.

Similarly, in 2002, the Indian Ocean Tuna Commission (IOTC) created the Bigeye Tuna Statistical Programme, exempting bigeye caught in the Convention area by purse seine and pole-and-line destined for canning (Standing Committee on Tuna and Billfish, 2002). This is because it is difficult to distinguish juvenile bigeye tuna from yellowfin of similar size, which are caught by these fisheries. This programme is harmonised to some degree with that of ICCAT.

Problems with Catch Documentation Schemes

There are a number of practical problems with CDS, including double counting when different parts of the same fish are exported to different countries with separate documents, and the fact that some schemes do not use standardised conversion factors when reporting live product weight and processed weight.

One particular problem with catch documentation schemes is that non-parties to the international agreement do not have to participate. Another problem relates to the use of vessel monitoring systems, as required by most CDS. There have been documented cases where vessels have tampered with the data records of the VMS, to indicate that they have been fishing in a location far from where they have actually been fishing. For periods of closures of certain areas to fishing, this reduces the efficacy of the management policy. A further problem with CDS is that unscrupulous companies even in member nations can circumvent the rules by operating vessels flying flags-of-convenience. These ships are typically registered in countries which are not members of the relevant international fisheries agreement and which are therefore not required to comply with the conservation measures of the agreement. Finally, the CDS often suffer from a failure of member states to comply with the international agreements. This may be due to a lack of political will on the part of the government or a lack of resources for enforcing the agreement.

Case Study: Patagonian Toothfish

There are a number of well-documented means by which the CCAMLR catch documentation scheme can be circumvented, leading to a total catch which is often 100 percent greater than the set quota. For those species that are regulated and for which documentation is required, such as Patagonian toothfish, various methods are used to 'legitimise' IUU fish and get it into the market. The National Environmental Trust (NET), a US environmental

NGO campaigning against the illegal fishing of Patagonian toothfish, describes how IUU fish importers can evade restrictions by falsifying the name and shipping codes to incorrectly describe the product being imported on the shipping manifests for imported fish (NET, 2004). The mislabelling can be quite simple. For example, the manifests for shipments of Patagonian toothfish (*Dissostichus eleginoides*) frequently use only the term 'seabass', which also can include common seabass (*Dicentrarchus labrax* and *Dicentrarchus punctatus*). The shipping codes are not very dissimilar and are not carefully scrutinised by customs agents. In addition, importers can more easily evade restrictions by importing frozen fillets instead of whole fish. It is easier to disguise Patagonian toothfish (and most IUU species) as another species in the fillet form.

Importers also evade restrictions by falsifying the weight and/or form of shipments. For example, the documents may correctly state that a container includes Patagonian toothfish and another species, but understate the weight of the toothfish in the shipment. Alternatively, the documents may correctly state the weight but indicate that the container holds whole toothfish when it actually contains filleted toothfish, to hide the fact that, when converted to green weight, the amount imported would exceed the maximum amount allowed by the permit.

IUU fishing vessels are known to offload their catches in ports where the officials have certified falsified catch documents and make little effort to verify the validity of the documentation. A study by the Coalition of Legal Toothfish Operators (COLTO) found that "it is generally regarded as a fairly simple task to get officials in agencies under inadequate central government control in flag states like Bolivia and Russia and port states like Indonesia to generate 'appropriate' paperwork" (COLTO, 2002). The study cites the case of a Hong Kong-based fish trading company whose operations allegedly disguised the origin of the fish and fish products from illegal operations through its processing and distribution operations and

trading arrangements. Recycled fish products were then sold through legitimate trading relationships, mostly into East Asia and North America, and to a lesser extent into Western Europe.

According to COLTO, another tactic involves the mixing of legal and illegal catches of IUU species. For example, in China, traders are known to remove the low price fish from a shipment of legal Patagonian toothfish, and combine the legal high price with illegal high price Patagonian toothfish. Similar mixing of legal and IUU fish can be done at sea, when IUU fish are transferred to a vessel that carries legal documentation. The low price fish are then marketed in China, Taiwan, Korea or other low value markets, and the higher priced combination of legal and illegal Patagonian toothfish is exported to markets in Japan, North America or Europe. According to NET, "there is no way to track the fish listed on a particular catch document to ensure that it hasn't been split or co-mingled with another shipload of product" (NET, 2004, p22).

Prospects for Catch Documentation Schemes

Despite the problems with CDS, they are nonetheless a useful element of programmes aimed at promoting sustainable fisheries and combating IUU fishing and trade. Marine Resources Assessment Group (MRAG), a UK-based marine resources consulting firm, reports that IUU fishing for bluefin tuna dropped to low levels since the introduction of a CDS (MRAG, 2005).

A more robust system of CDS has the potential to greatly improve the prospects for sustainable fisheries. If CDS were applied to all phases of production, trade, and marketing, and the schemes harmonised and/or standardised in accordance with the principles developed by the UN Food and Agriculture Organization (FAO), the opportunities to circumvent a CDS would be minimised (FAO, 2002). RFMOs would have greater control over fishing mortality, and all parties participating in the production and marketing chain would face powerful incentives to abide by the regulations set by RFMOs.

Several fisheries experts contacted by the authors believed that an independent third-party system of auditing, such as that implemented by the MSC would help to improve the CDS. This was not to say that MSC certification of fisheries was necessarily the answer, as in many of these

fisheries certification to the MSC standard is quite possibly not feasible, but rather that the third-party independent verification of the documentation trail was the important component which would improve the system.

2.2 Prohibitions on Landings and Transshipments

ICCAT, in Recommendation 98-11, provides that a non-contracting party, entity or fishing entity which has been sighted in the ICCAT area will be presumed to be undermining ICCAT conservation measures, and if it voluntarily enters a port of a contracting party, that vessel should not be permitted to land or tranship until an inspection of its documents, log books, fishing gear and catch on board has been conducted. A similar measure is in place within CCAMLR (Brack and Gray, 2003).

Furthermore, ICCAT encourages parties and co-operating non-contracting parties to take every possible action, consistent with relevant laws, to convince their importers, transporters and other relevant businesses to refrain from engaging in transaction and transshipment of tuna and tuna-like species caught by vessels carrying out IUU fishing activities (WTO, 2005).

Similarly, under the North Atlantic Fisheries Organization (NAFO), a non-contracting party, entity or fishing entity which has been sighted fishing in the NAFO regulatory area will be presumed to be undermining NAFO conservation measures, and if it voluntarily enters a port of a contracting party, that vessel should not be permitted to land or tranship until an inspection has been conducted (Lobach, 2000). In 2002, access to Canadian ports was denied to Estonian and Faroe Island vessels as vessels from these countries had been identified as not being in compliance with or having undermined

conservation and management measures (Le Gallic, 2004). In the case of the Estonian vessels, they had reportedly over-harvested their shrimp quota in part of the (NAFO) management area. Countries such as Iceland, Norway and the US have also denied access to port services to vessels undermining conservation and management measures (Lobach, 2000).

The OECD Committee for Fisheries identified this measure - the restricting of non-compliant operators' access to goods and services (fuel, landing, insurance, communications and navigation services etc.) - as a means of strengthening the disincentives to participate in IUU fishing and other unsustainable fishing practices (Le Gallic, 2004; OECD, n.d.).

In 1991, Chile denied access to certain EC-origin fishing vessels wishing to land swordfish in several of its ports, claiming that the EU was failing to conserve highly migratory swordfish fisheries in the South Pacific. Chile initiated dispute resolution proceedings in the International Tribunal for the Law of the Sea (ITLOS) (Orellana, 2001). While it later resulted in a negotiated settlement after the EU filed a dispute at the WTO in 2001, there was an agreement between the EU and Chile regarding EU fishing practices for swordfish in the South Pacific. One might therefore assume that the denial of fishing port access had some (albeit limited) success in achieving fishery conservation measures.

2.3 Trade-restrictive Measures

In 1996, the ICCAT Commission recommended that its members take measures to prohibit the importation of bluefin tuna in any form from non-ICCAT member countries Belize, Honduras,

and Panama. This was the first time that a multilateral trade restrictive measure had been authorised by an international fisheries management body (Chaves and Schneider,

2000). The measures against Panama were lifted in 1999 after Panama took substantial steps to bring its fishing practice into line with ICCAT requirements, including ceasing to authorise the registration of any bluefin tuna fishing vessel for operations in the ICCAT area, and by becoming an ICCAT contracting party. However, many vessels formerly registered with Belize, Honduras and Panama, and considered to be fishing illegally, have since re-registered with other countries - an example of the 'flag-of-convenience' problem (Brack and Gray, 2003).³

In 1999, ICCAT also imposed an import ban on bluefin tuna from Equatorial Guinea, an ICCAT member, for exceeding its catch limits. The ban was lifted in 2004 (WTO, 2005).

CCAMLR, for its part, is empowered to adopt trade measures aimed at contracting parties that are consistent with the WTO, to ensure that trade does not encourage IUU fishing or otherwise undermine CCAMLR's conservation measures which are consistent with UNCLOS. In other words, parties to CCAMLR are not

to take trade measures against vessels of contracting parties engaged in IUU fishing that are inconsistent with their international obligations.

As for CCSBT, it developed an action plan in 2000 that provided for identification of non-members whose vessels have been catching Southern bluefin tuna (SBT) in a manner that diminishes the effectiveness of the conservation and management measures of CCSBT. The action plan permits CCSBT to impose trade restrictive measures consistent with members' international obligations on SBT products in any form against such non-members. The CCSBT decided in 2003 to notify Belize, Cambodia, Honduras, and Equatorial Guinea that their vessels had been identified as acting in a manner which diminishes the effectiveness of the conservation and management measures for SBT and laid the groundwork for potential trade measures against these countries (Brack and Gray, 2003). To the best of our knowledge, no trade actions have yet been taken against these countries.

2.4 Other trade-related measures

RFMOs also use other measures, that could be considered trade-related, to promote sustainable fishing. These measures include vessel monitoring systems and vessel lists (WTO, 2005).

Vessel Monitoring Systems

Vessel monitoring systems are satellite-based communication systems fitted to fishing vessels to automatically collect, record and transmit information on the location, course and speed of the vessels. Since these systems are a means of monitoring, and ultimately controlling trade, they come to the attention of the WTO. VMS are consistent with UNCLOS. Countries which have already implemented vessel monitoring systems for selected categories of fishing vessels include Australia, New Zealand, the US, South Africa, Japan and Canada. The EU has recently required most of its vessels over 24 metres overall length to be included in a VMS programme, and several

developing countries are implementing or are close to implementing VMS, including Morocco, Argentina, Panama, China and Peru.

In 1998, CCAMLR adopted a measure requiring the use of VMS by all vessels licensed to fish for toothfish in the CCAMLR area. Similarly, the Inter-American Tropical Tuna Commission (IATTC) requires that each Party with tuna-fishing vessels 24 metres or more in length establish a VMS by 1 January 2005 or as soon as possible thereafter (IATTC, 2005).

As mentioned in section 2.1.1, vessel monitoring systems are susceptible to tampering. An additional problem has emerged, related to vessel length. Currently, approximately 100 longline vessels under 24 metres in length are involved in IUU fishing in the Caribbean, targeting sharks, and because of their shorter length are not required to use VMS.

Vessel Lists

Vessel lists have been drawn up by several RFMOs to identify those fishing vessels operating legally ('positive' lists) and/or those operating illegally ('negative' lists). ICCAT, for example, developed two lists of vessels over 24 metres in length. The purpose of the 'negative list' is quite straightforward: to identify those vessels engaged in IUU fishing in order to facilitate the prohibitions on landings and transshipment discussed above and the imposition of embargos on purchases of tuna from those vessels. Since most of the product from these vessels is being sold in Japan, co-operation from Japan was and is vital to the operation.

However, it was quickly discovered that to avoid being on the negative list simply involved changing the vessel's name frequently, and being under a flag of convenience, things that are relatively easy to do (Hanafusa and Nobuyuki, 2004). Hence, a 'positive list' was developed for only those large-scale tuna longline vessels not engaged in IUU fishing. In addition, Japan began a new measure in 2003

to purchase tuna only from those vessels on the positive list.

CCAMLR has also developed a list which appears on the COLTO website of documented illegal toothfish fishing vessels - a 'blacklist'. In a sense, one could also think of the catch documentation scheme as generating a 'positive list', in the sense that only those on the list with the documentation can sell their fish; those not on the list cannot sell their fish (Le Gallic, 2004).

In contrast to what ICCAT and CCMLAR have done with vessel lists, CCSBT simply has a list of authorised vessels over 24 metres, which is posted on their website.

Such IUU lists, when combined with trade-related sanctions, provide the potential to significantly strengthen the disincentives to participate in IUU fishing and trade practices (Agnew and Barnes, 2004). According to MRAG, the amount of unregulated tuna fishing in Atlantic "declined considerably" after trade-related sanctions and an IUU fishing list were introduced by ICCAT (MRAG, 2005).

3 MEASURES UNDER OTHER FISHERIES MANAGEMENT AGREEMENTS

3.1 UN Fish Stocks Agreement

The UN Fish Stocks Agreement is the Agreement for the Implementation of the Provisions of UNCLOS of 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks (UNCLOS, n.d.). The Agreement seeks to ensure the long-term conservation and sustainable use of straddling and highly migratory fish stocks by requiring coastal states and states fishing on the high seas to co-operate for these purposes, either directly or through appropriate sub-regional or regional fisheries management organisations or arrangements. There are currently 53 parties to the fish stocks

agreement, of which 40 are also Members of the WTO.

Article 23 stipulates measures that can be taken by a port state, including the inspection of documents, fishing gear and catch on board fishing vessels, when such vessels are voluntarily in its ports. It may also adopt regulations to prohibit landings and transshipments where it has been established that the catch has been taken in a manner which undermines the effectiveness of sub-regional, regional or global conservation and management measures on the high seas.

3.2 FAO Code of Conduct for Responsible Fishing

The FAO Code of Conduct of Responsible Fishing is a voluntary agreement that sets out principles and international standards of behaviour for responsible practices to ensure conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity (FAO, n.d.). There are no legally-binding obligations created for member states by this Code. The general principles, set out in Article 6, urge states to prevent overfishing and excess capacity; ensure compliance with and enforcement of conservation and management

measures and establish effective mechanisms to monitor and control activities of fishing vessels; co-operate through sub-regional, regional and global fisheries management organisations; conduct fish trade in accordance with the principles, rights and obligations established in the WTO agreement; protect the rights of fishers and fish workers, especially those engaged in subsistence, small scale and artisanal fisheries; and promote the interests of food security, taking into account both the present and future generations.

3.3 FAO International Plan of Action on IUU Fishing⁴

While neither an RFMO nor a fisheries agreement, and while not legally binding, the 2001 FAO International Plan of Action on IUU Fishing (IPOA) does provide detailed guidance for taking trade and trade-related measures in relation to port states and to internationally-agreed market measures. Article 56 provides that, where a port state has clear evidence that a vessel granted access to its ports has been engaged in IUU fishing, the state should not allow the vessel to land or tranship fish in its ports. Article 63 stipulates that port state

measures may include prohibiting landings and transshipments unless the vessel can establish that the catch was taken in a manner consistent with the conservation and management measures of the applicable RFMO.

Article 66 provides that states should take all steps consistent with international law to prevent fish caught by vessels identified by RFMOs as engaging in IUU fishing from being traded or imported into their territories. RFMOs should identify these vessels through “agreed

procedures in a fair, transparent and non-discriminatory manner”. This Article goes on to state that trade-related measures should only be used in exceptional circumstances, or where other measures have proven unsuccessful and only after prior consultation with interested States. Furthermore, unilateral trade-related measures are to be avoided.

The IPOA provides for the adoption of multilaterally-agreed catch documentation

and certification, as well as for other multilaterally-agreed import and export controls or prohibitions, which may supplement trade bans and/or trade-related measures to reduce or eliminate trade in fish and fish products derived from IUU fishing. Finally, Article 69 provides that stock or species-specific trade-related measures may be necessary to reduce or eliminate the economic incentives to engage in IUU fishing.

4 RFMOS AND MULTILATERAL TRADE RULES

For many years there has been significant concern over the potential for conflict between trade measures used in the pursuit of environmental protection and the trade rules of the GATT, the WTO and other international trade dispute panels.

The late 1980s saw regional disputes between the US and Canada concerning Canadian herring and salmon which was required to be landed and processed in Canada before exportation to the US. The US protested to the US-Canada Free Trade Agreement dispute panel that this was contrary to the free trade agreement, while Canada claimed the regulation was necessary to collect data necessary to manage the stocks. Similarly, the US placed restrictions on imports of Canadian lobsters requiring minimum import sizes, stipulating that since minimum sizes were required for management purposes within the US lobster fisheries, importing lobsters below that minimum size would undermine the management programme. Canada claimed to the US-Canada Free Trade Agreement dispute panel that this was contrary to the free trade

agreement (for excellent reviews of these cases, see McDorman, 1990, and McDorman, 1991).

More globally, both the GATT tuna-dolphin and WTO shrimp-turtle dispute cases are well-known and well-documented (Robb, 2001). These cases helped to create the 'trade-versus-environment' climate in developed countries, and concerns in developing countries that unilateral trade actions could be taken by large countries for environmental objectives, which could restrict market access and weaken their comparative advantage.

Given all this past activity in dispute panel mediation over trade measures contained in fisheries management, there is concern about the potential for conflict between trade measures contained within RFMOs and the international obligations of WTO Members. Prior to investigating the compatibility of RFMOs with WTO obligations, the next section of the report first reviews the relevant international trade obligations.

4.1 International trade obligations

Signatories to the GATT are bound by certain obligations, of which those most relevant to the trade measures discussed above are outlined below.

Most Favoured Nation (MFN): Article I requires that "any advantage, favour, privilege or immunity granted by any contracting party to any product originating in or destined for any other State shall be accorded immediately and unconditionally to the like product originating in or destined for the territories of all other contracting parties." In other words, a contracting party cannot favour any one state.

National Treatment: National treatment arises from Article III of the GATT and requires that imported products be treated no less favourably than 'like' domestic products.

Whereas MFN proscribes discrimination between foreign-produced imports, national treatment demands that domestic and foreign 'like' products be treated equally.

Article V: (2) guarantees freedom of transit through the territory of each WTO Member state "via routes most convenient for international transit". This provision might apply to vessels of a WTO Member state seeking to land their catch in another Member state before transporting it on to a third state.

Quantitative Restrictions: Article XI states that "no prohibitions or restrictions other than duties, taxes or other charges, whether made effective through quotas, import or export licenses or other measures" are permitted to be imposed on the imports of a contracting party. In other words, import bans

are not permitted without the application of an exception such as in Article XI itself or in Article XX.

Exceptions: Article XX of the GATT 1994 sets forth certain exceptions to the rules contained elsewhere in that agreement. Two exception paragraphs (b and g) are relevant to environmental protection:

“Subject to the requirement that such measures are not applied in a manner which would constitute a means of arbitrary or unjustifiable discrimination between countries where the same conditions prevail, or a disguised restriction on international trade, nothing in this agreement shall be construed to prevent the adoption or enforcement by any contracting party of measures:

(b) necessary to protect human, animal or plant life and health;...

(g) relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption...”

The chapeau of Article XX requires that any measures qualifying under any of the exceptions

shall not represent “arbitrary or unjustifiable discrimination” between countries.

*Agreement on Technical Barriers to Trade:*⁵ The Agreement on Technical Barriers to Trade (TBT) seeks to ensure that technical negotiations and standards, as well as testing and certification procedures, do not create unnecessary obstacles to trade (WTO, n.d.a). However, it recognises that countries have the right to establish protection, at levels they consider appropriate, for example for human, animal, or plant life or health, or the environment, and should not be prevented from taking measures necessary to ensure those levels of protection are met. The agreement therefore encourages countries to use international standards where these are appropriate, but it does not require them to change their levels of protection as a result of standardisation.

The TBT Agreement distinguishes between technical regulations and standards. ‘Technical regulations’ are defined as mandatory requirements for products or related process and production methods. ‘Standards’, in contrast, are defined as voluntary requirements for products or related process and production methods. Both regulations and standards may also relate to “terminology, symbols, packaging, marking or labelling requirements as they apply to a product, process or production method”.

4.2 Analysis of compatibility

We, the authors, would like to preface this section by emphasising that we are economists, not international trade lawyers. Therefore, while we present what we are confident of, readers seeking a full treatise on this issue should consult a trade lawyer.

RFMOs use various trade and trade-related measures which, if viewed exclusive of their context, appear to violate various articles of the GATT and therefore conflict with international obligations. These measures include: refusing to allow landing and transshipments (violates Article V); refusing port services (export ban violates quantitative

restrictions); discrimination against vessels of particular nations (national treatment); and import bans.

However, each of the trade tools used by the RFMOs and the fisheries agreements can be ‘excepted’ under Article XX if it meets exception (b) or (g). The key word in Article XX has been the word ‘necessary’. Successive GATT and WTO dispute cases have addressed questions relating to the ‘necessity’ of a trade measure, and of it being the least trade-restrictive option available. In the tuna-dolphin case, one of the questions raised by the GATT dispute panel was whether the US

could have found an alternative means to achieve the same goal - i.e. whether it had exhausted all the alternatives.

The fact that an RFMO exists (i.e. all other avenues of pursuit had been exhausted so an RFMO had to be created) could be deemed to be a justified measure necessary for the purposes listed in GATT Article XX(b) or (g). The existence of the RFMO could help prove the 'necessity' of the exception claimed under Article XX (b), whether the measure is 'related to' the objective sought in the trade measure under Article XX (g), and - as a demonstration of good faith to find a multilateral solution - that it is not 'arbitrary' under the chapeau to Article XX

(Brack and Gray, 2003). Thus, as a set of tools, the various measures used by the RFMOs may be treated under the interpretations offered above.

Catch documentation systems are binding and might also be considered technical regulations. Vessel monitoring systems to verify where catches were taken might be considered as standards (Tarasofsky, 2003). Again, however, the same argument might apply - if these systems are 'necessary' in order to manage and conserve the species, then exceptions under Article XX(b) or (g) may hold. The US-Canada herring-salmon or US-Canada lobster cases might serve as lessons in this instance.

4.3 RFMOs as Multilateral Environmental Agreements

At this point it is worth noting that some RFMOs have been categorised as multilateral environmental agreements (MEAs) by the WTO (WTO, 2005). MEAs are agreements in which more than two parties, generally many parties, have come to an agreement on methods with which to mitigate global, or at least transboundary, environmental problems. The most well-known MEAs include the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and the Montreal Protocol on Substances that Deplete the Ozone Layer (Montreal Protocol).

There are several issues concerning MEA-WTO linkages in general, and MEA-WTO linkages related to fisheries management in particular (Stillwell and Tarasofsky, 2001). Here we will first address the general issues related to MEA-WTO linkages, and then look specifically at the implications for RFMOs.

MEAs often contain trade or trade-related measures for three primary reasons: first, to provide a means of monitoring and controlling trade in products where the uncontrolled trade would lead to or contribute to environmental damage; second, to produce a means of complying with the MEA's requirement; and, third, to produce a means of enforcing the MEA, by forbidding trade with non-parties or non-

complying parties (Brack and Gray, 2003). The growing problem of 'international environmental crime' - the deliberate evasion of environmental laws and regulations by individuals and companies in the pursuit of personal financial benefit, and involving movements across national boundaries - also creates incentives for the wider use of trade measures. There is a wide range of policy options open to governments and international institutions to try to counter this problem, but many of them revolve around the closer regulation of trade and the use of policies and technologies to enhance tracking and verification.

In the Doha Round of the WTO negotiations, the Committee on Trade and the Environment in Special Session (CTESS) is a negotiating committee with an explicit mandate - under paragraph 31(i) of the Doha round of trade negotiations launched in 2001 - to clarify the relationship between WTO rules and specific trade obligations in MEAs. Conflicts between WTO Members when some are Parties of the MEA and others are not are not being addressed. Up until now, there has not been a dispute raised in the WTO involving an MEA, although interestingly the one instance in which a dispute threatened to escalate into a full legal clash between the WTO and an MEA involved a fishery issue. As mentioned briefly in section 2.2, that

case involved Chilean denial of port access to EU swordfish vessels beginning in 1991, due to Chilean claims that the EU was failing to cooperate on the conservation of a highly migratory species in violation of UNCLOS. After ten years of bilateral consultations and other unsuccessful attempts at resolution, the EU brought the case to the WTO in 2000, claiming that the Chilean prohibition on unloading swordfish in its ports was inconsistent with GATT Articles V and XI (Orellana, 2001). In 2001, the EU and Chile settled their disputes and suspended the panel proceedings in the WTO and the ITLOS, thus preventing any potential conflicting rulings of the WTO and UNCLOS (European Union, 2001)

While the EU-Chile swordfish dispute did not result in a full conflict between the WTO and UNCLOS, there is concern that one day there may be a potential for the WTO to find that the trade restrictions put in place under the MEA - in full compliance with the rules of the MEA - contravenes the agreements under the WTO. Thus, the negotiations under the Doha round are meant to address this issue.

The negotiations appear to be divided into two basic camps. One view, broadly speaking, is that the current relationships are working well and no changes need be made to the WTO rules. The other view is that MEAs and the WTO need to be mutually supportive and that the rules need to be re-written to foster that support (Stoler, 2004). For example, the latter view led the EU to propose before the first WTO ministerial conference in Singapore in 1996 to amend Article XX so that "measures pursuant to a MEA could be deemed a justified restriction on trade" (Robb, 2001). The EU is viewed as the leading proponent of a greener WTO, specifically regarding MEAs (Eckersley, 2004). However, many countries did not agree with the EU proposal. A similar provision has been written directly into the North American Free Trade Agreement (NAFTA) that, in cases of conflict between itself and CITES, the Montreal Protocol or the Basel Convention, the MEA is to take precedence over NAFTA. A second proposal came from the EU in the CTE to add a new exception to Article XX allowing for measures

pursuant to MEAs (Gray, 2004). The EU and Switzerland are the only countries actively pursuing substantive amendments. In spite of the accommodation of NAFTA with respect to certain MEAs, during these negotiations the US submitted a paper supporting the view of the first camp, arguing that even if there are possibilities for conflicts in the future, they are unlikely to become practical problems as long as the WTO Members states that are MEA Parties carefully co-ordinate and design the specific trade obligations within the MEAs (for more details, see Stoler, 2004, and WTO, 2004). The US thus is generally not pursuing amendments. For the moment, consensus between the two camps, and ultimate resolution, seems remote.

Aside from the larger, more general issues of the future of MEAs in relation to the WTO, there are also more specific issues that relate to fisheries, and the relationship of RFMOs to MEAs and hence to the WTO. In particular, CCAMLR, ICCAT and the UN Agreement on Fish Stocks have been listed by the WTO as MEAs, and identified in their matrix as MEAs that contain trade measures (WTO, 2005). What is not clear is whether other RFMOs would also be considered MEAs. To be certain, not all MEAs contain trade measures, and similarly, not all RFMOs contain trade measures. However, there are a number of RFMOs (e.g. IOTC and CCSBT) which were not listed as MEAs but which do contain what could be considered as trade measures.

Several questions arise in the context of ongoing negotiations:

- What constitutes an MEA for the purpose of the paragraph 31(i) negotiating mandate? Which (if any) RFMOs would be considered to be MEA?
- What constitutes a specific trade obligation?
- What is the number of parties needed before an RFMO can become an MEA? Is there a minimum number? If an RFMO contains all the producing and consuming countries relevant to the managed species, and that number fails to meet the minimum

required to meet the WTO requirement for an MEA, what are the consequences?

While we were not able to find anything in the international trade law literature that answered any of these questions specifically, one might speculate that the WTO could interpret any RFMO similarly to an MEA. In other words, RFMOs generally exist, and trade measures are contained in them as part of their management and conservation approaches, because all other environmental management approaches have been exhausted. By extension, any trade measures contained in them may be deemed 'necessary'. Given that the WTO prefers multilateral over unilateral approaches, trade actions taken by a group of countries under the auspices of an international agreement, such as an RFMO, would be viewed more positively than a unilateral action, particularly if the RFMO includes all the producing and consuming countries relevant to that particular species or group of related species. Transparency in the decision processes and actions within the RFMO and a basis in the best possible science would both lend further credence to any trade action that might take place.

It is obvious that the discussion within the CTESS is an important one, and one that the international fisheries management community should be involved in by contributing to the discussions at the WTO. ICCAT has, for example, contributed to papers submitted to the CTESS during the negotiations and this is an important means of involvement. However,

this may not be sufficient to ensure that the general fisheries management community is engaged and that the importance of the trade measures in conservation and management of some fish species is understood in the WTO. Clearly, the governments who are participants in these regional fisheries agreements must play an active role, but that is a second-best solution as government negotiators represent a variety of interests which may have conflicting internal agendas. Environmental NGOs have often faulted the WTO for its lack of openness and inclusiveness in its discussions - the CTESS and CTE could benefit from including representatives from outside the community of trade negotiators in this discussion on MEAs on a regular basis.

A final note specific to developing countries is needed. Developing countries are quite concerned about issues related to MEAs. They argue that market access can be restricted and their comparative advantages weakened by trade measures such as those contained in CCAMLR, ICCAT, and CCSBT, which may have a negative economic impact on their industries and associated economies (Williams, 2001) To the extent that the trade actions take place due to lack of compliance, it may be a function of the wealthier member states in the RFMOs assisting the developing member states in the costs of enforcement. In that event, those concerns can be addressed as they frequently have been through financial assistance, technology transfer, and other incentives.

4.4 Conclusions on Compatibility

To date there have not been any disputes between member nations of RFMOs raised in WTO panels over trade measures contained within the international fishery management agreements. Nor have there been similar disputes between Parties of MEAs taken to a WTO dispute panel that have gone through full resolution. Thus, the level of compatibility between the trade measures contained in RFMOs, such as ICCAT,

CCAMLR and CCSBT, and the WTO rules is unclear. The future in this area is uncertain as there is an on-going discussion within the WTO on the whether WTO rules should be amended regarding MEAs, and how MEAs should be recognised. There are significant potential implications of this discussion for RFMOs, and significant uncertainty for RFMOs.

5 NGOS' MARKETPLACE MEASURES TO PROMOTE SUSTAINABLE SEAFOOD PRODUCTS

Civil society groups have played a significant role in promoting sustainable seafood products, primarily by raising public awareness of the issue and continually placing it on the agenda of governments and regional fisheries management organisations. The NGOs involved in this area are typically international ones such as the WWF or Greenpeace. However, some of the NGOs most active in fisheries issues are found in the US and Europe. US foundations such as the Pew Charitable Trusts and the Packard Foundation are driving forces in providing funding for sustainable-fisheries related causes. Which fisheries are defined as sustainable is determined in general by those same NGOs, with the assistance of notable marine biologists and ecologists.

NGOs in the US, Europe and Oceania are taking a direct aim at the consumer in their efforts to promote sustainable seafood products, by encouraging the consumer to buy fish only from sustainable fisheries or sustainable aquaculture.

5.1 Boycotts

In the last decade there have been two well-publicised boycotts of particular species, justified on a supply of products from unsustainable fisheries. The first, initiated in 1998 in the US was against swordfish, from a campaign entitled *Give Swordfish a Break* (SeaWeb, 2002). This was a campaign of a public relations firm, SeaWeb, and the environmental group National Resources Defense Council, targeting restaurant chefs and consumers to refrain from buying swordfish to support stronger conservation. The campaign lasted until August 2000 when victory was declared after the US government closed several nursery areas to fishing for swordfish and supported stronger quota restrictions within ICCAT.

The US is the world's largest market for swordfish, consuming approximately 25 percent of world landings. In 2004, the US imported a total of 6,500 metric tons of fresh

A small but growing amount of this type of activity also appears to be occurring in Asia, most notably in Japan and Hong Kong.

The main market-based activities of NGOs have been: (i) organised boycotts of specific species; (ii) consumer guides with recommendations on which species to purchase; (iii) ecolabelling programmes; and most recently (iv) pressuring retailers not to carry particular species that NGOs have deemed 'unsustainable.' Pervasive in all the activities of these NGOs is consumer education regarding, for example, the relative environmental impacts of various types of fishing practice, the status of various species' stocks, and by-catch/habitat impacts. Notwithstanding the importance that consumer education (whether with information or misinformation) plays in markets for sustainable fish, this discussion will focus on targeted market measures, namely boycotts, seafood guides and ecolabelling.

swordfish valued at US\$45 million from 28 countries. Roughly 70 percent of US swordfish was imported fresh. Chile, Brazil, Australia, Canada, Mexico and South Africa were the major sources of fresh swordfish during the period 1989-2004. However, as swordfish stocks have been over-fished globally, the composition of the major fishing nations has altered over time. An increasing amount of swordfish is being imported from Caribbean Sea nations such as Costa Rica, Panama, Trinidad and Tobago. For example, imports from Panama were virtually non-existent before 2001, but by 2004 Panama accounted for 17 percent of imports by volume, and almost 25 percent by value.

While sponsors of the *Give Swordfish a Break* campaign claim success in enlisting chefs, hotel chains, cruise lines and others in the US to remove swordfish from their menus during the campaign period, little analysis seems to have

been done to determine the actual impact on demand for swordfish. cursory analysis of import data shows no obvious drops in imports of swordfish into the US during 1998 and 1999. In any case, even if such drops did exist, they could not necessarily be attributed to the campaign as they could have been the result of many factors including, for example, changes in relative prices, exchange rates or supply variables. What is clear, however, is that if there was any impact of the boycott, much of the impact would have been felt by developing nations since much of the swordfish imported into the US comes from developing nations. The pressure from groups organising boycotts to change fisheries management practices, such as avoiding the capture of juvenile swordfish, can perhaps be more easily dealt with by developed nations. This is an issue that we discuss in more depth in section 8 below.

In 2002, the second consumer boycott campaign, *Take a Pass on Chilean Sea Bass*, was initiated and remains on-going (NET, 2002). The sponsor is the US-based National Environmental Trust which has been a vocal and extremely active NGO within CCAMLR and in issues related to Patagonian toothfish (an alternative name for Chilean sea bass). The goal of the boycott is to reduce demand for the product, particularly since the US is one of the major markets, and at the same time to exert pressure on the US government to push for Appendix II listing under CITES for the fish.

As with the swordfish boycott, the Patagonian toothfish boycott has been the subject of little or no analysis of its environmental or market effectiveness. Certainly, the boycott raised the awareness level of the issue and some in the industry credit the boycott and the public relations campaign with raising the seriousness with which some governments treated the possibility of listing toothfish on CITES. Several supermarkets and restaurants in the US took toothfish off their shelves and menus. However, while these are nice anecdotal stories, proof of the boycott's

effectiveness would include a drop in the price of toothfish as a result of reduced consumer demand. This would indicate that the economic incentives for illegal fishers of toothfish have been reduced. Again, there have been few if any market analyses of toothfish from this perspective. However, a cursory analysis of the price of toothfish reveals that it has remained relatively high in the US market, where the boycott took place. This is seen, for example, in the price of Patagonian toothfish imported from Chile, one of the largest sources of toothfish to the US market (NMFS, n.d.). In 2000, average import prices of frozen Patagonian toothfish (aggregate across whole and fillet) into the US from Chile was US\$10.17/kg, while in 2004 it was US\$12.59/kg, not adjusted for inflation. US import statistics distinguish between Antarctic and Patagonian toothfish, by country of origin. It should go without saying that if the price for the product does not drop, then the incentive to pirate the product continues, assuming that enforcement activities do not increase. In other words, if the market is not removed and an incentive remains to catch the fish, including illegally, the boycott has little environmental impact. In that case, the primary environmental impact would be as a public relations event in which sufficient public pressure is put on the government to change its policies, such as to list toothfish on CITES, or as in the case of swordfish, to change national and international management policies.

Aside from the specific issues discussed above, boycotts are generally rather controversial. A particular negative feature of boycotts is that they are indiscriminate - an effective boycott impacts well-managed fisheries as well as poorly-managed ones. In the case of the Patagonian toothfish boycott for example, buyers would no more purchase toothfish from operators represented by COLTO (the Coalition for Legal Toothfish Operators) as they would from illegal toothfish operators. While the illegal toothfish operator deserves to lose a buyer for his product, this should probably not be said for sellers representing

COLTO. Removing the market entirely for the particular species targeted by a boycott negatively impacts those fishing responsibly as well as those fishing irresponsibly. The environmental community appears to argue

that these costs - placing the economic burden of the boycott on that portion of the fishing industry which is actually fishing responsibly - are worth the benefit of achieving the boycott's environmental goals.

5.2 Seafood guides

In a more direct consumer education effort, several NGOs and aquaria, primarily in the US and Europe, have begun to produce seafood guides. These guides are essentially lists that provide information directly to consumers regarding which species to avoid and which species to feel comfortable purchasing. These have been created in the US by, for example, the Monterey Bay Aquarium, the Blue Ocean Institute, Environmental Defense and the Audubon Society and in Europe by the Marine Conservation Society and the North Sea Foundation, among others.⁶

The guides document reasons why consumers should either embrace or avoid various species of fish, shellfish and crustaceans. Species listed include those from both capture fisheries and aquaculture, and those on the 'avoid' list are considered subject to problems such as over-fishing, by-catch issues, habitat destruction, marine pollution or use of chemicals. A species might be differentiated by production method; for example, farmed salmon is typically identified as 'to be avoided', while wild salmon is promoted. In addition, certain gear types for capture fisheries are promoted relative to others, on the basis of their impacts on habitat or other animals.

The lists operate on a traffic light system. If the product is in the green area this is a signal to go ahead and purchase; if it is in the red zone one should not purchase it and if it is in the yellow zone one should proceed with caution. For the convenience of consumers, each group producing these guides has also created computer-printable wallet-sized versions that consumers can take to restaurants and supermarkets where they make their purchase decisions.

The US guides focus mainly on fish harvested in US fisheries, as it is impractical to list all possible species. So, for example, the 2005 Monterey guide lists Atlantic cod, bluefin tuna, shark and monkfish. Imported species are slightly less emphasised but still appear on the list. Thus, for example, toothfish, orange roughy, swordfish, Atlantic flounder and trawled shrimp are on the list, with the last three being specifically designated as 'imported.'

The same criticism can be levelled against this approach as against boycotts - that they do not discriminate between responsible and irresponsible fishing operators for fish products on the 'avoid' list. As in the case of targeted, well-publicised consumer boycotts, seafood guides are effectively advocating for boycotts of any species on its 'avoid' list. The lists are targeted at US consumers, and focused to some extent on fish from US fisheries. However, the list does differentiate imported fish. So while one might argue that Atlantic cod from the US and Canada ought to be on the 'avoid' list, the group makes no effort to differentiate Icelandic or Norwegian cod and is effectively advocating a boycott of cod from those sources as well.

Other issues of concern regarding these seafood guides include:

- what standards are used in the criteria for placing species on the lists?
- are the same levels of scientific rigour and credibility applied to the different guides?
- are stakeholders allowed to participate in the process?
- are the standards harmonised across the various guides?

It is clear that the standards differ across the groups creating these guides, as there

are some discrepancies between them. What might appear on one group's red list appears on another group's yellow list. In an extreme example, Greenpeace believes pollock is a red-list species, while other groups have Alaska pollock on the green list due to the Marine Stewardship Council's certification. In some cases, stakeholders are allowed to participate in the process, after the fact. For example, the Monterey Bay Aquarium at one point had not listed some farmed shellfish species on their green list, but after having been approached by the industry and presented with a significant amount of information, these products were moved to the green list. Generally speaking, however, there is no stakeholder consultation during the listing decision by the producers of these guides.

Are the seafood guides having an impact on the market? Again, little if any analysis has been documented. Certainly there is anecdotal evidence that more and more consumers are consulting their consumer guides when making their seafood purchase decisions. Most recently, Compass Group USA, the largest contract foodservice company in the US with a revenue of €6.3 billion in 2005, announced a

new seafood procurement policy based on the Monterey Bay Aquarium's Seafood Watch list, stating that it will decrease its use "of shrimp and salmon that are farmed in an unsustainable manner" (McGovern, 2006). If this is a prelude to the future, it should be enough to cause concern to the seafood industry, given the above-mentioned concerns regarding standards and the level of stakeholder involvement in decisions on the listing of their products.

Clearly, fisheries in both developed and developing nations are affected by these lists if they appear on the 'avoid' list. As discussed above, there is no open, transparent stakeholder process in the seafood lists. If one's product becomes part of the 'red' or 'yellow' list, it becomes a matter of countering the negative media attention. It may be more difficult for the industries of developing nations to do this, given their limited resources. It may also be more difficult for developing country fishery industries to insist on transparency in the definition of 'sustainable' and to generate fisheries which meet the sustainability criteria of these NGOs, to keep them off the 'avoid' list. These issues will be discussed further in section 8.

5.3 Ecolabelling

As noted above, boycotts and seafood guides warn consumers to stay away from entire species of seafood, or species produced with a particular production practice. This approach, if effective, places an economic cost on responsible members of the fishing industry for that species - those who are fishing sustainably. Hence, these punishment approaches do not create any incentive or reward system for improving the sustainability of the fishery. On the other hand, ecolabelling is a market-based approach that involves the consumer in rewarding those members of the fishing community who practice responsible fishing practices.

Ecolabelling relies on third-party independent certifiers verifying that the products meet certain environmental criteria or standards. If the product is certified to meet those

standards, then an ecolabel may be affixed to the product as it moves through the marketing chain. Third-party consumer ecolabelling can serve three functions in the marketplace: (i) it can provide independent evaluation and endorsement of a product; (ii) it can act as a consumer protection tool; and (iii) it can be a means of achieving specific environmental policy goals. An ecolabelling organisation owns its environmental endorsement symbol or trademark and licenses the use of this mark for a specified period of time and a specific fee.

An ecolabelling organisation usually has three tasks: standard setting, accreditation and marketing. Standard setting determines the environmental standards that a product must meet in order to qualify for the ecolabel. Accreditation is given by the ecolabelling

organisation to trained certification companies. Independent assessment determines whether a given product meets those standards. If certified, the logo can then be licensed for use on the certified products.

The effectiveness of ecolabels depends on consumer awareness of the label and consumer acceptance of the label (trust and understanding). Awareness is generally the result of a successful promotion. Acceptance depends on: (i) public understanding of the relevant issues; (ii) public understanding of the connection between the relevant issues and product choices; (iii) an accurate and clearly understood presentation of the product attributes; and (iv) an understanding of what specific actions (e.g. purchase decisions) individuals can take in response to the information provided by the labelling programme.

For ecolabelling initiatives to be broadly accepted, the issues surrounding them must become prominent so consumers will actively look for the labels. Thus, ecolabelling programmes perform a public education role as well. A labelling programme is also more likely to be accepted if it is offered by a credible source.

The most famous example of seafood ecolabelling is the 'dolphin-safe' label on canned tuna. This label came about in the early 1990s as a result of public pressure to capture tuna in a process where dolphins were not encircled or harmed in any way. The US Dolphin Consumer Information Protection Act of 1990 specifies that the dolphin-safe label may only be used for tuna coming from fisheries which do not encircle dolphins. All canned tuna, even cat food, available in the US is labelled as dolphin-safe. In the US, therefore, there is no available choice for consumers to make for non-dolphin-safe tuna.

A better example of an ecolabelling programme in seafood, in which consumers can choose to buy ecolabelled products or non-labelled products, is the Marine Stewardship Council. The MSC was created in 1997 by a co-operative effort of the environmental group WWF and a

multinational corporation, Unilever. The goal of this partnership was to provide a standardised mechanism for certifying and labelling sustainable seafood products from wild fisheries worldwide, thereby providing a market-based incentive to maintain sustainable fish stocks.⁷

The MSC ecolabelling programme is better than the dolphin-safe programme in several ways. It is awarded to a sustainable fishery by a third-party independent certifier, with built-in accountability. The dolphin-safe programme is run by the Earth Island Institute which does not employ independent third-party certifiers, has no accountability, and does not approach the FAO Guidelines (as discussed below).

Conflicts between Ecolabelling and International Obligations

In principle, voluntary ecolabelling programmes for fisheries products do not appear to contravene existing multilateral trade rules. The 1991 Tuna Dolphin decision of the GATT arbitration panel is instructive in this regard. While the panel found US import restrictions on tuna caught in association with dolphin to be GATT-illegal, it accepted the US voluntary 'dolphin-safe' tuna labelling scheme. The panel noted that the voluntary label did not illegally restrict the sale of tuna since tuna products could be freely sold both with or without the 'dolphin safe' label, and because any competitive advantage conferred by the label depended on the free choice of consumers to give preference to tuna carrying the 'dolphin-safe' label. While one could assume that a similar logic would apply to voluntary transnational ecolabelling schemes, to date, there is no similar precedent regarding the application of WTO rules to them (Roheim-Wessells et al., 2001).

According to the WTO, most Members view existing WTO disciplines in the TBT Agreement as adequate. No compelling argument has been made in favour of a common understanding or guidance to be negotiated regarding environmental labelling. Nor do these Members believe that clarification of existing rules is necessary. For these Members, the TBT Agreement has created the appropriate balance

of rights and obligations for both mandatory and voluntary labelling programmes (WTO, n.d.b).

The rules of the TBT Agreement, including its Code of Good Practice for the Preparation, Adoption and Application of Standards (the Code of Good Practice), prohibit regulations and standards from discriminating between 'like' domestic products and foreign products (the national treatment principle) and between 'like products' from different WTO Members (the 'most-favoured-nation' principle). 'Like products' have been defined in past GATT and WTO dispute panel decisions to mean products with the same or similar physical characteristics or end uses.

In terms of standards, Members must ensure that standardising schemes operated by national governmental or intergovernmental agencies accept and comply with the Code of Good Practice. The Code of Good Practice's substantive provisions require a standardising body to, *inter alia*: (i) adopt existing or imminent international standards, except where they would be ineffective or inappropriate; (ii) make reasonable efforts to harmonise standards at the international level; (iii) make every effort to avoid duplication or overlap with the work of other standardising bodies and achieve a national consensus on the standards they develop; and (iv) make available to any interested party within the territory of a Member a copy of a draft standard submitted for comments, its most recent work programme and standards which it has produced.

Finally, the TBT Agreement includes several specific provisions calling on all countries to ensure transparency in the development and application of standards and regulations, in particular through the open dissemination of relevant information. It also calls on developed countries to recognise difficulties that developing countries may encounter in the formulation and application of technical regulations and standards, and to provide advice and technical assistance for their endeavours in this regard. Developing country Members are also to be provided with differential and more favourable treatment given their special

development, financial and trade needs.

Not all Members agree on the appropriate forum to discuss the issue - whether it should be the TBT Committee or the CTE. The primary concerns, however, with regard to the ecolabelling of fish, are directly related to developing countries and the need to involve them in setting the environmental standards. Both the FAO and the MSC have included developing countries in the development of the guidelines and standards for sustainable fisheries in ecolabelling.

Other International Initiatives on Ecolabelling

There are several controversial issues related to ecolabelling, which have led to concerns about the programme in both developed and developing countries. Partly in response to these concerns, the FAO has developed its own guidelines for ecolabelling which outline the principles that should govern these programmes. The FAO guidelines include the need for reliable, independent auditing, transparency of standard-setting and accountability, and the need for standards to be based on good science. They also lay down minimum requirements and criteria for assessing whether a fishery should be certified and an ecolabel awarded, drawing from FAO's Code of Conduct of Responsible Fisheries (Intrafish, 2005).

Recently, the European Commission launched a debate regarding the ecolabelling of fisheries products (Council of the European Union, 2005). The Commission is looking at three possible options to develop seafood ecolabelling programmes. Among these, the one currently favoured by the Commission is the establishment of EU minimum requirements for voluntary ecolabelling schemes (IntraFish Media, 2005).

At the heart of this debate is the definition of 'sustainable' and how strict the standards ought to be. 'Good science' as noted in the FAO guidelines has different definitions to different people. In addition, environmental organisations would like to see stricter standards, while industry would generally like to see less strict standards. There is concern among developing

nations regarding standards, since they often require fisheries management programmes of an institutional nature not generally in existence in many developing countries. Thus, the possibility of attaining ecolabels for developing nations is an issue of concern.

Marine Stewardship Council

The MSC's mission statement is to safeguard the world's seafood supply by promoting the best environmental choice. It describes itself as a non-profit organisation that works to enhance responsible management of seafood resources, to ensure the sustainability of global fish stocks and the health of the marine ecosystem. The MSC defines its obligations as:

- conservation of marine fish populations and the ocean environment on which they depend;
- conservation of the world's seafood supply for the future;
- provision of consumers with accurate information about the best environmental choice in seafood;
- engaging in partnership with its stakeholders;
- ensuring its programme and its benefits are available to all, regardless of size or region; and
- engaging in activities responsibly and openly.

The MSC states its beliefs that:

- the right to fish carries an obligation to do so responsibly and sustainably;
- well-informed consumer choice is a positive force for conservation;
- well-informed markets help environmentally-responsible businesses to be more competitive; and
- independent certification provides credible information that everyone can trust.

The three Principles of the MSC are:

Principle 1: A fishery must be conducted in a manner that does not lead to overfishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery.

Principle 2: Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically-related species) on which the fishery depends.

Principle 3: The fishery is subject to an effective management system that respects local, national and international laws and standards and incorporates institutional and operational frameworks that require use of the resource to be responsible and sustainable.

Based on these three principles and its mission statement, the MSC has created a standard that fisheries must meet before they can become certified: the Principles and Criteria for Sustainable Fishing. Having set the standard, the MSC has accredited a number of certification bodies (the third-party independent entities) who then judge a given fishery against the standard. The certification bodies hire a team of scientific experts to assist in the assessment process. Certification is voluntary and accessible to all wild capture fisheries.

Certification lasts five years and is subject to annual audits to confirm that any required improvements are being made. No product from the fishery can bear the MSC ecolabel until chain-of-custody/traceability requirements have been met ensuring that fish from the certified fishery are not mixed with uncertified fish in the supply chain. Once the fishery is certified, and chain-of-custody/traceability requirements are met all the way up the supply chain, the MSC's trading company, MSCI, licenses the use of the MSC logo.

Figure 1 The MSC ecolabel identifies sea-food products from well-managed sources



Several fisheries have been MSC-certified including US Alaska salmon, Bering Sea and Gulf of Alaska Pollock, Bering Sea/Aleutian Islands Pacific Cod, UK Thames herring driftnet, South West (England) mackerel handline fishery and Burry Inlet cockle fishery (South Wales), Western Australia rock lobster, Loch Torridon Nephrops, South Georgia Patagonian toothfish and New Zealand hoki, South African hake, Mexico's Banco Chinchorro lobster and Baja California spiny lobster. Many others are in the assessment stage.

There are costs to the certification process. Those fisheries being assessed contract with the independent third-party certification firm - the MSC receives no funds other than funds from the license of its logo. Costs of certification vary, depending on the size and complexity of the fishery. The reported cost of certification of the Alaska pollock fishery was US\$500,000, paid for by the industry. These costs are normally confidential between the client and the certification firm. The client also varies from fishery to fishery. In some cases it is the industry that pays for the certification, as in the pollock fishery. In others, as in the case of the Alaska salmon fishery, the State government through the Alaska Department of Fish and Game funded the certification.

Subsequent to the certification, anyone handling product from the fishery (for example, processors) must pay for a chain-of-custody certification. Anyone using the MSC logo must pay the license fee to the MSC. There are costs

of the audits that occur post-certification, and costs of re-certification every five years. The major cost of certification remains, however, the cost of running a well-managed, sustainable fishery.

The MSC welcomed FAO's guidelines, saying that their development showed an endorsement of ecolabelling as a tool to achieve sustainable management of fisheries. Rupert Howes, the MSC Chief Executive Director, stated that the MSC standard is consistent with the core FAO requirements, and is strengthened by the setting of the FAO's credible international minimum standard (MSC, n.d.a).

There have been controversies surrounding some of the certifications of the MSC, such as those for Alaska pollock, New Zealand hoki and South Georgia Patagonian toothfish.⁸ In the cases of pollock and hoki, the controversies were more related to the larger ecosystem effects of the fisheries than the status of the fish stocks themselves. In the case of the toothfish certification, several objections were filed, including ones relating to IUU fishing and how well it could be controlled. In all cases, objections panels were formed, experts brought in and the assessments reviewed before final approval.

There is an on-going MSC project called 'Guidelines for the Assessment of Small-Scale and Data-Deficient Fisheries' which involves experts and representatives from developing and developed countries. The aim of the project is to develop methods of assessing these fisheries, which do not have the standard scientific data/research and management programmes, without compromising or lowering the sustainability standard. This project is a high priority for the MSC, which does not believe that a lack of data or information should preclude developing country fisheries from meeting the MSC standard and winning the right to use the ecolabel in the marketplace.

Box 1 Case Study — Ecolabelling, the MSC and IUU Fishing

A special case of sustainable fishing practices is the avoidance of IUU fishing. Clearly, a well-managed fishery is one in which extremely limited or no IUU fishing takes place. One can reasonably argue that a fishery cannot be a candidate for an MSC certification if it is plagued by IUU fishing. Therefore, when the South Georgia Patagonian toothfish fishery requested assessment for certification, many environmental groups were quite certain that this was a fishery unlikely to pass the criteria for certification under the MSC Principles and Criteria, because of the problems associated with toothfish fisheries globally (as discussed above).

The South Georgia longline fishery for Patagonian toothfish (*Dissostichus eleginoides*) is located around the islands of South Georgia and Shag Rocks, part of South Georgia and the South Sandwich Islands, an overseas territory of the UK located about 1,000 km east of the Falkland Islands. The fishery falls within the CCAMLR area and management is directed by CCAMLR (MSC, n.d.b). The fishing method used is bottom set longlines between May and August and management within the Maritime Zone is implemented by the Government of South Georgia and the South Sandwich Islands (GSGSSI).

The assessment process began in May 2001. The client, or body requesting the assessment, was the GSGSSI. The MSC website contains several documents which fully report on the assessment process. The GSGSSI showed that the toothfish fishery in that part of the CCAMLR area is sufficiently separate and distinct from the other toothfish stocks and that the stocks were well managed - the criterion necessary for certification. Other criteria were met and certification was awarded in March 2004, following the conclusion of a review by an independent objections panel.

The South Georgia toothfish fishery is a unique case within CCAMLR. For the purposes of this paper, it is worth elaborating on the new parameters within which the South Georgia toothfish fishery operates.

With the MSC certification of the fishery, the fishery was determined to be well managed. However, that by itself does nothing to prevent IUU fish from reaching the marketplace. While all fisheries certified to the MSC standard require rigorous chain-of-custody requirements to be met, the independent objections panel determined that additional stricter measures must be in place.

Within the MSC programme, the normal chain-of-custody certification programme is intended for verification that fish and fish products originating from fisheries certified to the MSC Principles and Criteria are kept separate from product from uncertified fisheries. For example, it is intended for the processor who takes custody of fish landed from the certified fishery which must be able to keep the processing line segregated if the firm is processing fish from both a certified and a non-certified fishery.

This is not the chain-of-custody certification that the objections panel, and subsequently the certifier, agreed needed to be in place in the South Georgia toothfish fishery. Instead, the certification of this fishery required that a certified chain-of-custody had to be established from the vessel to the port to prevent IUU fish from entering. Thus, the fishery was certified, but fish and fish products from the fishery would not even be considered for labelling as an MSC product until a joint fishery/chain-of-custody certificate was issued.

The issuing, initially of a fishery only certificate, rather than a joint certificate was a first for any fishery certified by the MSC since its inception, and directly a result of the significant problems with IUU fish (MSC, 2005). A joint fishery/chain-of-custody certificate was to be issued when the certification body responsible for issuing the associated fishery management certificate was satisfied that the system of tracking and tracing implemented by the fishery was sufficient to provide a guarantee that all fish and fish products invoiced by the fishery originate from the evaluated fishery. Until this joint fishery/chain-of-custody certificate was issued, fish and

fish products from the fishery were not allowed to enter into further chains-of-custody, and were not eligible to carry the MSC Logo. The joint fishery/chain-of-custody certificate was issued in May 2005.

Chain-of-custody Certification of MSC-certified South Georgia Toothfish

Here we discuss the chain-of-custody (CofC) certification that has taken place from vessel to landing, and the elaborate programme undertaken by the GSGSSI to ensure that no IUU fish enters into the chain, which allowed them to obtain this certification. We also compare the CofC with Catch Documentation Schemes to highlight why CofC is a more rigorous and effective method of preventing IUU fish from entering the marketplace. The main limitation of CofC in this case is the fact that the South Georgia toothfish fishery is only 4,000 metric tons, in comparison to a total (legal) fishery ten times that.

The chain-of-custody is operated by the GSGSSI and contracted organisations. Membership of the scheme is open to group members. These group members are companies or vessels with licenses to fish in the South Georgia Maritime Zone in the season for which group membership is sought. Applicants for group membership need to demonstrate, among other things, that: (i) they have no links to any companies or entities, either through direct or beneficial ownership, that have or are engaged in IUU fishing for toothfish; (ii) they have committed no serious infractions of CCAMLR or GSGSSI conservation measures or laws in the last season in which they fished; (iii) they have the necessary additional equipment to participate in the group scheme; and (iv) that this equipment is capable of operating under standard fishing conditions.

In addition to standard CCAMLR and GSGSSI requirements to carry VMS equipment, to have on-board observers and to be subject to inspection at sea by patrol vessels, group members must comply with other requirements of the group scheme. These include:

- inspection of vessels at designated ports prior to commencing fishing operations;
- automated labelling of all boxes of toothfish product to a pre-set specification, detailing all relevant aspects of capture and box contents;
- daily uploading of product data onto a central database; and
- inspection on cessation of fishing operations, including weighing of total catch and sampling of box labels and contents.

This scheme meets the requirements of the MSC chain-of-custody standard, i.e.:

- there is a clearly documented control system specifying procedures and responsibilities;
- inspections, VMS and recording of catches prevent any mixing of certified and non-certified product;
- catches are clearly and securely labelled; and
- Appropriate records are maintained.

The group scheme is responsible for the accurate labelling and tracing of toothfish product to the point at which it has been inspected on cessation of fishing activities. After inspection, chain-of-custody will be the responsibility of the individual group members and will be subject to a further separate certification assessments. The central database of product label information provides the bases for further verification of chain-of-custody integrity at these later points.

In a personal conversation with Harriet Hall, Director of Fisheries for GSGSSI, several more specifics of the program were laid out. Any vessel operator who expresses interest in joining the South Georgia Group Entity receives a letter. Once the vessel has joined the South Georgia Group Entity, beginning in 2004, it is required to undergo a beginning-of-season and end-of-season inspection, which was extended beyond the previous inspection to include verification that the vessel has no toothfish stored.

At the end of the season, or if the vessel has left South Georgia waters mid-season, a declaration of the amount of toothfish on board must be made to the Government Officer and checked against the daily catch reports to ensure accuracy. Immediately upon exiting South Georgia waters the vessels must proceed to Stanley, Falkland Islands for catch weighing. Once in Stanley, the trunks of toothfish are taken off the vessels and weighed. The trunks are then stored in cold storage/reefer containers until the holds are empty of all products (headed and gutted trunks). Sub-products, i.e. collars and cheeks, are not weighed as they are not used in calculating the amount of quota taken by a vessel.

Once all the products have been offloaded and weighed, the vessels are searched, random checks being carried out on bait and sub-products stored on board to ensure that all products have been offloaded.

The total amount weighed is compared with the total amount declared. In the 2004 season a discrepancy of +/- 5 % is allowed for. One vessel in 2004 was found to be over the 5% leeway allowed and was subsequently prosecuted and convicted. If the amount of product weighed corresponds with the amount declared, the ship is allowed to reload the product and leave the Islands.

The above procedure is a requirement for all license holders. GSGSSI appoints agents to carry out the weighing. Stevedoring and cold storage arrangements are the responsibility of the operators.

MRAG is contracted to GSGSSI to provide advice on fisheries management. In 2005, following discussion with Moody Marine, MRAG and the operators, GSGSSI introduced a scheme by which companies could join the South Georgia Group Entity, which applied for and was awarded chain-of-custody certification. A company has to fulfil a number of criteria to join the scheme - the majority of which are standard licensing conditions. In addition, they have to demonstrate that they have on

board the ability to weigh, report and label accurately their catch and product. In essence, this means they have to have accurate scales on board which are linked to the vessel's VMS system and are able to transmit data on a daily basis to a government database (operated by MRAG). Each day the vessel transmits to MRAG's database the weight, number and size of fish caught in each haul. This is linked to VMS data so that GSGSSI can tell the exact location of the vessel and can also cross-reference with the daily reports which the captain makes to the government officer at South Georgia. On the vessel the information is stored in a unique barcode which is affixed to each box of toothfish. Hence any one box has a unique barcode detailing the net and gross weight of the box, the number and size of fish in it, the vessel identifier (callsign and campaign season) and the haul number.

At the end of the season the vessel notifies that it is leaving the South Georgia Zone and makes its exit report to the government officer, declaring the quantity of fish on board. MRAG then emails the database to Stanley where it is transferred to a laptop computer. During the weighing process a random sample of boxes are selected for individual checks. This includes individual box weighing, hand-scanning of the barcode, and confirmation of the number of pieces of fish in the box. Boxes which have lost their labels are excluded from the chain-of-custody. Again, the government provides agents to weigh and scan the catch. Stevedoring and other services are the responsibility of the company.

The government then retains the database to be able to provide confirmation if asked by a retailer or other person further down the chain that the fish was caught in South Georgia under a valid license by a vessel which fished legally and responsibly. Because the government knows the haul number of each box it can even provide information such as a guarantee that no albatross or other seabird was caught in the catching of that particular box. In the 2005 season the only reported bird mortality was one gentoo penguin.

What about the rest of the chain?

Chain-of-custody does not cease at the port; it continues up the supply chain to the consumer before one can apply for the MSC logo license (MSC, n.d.c). This is equally true with South Georgia toothfish certification. Before any MSC toothfish will be seen by a consumer, chain-of-custody will have to be established not just from the vessel to the ports, but also from the ports further along the supply chain through the wholesale and up to the retail sector. IUU fish must not be able to make its way into the supply chain at any point. This makes the computerised documentation and database maintained by the GSGSSI extraordinarily important. Firms further up the supply chain and their ability to access the central database to verify product label information to provide the basis for further verification of chain-of-custody integrity at later points in the chain-of-custody is critical. All the details of this traceability need not to be included on the product label; some may be contained in company records. However, it must be verifiable.

Conclusions on the case of South Georgia toothfish

As with catch documentation schemes, traceability can also be circumvented and fish from non-certified fisheries can be placed, inadvertently or deliberately, into the marketplace. The question is: how easily can this be done? In the general case, the MSC requires that the chain-of-custody is verified with a certification audit. There are several types of audits, including a supplier audit, a first party audit, a legal audit and a certification audit. The certification audit has the greatest scope and goes to the greatest depth of all four types of audits (Derrick and Dillon, 2004).

A certification audit is conducted by third-party independent auditors to establish whether the criteria of specific standards are being met by the traceability system. Such audits are required by the MSC for all its chain-of-custody certification holders.

The key is that the third-party independent certifiers have no incentive to allow systems in which traceability is compromised to remain certified. The audit is conducted, results are analysed, and corrective actions are agreed to if necessary. If required corrective actions are not taken, certification is withdrawn.

Clearly, the chain-of-custody programme used by the South Georgia fishery is a much more rigorous and effective method of preventing IUU fish from entering the marketplace than the catch documentation schemes that currently exist. If such chains-of-custody could be applied in other fisheries, this would constitute a significant step forward in promoting sustainable fisheries.

Many costs were incurred in establishing the South Georgia fishery as it exists today, from enforcement through the elaborate chain-of-custody. The benefits are a sustainable fishery with a low level of IUU fishing and bird mortality. Some of the costs of the chain-of-custody system are borne by the public, while others are borne by the fishing industry. Clearly there were also costs incurred in the certification process of both the fishery and the chain-of-custody. It is less than a year since the fishery has been certified and it is too early to determine what the market benefits will be for certification, relative to the costs incurred. However, at a recent meeting in the US, representatives of the South Georgia fishery had buyers from several companies in the US and UK standing in line wishing to speak to them about sourcing toothfish from South Georgia because of their recent certification. With a total fishery of only about 4,000 metric tons it will require only a few sustainably-minded corporations to purchase this product and market it as MSC-certified product for there to be a potential market benefit. Given the demand for 'Chilean sea bass' (the common market name for Patagonian toothfish in the US) and the fact that many restaurants have taken it off their menus in light of its status, South Georgia may be well-positioned to market their product as the 'sustainable alternative'.

5.4 NGO pressure on retailers

Recently, environmental groups have increasingly been putting pressure on retailers to stop selling what they categorise as unsustainable species. These campaigns have used the media and various highly visible tactics and have been particularly successful in Europe. For example, Greenpeace recently ranked UK retailers on their sustainable seafood buying practices, in which Asda - a UK subsidiary of the US company Wal-Mart - ranked last. After the picketing of Asda stores and a rooftop demonstration at Asda headquarters, Asda released a detailed seafood sourcing policy which removes from its shelves several species that have been determined by Greenpeace and other NGOs to be 'unsustainable', including skate, Dover sole, ling and dogfish. Similarly, Sainsbury's

recently announced it would be removing unsustainable fish by withdrawing skate from its shelves and implementing a sustainable seafood policy. The Marine Conservation Society (MCS) of the UK released a full ranking of UK supermarkets' seafood sustainability, ranking Marks and Spencer at the top of the list, followed by Waitrose and Sainsbury's.

Fish that are being removed from the shelves of UK grocery stores are generally those species that appear on the Marine Conservation Society's 'Fish to Avoid' list - and are subject to the concerns discussed above in section 5.2. The ranking of the retailers on the MCS list is partly a function of how many MSC-certified products they carry, as well as how many 'Fish to Avoid' products they sell.

5.5 Conclusions on NGO initiatives

There is no question that environmental NGOs are having an impact on the world's fishing industries, particularly in recent years. However there is less certainty about their impacts on the fisheries themselves, given the level of over-capacity that puts a level of rigidity into many of the world's fisheries.

The wallet cards have gained significant publicity, but have probably not been able to influence consumer demand sufficiently to have any real impact on fisheries or aquaculture. That may very well change if, as in the case of the Compass Group USA, major buyers for foodservice begin to use the wallet cards as guides for purchasing decisions. The boycotts had limited impacts on the market, but the public relations campaigns have been significant enough to raise public awareness and at least in the case of swordfish may have helped change government policy on swordfish management. Public pressure on retailers, and the fact that retailers appear to be responding quickly to this pressure, indicates that retailers believe the message of sustainability is resonating with consumers. Environmental groups are effecting real change in sourcing seafood, using this approach.

Finally, ecolabelling, and the MSC programme in particular, has taken a few years to gain a foothold but with the announcement by US-based Wal-Mart (the world's largest retailer with €233.6 billion in revenues in 2005) that it will only sell MSC-certified fresh and frozen seafood within three to five years, it may well be coming to a point of significance. A number of large and commercially significant fisheries have been certified (Alaska salmon, Pacific cod, Alaska Pollock, New Zealand hoki, South African hake), and several additional commercially significant fisheries are in the assessment process. The first Nordic fishery to seek MSC certification was recently announced (the Norwegian saithe fishery) and its main reasons for seeking certification included the sustainable sourcing policies of German retailer Metro and Dutch processor Unilever, as well as Wal-Mart's above-mentioned decision (Evans, 2006a).

Of all these NGO approaches, only ecolabelling has the possibility of falling under any WTO rules. Only ecolabelling has in place the stakeholder consultations, the third-party independent certification, the accountability

and the transparency in its process. The other approaches subject the fishing industry to far more risk, uncertainty, and frustration as to what the standards are, the qualifications of those setting the standards, the consistency of the standards across organisations, the ability of industry to provide input into the decision of whether a product is determined to be 'sustainable', and the accountability of

those in the determination process. This is not to say that ecolabelling is perfect, and that the MSC programme in particular cannot be improved. But this discussion highlights that, from the perspective of the fishing industry, ecolabelling programmes may be preferable to the other alternatives in the determination of sustainability.

6 THE SEAFOOD INDUSTRY'S MARKETPLACE MEASURES TO PROMOTE SUSTAINABLE FISHING

A considerable amount of energy and resources are being expended in the seafood industry worldwide to promote the purchase of seafood from sustainable sources. This effort has attracted even more attention during the beginning of 2006 with the announcement by US-based Wal-Mart that it will sell only MSC-certified fresh and frozen seafood within three to five years. The world's third largest retailer, German-based Metro Group (with €55.7 billion in revenues in 2005) announced it is partnering with WWF to develop a sustainable seafood sourcing policy and will source more products certified under the MSC programme. Compass Group USA, the largest contract foodservice company in the US, announced a new seafood

procurement policy based on the Monterey Bay Aquarium's Seafood Watch list.

Why are these corporations pursuing business decisions to source sustainable seafood and/or promote sustainable fishing practices? One explanation may be the exercise of corporate social responsibility. For each of the corporations mentioned above, there may be other, more profit-related reasons as well.

The following is a partial list of European and American corporations which have posted information about their sustainable seafood purchasing initiatives on their websites. This is not intended to be a complete list but rather an illustration of the variety of approaches being taken by seafood retailers.

6.1 Unilever's Fish Sustainability Initiative (FSI)⁹

As discussed in the previous section, Unilever was at the forefront of establishing the Marine Stewardship Council, along with WWF. Among Unilever's stated purposes for co-founding the MSC was the concern that in a few years' time there would be few sources of seafood from which to supply products for its consumers - the MSC was therefore a risk management strategy for the firm. The Fish Sustainability Initiative (FSI) discussed here can be viewed as another risk management strategy, as well as a means of being or appearing 'green' to its consumers. In 1996, Unilever set a goal of achieving 100 percent of its sourcing from sustainable seafood sources by 2005.

Within the FSI, Unilever takes several actions. First, it uses sustainability as a criterion when selecting supply fisheries. Second, when a fishery has not yet been certified by the MSC, Unilever assesses the fishery internally on five sustainability criteria and applies a traffic light approach to progressively shift purchases towards more sustainable sources. The five criteria are based on FAO's Code of Conduct for Responsible Fisheries. Third, Unilever is working with fisheries and encouraging them to

adopt sustainability criteria. Fourth, Unilever is encouraging fisheries scoring high in the traffic light system to apply for MSC assessment and certification. Finally, it is selling MSC-labelled seafood products for the retail market throughout Europe.

Under its traffic light system, Unilever defines a lack of control as leading to illegal fishing, and cites as particular examples the Russian Alaska pollock and Russian and EU (Baltic Sea) cod fisheries as fisheries in which there is little control. Unilever is increasingly sourcing its whitefish from MSC-certified fisheries such as Bering Sea and Gulf of Alaska pollock, South African hake, and New Zealand hoki. Unilever has also intensified its purchasing of hake from Chile, which is under assessment in the MSC certification process, has reduced volumes from Argentina, and has stated that they stopped buying cod from the North Sea altogether as of 2000 (Asbeck, 2004). Recently, however, Unilever's Bird's Eye brand has come under scrutiny as having possibly sourced illegal cod from a Hong Kong-based firm of Russian fishing vessels (Ocean Trawlers) that was alleged to have engaged in illegal fishing in the Barents

Sea (Leigh and Evans, 2006). Unilever has responded to the allegations by saying that effective management of quota control must rest with the countries' authorities.

Unilever applies the Fish Sustainability Initiative to all fish and seafood-containing products that it supplies to the market. They estimate that about 50 percent of their total supply of fish comes from sustainably-managed fisheries. While they admit that they have not met their target that 100 percent of their fish would come from sustainable sources by 2005, they believe they have made excellent progress and are intent to continue to do so (Porritt and Goodman, 2005).

Unilever avoids inadvertent purchases of IUU fish through its strict and explicit policies that all its purchases must come from landings that have been checked by appropriate authorities and subjected to audits and checks by local authorities. In addition, Unilever does not engage in spot-buying of fish, but rather has 30 regular suppliers who use traceability systems that can trace raw material back to the captain for almost everything. This traceability was required within Unilever as company policy long before the sustainability initiative (A. Ausiello, Unilever's Supply Management Director, pers. comm.).

6.2 J Sainsbury plc – United Kingdom

In 2002, Sainsbury's committed to sourcing all its wild fish from sustainable sources by 2010 and works closely with the MSC (Sainsbury's, 2005). There are 12 MSC-labelled product lines currently available in their stores, but they only account for 1 percent of total fish sales. To address this, Sainsbury's is focusing on a number of key areas:

- Sainsbury's 'Fish Integrity Group' monitors progress toward the sustainability target and will address issues as they arise. It appears to be designed to encourage suppliers to obtain certification to the MSC standard in the long-term.
- Since 2002, Sainsbury's funded jointly with the MSC a three-year Tuna Conservation

Project to encourage the tuna industry to adopt sustainable fishing practices. A dedicated tuna fisheries officer, based in the MSC's Asia Pacific office, focused on identifying potential tuna fisheries as candidates for eventual certification to the MSC Standard for sustainable sourcing of tuna, which would include addressing the IUU problems. One albacore fishery in the US is seeking certification as a result of this initiative.

- Sainsbury's has been raising consumer awareness of fish sustainability issues and communicating the availability of sustainable alternatives to traditional British favourites such as cod and haddock.

6.3 Royal Ahold (Netherlands) – owners of Stop & Shop Supermarkets (USA)

Stop & Shop established the 'Ecosound' project in 2001 to distinguish itself as a thorough, trustworthy provider of seafood in its market (Ahold, n.d.). The project, a partnership with the New England Aquarium, uses the results of independent research on wild-harvested species to give preference to suppliers of sustainably harvested species, delisting suppliers with inadequate traceability systems.

As a result of the project, Stop & Shop has stopped selling Chilean sea bass, reduced purchases of orange roughly by 75 percent and increased sales of Icelandic cod by moving most of its purchases to two suppliers who are direct purchasers of this species. Stop & Shop has also shifted its purchases of New England cod to source from environmentally-friendly hook-and-line caught cod, (minimising by-catch of other non-targeted species and impacts on the ocean floor) and started promoting haddock as a replacement.

6.4 Whole Foods Market – United States

Whole Foods Market is the world's leading retailer of natural and organic foods, with 172 stores in North America and the UK. In 2001, Whole Food Markets launched 'Fish for Our Future', a sustainable seafood educational awareness programme, aimed at directing consumers to make the best environmental choices when purchasing seafood (Whole Foods Market, n.d.). In 2002, the company received a Regional Excellence award from the United Nations Environment Programme and the WILD Foundation in recognition of its work in this campaign.

Previously, in August 1999, Whole Foods Market discontinued its sale of Chilean sea bass in all its stores, hoping to send a message to all fish

suppliers and the public that it would respond proactively to overfishing of marine resources (Whole Foods Market, 1999).¹⁰

In 2003, Whole Foods Market provided a US\$225,000 grant to the MSC to retain a dedicated Fisheries Outreach Officer to identify more fisheries in the Americas which could be certified against the MSC Standards (Whole Foods Market, 2003). Whole Foods Market has been instrumental in promoting the MSC programme for sustainable fisheries in North America. It was the first American retailer to carry MSC-labelled Alaska salmon, and remains the only major American retailer to carry a variety of MSC-labelled seafood products.

6.5 Seafood industry views on IUU fishing

Recent opinion pieces in *Intrafish*, an online newspaper for the seafood industry, argue that the industry must take a more proactive approach in dealing with illegal fishing. In June 2005, Colin MacDonald, CEO of Clearwater Seafoods Ltd., Canada, stated "The industry must take a more proactive approach in ... actually taking part in reducing illegal fishing and management strategies" (Cherry, 2005). In another article the following month, Knut Eirik Olsen, European Editor for IntraFish.com, stated that "in the Barents Sea, there are examples of cod quotas being over-fished. In roundabout ways, these illegally caught fish find buyers, who in many cases have to know they are party to sustaining environmental criminality...Both

consumers and players in the industry will in the long run benefit more by not turning a blind eye to illegal fishing... It would be best for everyone." (Olsen, 2005).

Some in industry appear to be taking action. Cod buyers in Europe are evaluating options as to how to keep illegal cod out of their supply. As a result the German firm Frosta will purchase cod landed only in Iceland or Norway - where illegal cod is less likely to be caught or landed (Cherry, 2006a). Swedish frozen food firm Findus dropped a particular supplier after the company was linked with illegal fishing activity and ordered an audit of another supplier (Cherry, 2006b).

6.6 Conclusions on impacts of seafood industry measures

The following trends can be observed in the seafood industry's actions, primarily in Europe and North America, to improve the sustainability of their seafood businesses:

- increasing scrutiny of the seafood supply chain as to whether the seafood is from legal sources;
- announcements of pledges to source

seafood from sustainable sources or carry primarily MSC-certified seafood; and,

- dropping certain species from retail shelves due to their identification by some environmental groups as unsustainable.
- These trends are likely to continue in the foreseeable future. Their actual effectiveness in improving the sustainability of fishing industry

practices will depend partly on the extent to which the trends spread beyond North America and Europe to the rest of the world. Certainly, recent events in the European seafood sector are having an impact on European fishing industries, as their primary target, although it is too early to show any impacts on the fisheries themselves.

As big buyers shift their purchases away from one source to another because of sustainability concerns (e.g. from Russian pollock towards Alaska Pollock), there is no evidence to suggest that this results in reduced fishing pressure in the Russian pollock fisheries. Presumably the Russian pollock is simply finding an alternative market. Thus, the environmental impacts of these industry initiatives are limited by the size of the market they represent.

For the fisheries from which these companies do purchase, there are implications stemming from the degree of market power represented by some of these purchasing corporations. One concern is that as large buyers of seafood decide which species to buy or which fisheries to source from, they will exercise their considerable market power. Often suppliers to large corporations are many and more fragmented than the single, large buyer they face. Some stakeholders are concerned that these large buyers will not pay the suppliers, and ultimately the fishermen, a premium to cover the costs of maintaining a sustainable fishery (including in some cases the costs of certification) in order not to pass those additional costs on to their retail consumer. This leads us to the topic of consumers' willingness to pay a premium for sustainable seafood, which is discussed in the following section.

7 MARKET REWARDS FOR SUSTAINABLE FISHING

Thus, we return to the question of whether market benefits exist for sustainable fishing practices, such as obtaining MSC certification. There are two possible levels of market rewards: corporate demand for fish sourced from sustainable fisheries (i.e. market access), and consumer demand for seafood from those same sources. The conclusion from section 6 is that the first level exists; there is clearly a corporate demand, at least from some corporations, to source fish from sustainable sources. This issue of market access is an important one for fisheries, as illustrated by the case of the Norwegian saithe fishery seeking MSC certification to ensure market access. If fisheries industries fear that without sustainable fishing practices they will be unable to sell their products to firms such as Frosta, Unilever, Sainsbury's, Whole Foods and Wal-Mart, then that presents a very real market reward for sustainable fishing, with or without a premium for sustainably-harvested products. Wal-Mart's decision will force its supply fisheries to seek certification and will push many fisheries

towards more sustainable practices, in order to remain suppliers to this retail giant.

What is less clear is whether such corporate demand is driven by consumer demand for sustainably-sourced seafood, or whether corporate supply of such seafood is driving consumer demand for these products. Taking the question one step further, does consumer demand for sustainably-sourced seafood even exist?

This section will first examine the concept of corporate social responsibility, to consider why corporations act in the manner described above, whether their motivations are based on reality, and how other corporations can be encouraged to follow their example. We will then turn to look at the consumer, to examine the question of whether consumer demand exists for sustainably-sourced seafood and to find out what consumers have to say about their preferences for sustainable seafood.

7.1 Corporate Social Responsibility

Portney (2005) defines corporate social responsibility (CSR) as a consistent pattern of private firms doing more than they are required to do under applicable laws and regulations governing the environment in the communities in which they operate. After an extensive review of the literature, Portney concludes that firms most likely pursue CSR because it is profitable.¹¹

First, CSR can improve demand conditions. For example, some consumers may reward firms practicing CSR by being more loyal to them. This may take the form of higher willingness to pay for 'green' products or buying more from green firms whose prices are the same than from other firms selling seemingly identical products. However, the empirical evidence in this area is mixed (Margolis and Walsh, 2001).

Second, CSR can improve factor supply conditions. For example, actively promoting sustainable

fisheries may reduce the risk of supply disruptions and lower the expected future costs of sourcing fish. It is not unreasonable to assume that it was in Unilever's self-interest to help establish the MSC. As one of the world's largest buyers of fish, the strategy to motivate the fishing industry and management community to improve the sustainability of fisheries is one means of ensuring a reliable supply of fish at reasonable cost in the future. Given Unilever's strong market position, buying only from sustainable fisheries sources is an effective way to promote this strategy.¹²

Another possible reason behind firms adopting corporate responsibility is to avoid the costs associated with the bad press of buying illegally caught fish. Portney also notes that practicing CSR may result in more favourable treatment by regulators and local communities, and may even make it possible for firms to avoid more onerous

regulations, or influence the regulations in ways that raise the cost for competitors.

What is not clear from the evidence is the extent to which CSR efforts can be harnessed to support and promote sustainable fisheries. Why do some firms (e.g. Unilever, Sainsbury, Waitrose, and others) actively promote sustainable fisheries, and others do not? Is it because the promoting firms are large and have sufficient market power to pass on the cost to consumers? Are the firms

that are not promoting sustainable fisheries in highly competitive sectors where they find it difficult or impossible to pass on or incur these costs? Or, as Porter and Kramer suggest, are there opportunities for CSR that are being overlooked by the industry? Perhaps ways can be found - by reviewing what is done in other industries - to foster and strengthen CSR efforts in sustainable fisheries. Can and/or should fisheries laws and regulations be changed to reward the industry efforts to promote sustainable fisheries?

7.2 Consumer demand for sustainable seafood

It is worth looking at the results of research on the market benefits of ecolabelled seafood, to see if a premium is being paid and if consumer demand exists. The answer to the first question - whether a premium is being paid - is not clear and certainly varies by fishery. Part of the difficulty in answering the question is that seafood markets are so complicated and are influenced by so many different factors that it is hard to isolate the impacts of an ecolabel from other factors, such as supply effects, competition from other species, changes in market conditions, market dynamics and seasonality. In addition, there is little or no documented evidence on whether a premium that might be present at the retail level is transmitted down the market chain to the ex-vessel price. Thus, the answer to the first question must instead be discerned from evidence drawn from the answers to the second question - whether consumer demand exists.

There is paucity of available market data on which to conduct analysis of actual consumer demand for ecolabelled seafood - much of the data at the retail level is proprietary. As a result, most of the analysis to date has measured consumers' hypothetical demand for ecolabelled seafood. With the exception of Jaffrey et al. (2001), studies of reactions to seafood ecolabels have assessed consumer choices when faced with two samples of the same species, e.g. two samples of salmon with one ecolabelled and the other not (Wessells et

al., 1999; Johnston et al., 2001). Results have indicated that consumers prefer ecolabeled products, as long as the price premiums are not large. Jaffrey et al. (2001) investigated consumer preferences for ecolabelling in the UK and Denmark and varied the products over a wide range of fresh and processed products. Again, consumers generally preferred labelled products to unlabelled products. Johnston et al. (2001) analysed consumer demand for ecolabelled seafood in the US and Norway and found a demand for ecolabelled seafood when consumers were presented with choices between ecolabelled and non-ecolabelled products of the same species, although consumers in Norway were more price sensitive than those in the US. Johnston and Roheim (2005) suggest that while consumers consider overfishing sufficiently important to cause them to contemplate changing the species of fish they buy, they are unwilling to choose a less-favoured species (i.e. to sacrifice taste) based solely on the presence of an ecolabel.

Evidence from the international marketplace points to the level of actual consumer demand for ecolabelled seafood. For example, MSC-labelled products are sold in 24 countries, mostly in Europe, but also in the US, Canada, Australia, New Zealand, Singapore, the United Arab Emirates, Japan and South Africa. The number of MSC-certified products available varies from country to country, from only a few products in some countries, to over 60, in Switzerland.

As of mid-2005 approximately 250 MSC-certified products are available worldwide, up from 195 in 2004 and 105 in 2003 (Alex Hickman, MSC logo licensing manager, pers. comm.).

However, the number of labelled products sold per country is not necessarily a good indicator of market success of the MSC programme. If this were the case, one would be led to believe that the US market for MSC-labelled products is very successful. However, this is not so. The only major supermarket chain which sells MSC-labelled products in the US is Whole Foods Markets, a nationwide chain of natural and organic foods, although Safeways, another supermarket chain, does sell some MSC-labelled smoked salmon. Of the currently certified MSC products, Whole Foods sells Alaskan salmon and New Zealand hoki, in season. However, as a proportion of the total US seafood market, it is a tiny fraction. Similarly, while roughly 85 percent of the UK seafood market is covered by those supermarkets that carry MSC-labelled products, for example, just 1 percent of Sainsbury's total fish sales are accounted for by MSC products (Porritt and Goodman, 2005). This scenario is probably similar in other UK supermarket chains.

Consensus within the MSC and seafood industry seems to be that a critical mass of species carrying the MSC logo is needed in order to attract the attention of consumers. Up to this point, most of the fisheries certified by the MSC have been small-scale local fisheries. The only large-scale commercial fisheries have been the Western Australian rock lobster, Alaskan salmon and New Zealand hoki. Now that the Bering Sea and Gulf of Alaska pollock, Bering Sea longline Pacific cod and the South African hake fisheries have been certified there are significant quantities of fish available to the world market. Furthermore, with the ongoing assessments of Chilean hake, Oregon Dungeness crab, Pacific halibut (Alaska and British Columbia), and sablefish (Alaska and British Columbia), additional quantities and, importantly, variety will become available. This is critical to obtaining the consumers' attention, interest and willingness-to-buy.

In Europe, it is critically important to provide the consumer with a sustainable whitefish alternative to lure them away from their old favourites, cod and haddock, at a palatable price. This lesson was learned the hard way by Frosta and Unilever as they tried to market hoki as that alternative in the past couple of years.

The German firm Frosta launched a marketing initiative in 2003 to use only MSC-certified fish for their own-brand product (Porritt and Goodman, 2005). As of 2003, this limited their menu to hoki as the only whitefish product available to them. According to the report, Frosta invested significant time and money in developing hoki-based products. Although hoki is generally sold at a higher price in Germany anyway, the higher cost caused by having to adjust their processing lines were passed on to the consumer as a ten percent increase in the price of the final product. Frosta had assumed that consumers would be willing to pay a premium for sustainable seafood products coming from well managed fisheries, but miscalculated. Their market share dropped by more than 50 percent and the firm reportedly almost went out of business.

Unilever also launched an ambitious marketing plan for hoki in the UK, hoping to cause UK consumers to substitute away from the more traditional meals of cod and haddock. In early 2002, Unilever, through its brand Bird's Eye, launched two hoki steak products. Given that "hoki" is rather an exotic name, the package referred to it as "New Zealand hoki" and had an "Ocean Friendly" logo and the MSC logo with a short explanation. The words "an excellent alternative to cod" also appeared on the package.

Unilever's recommended retail prices for the hoki product were one-third lower than the equivalently-sized cod product. Unilever had in-store promotions of its products, and initially about 13 percent of the cod steak buyers moved to hoki. However, according to their market research, most of those people moved back to cod once they had bought and tried the hoki steaks, most likely because of the stronger taste of hoki compared to cod. As a

result, throughout 2002 retailers removed hoki steak products from the store shelves (Porritt and Goodman, 2005).

However, consumers in the UK may start to shift towards sustainably-harvested species, with the potential MSC certification of Bering Sea longline cod, Chilean hake (in addition to South African hake), Pacific halibut and sablefish,

all whitefish products of varying levels of substitutability with Atlantic cod and haddock.

Finally, successful completion of the on-going assessment of an albacore tuna fishery in the US could have a potentially large and significant impact on consumer demand for MSC-labelled fish, both in the US and in Europe, where tuna is in demand.

7.3 Conclusions on market rewards for sustainable fishing

Corporations are beginning to demand more seafood from sustainable fisheries. What is as yet unclear is whether they are acting from a sense of social responsibility or because consumers are demanding such products, or a combination of these two factors. Clearly the environmental NGOs are playing a role in both corporate and consumer decision-making by accelerating the move toward the demand for seafood from sustainable fisheries. If corporations are acting from the perspective of corporate social responsibility, then policy-makers should explore opportunities to provide incentives for corporations to continue such behaviour, as long

as this behaviour is conducted in a transparent and non-discriminatory manner. Research conducted to date indicates that consumers are willing to pay a premium for sustainably-harvested seafood; however, too few products have been available on the market as yet to determine what actual consumer demand is for such products. Anecdotal evidence thus far is favourable, but until larger quantities and greater variety are sold in the market it will be difficult to definitively assess the market benefits to the fisheries of, for example, ecolabelling programmes such as the MSC.

8 IMPLICATIONS OF TRADE AND MARKETPLACE MEASURES FOR DEVELOPING COUNTRIES

In general, trade and marketplace measures implemented by RFMOs, NGOs or the private sector to promote sustainable fishing do not intentionally distinguish between developed and developing country fisheries. However,

the fisheries identified as unsustainable often include some in developing nations. This section will focus on the implications of these measures on developing countries.

8.1 RFMO measures

RFMOs that require catch documentation schemes, vessel monitoring systems or other management tools impose costs on member nations which, presumably, developed nations are better able to shoulder than developing nations. In general, it appears that each RFMO assumes that each member nation will individually bear the costs of complying with the regulations, i.e. there is no cost-sharing among member nations. In order to improve the effectiveness of catch documentation schemes, vessel monitoring systems and other aspects of RFMOs, the leadership of these organisations may need to consider a cost-sharing mechanism in which the wealthier nations subsidise the costs of the less-wealthy nations in implementation of the enforcement.

Such cost-sharing mechanisms are not without precedent. CITES instituted a system of financial and capacity-building assistance available to developing countries to meet

its objectives. This system of country- and species-specific assistance could be emulated by RFMOs (Reeve, 2002). Assistance has been provided for capacity-building in enforcement within nations, including training of individuals, purchase of capital equipment and development of infrastructure. The assistance has been provided by international programmes such as the United National Environmental Program, the World Customs Organization and Interpol, the World Bank, and the International Network for Environmental Compliance and Enforcement. NGOs such as the IUCN-The World Conservation Union and WWF have also contributed.

The wherewithal to generate sustainable fisheries may lie partly in technology transfer. Technology to participate in vessel monitoring systems or on-board computerised traceability systems could be donated by industry or private foundations participating with industry in sustainable sourcing campaigns.

8.2 NGO and industry measures

Developing countries have several concerns related to NGO efforts to promote sustainable fisheries, and to ecolabelling in particular. As discussed above, one concern stems from the manner in which 'sustainability' standards are set. The determination of 'sustainable' varies among the different marketplace measures used by NGOs. In the case of consumer boycotts and seafood guides, it is usually groups from developed countries that decide on which actions to take and how to categorise fish as 'sustainable' or 'unsustainable'. This decision-making is not necessarily an open and transparent process.

Developing countries are at a disadvantage in several respects. First, if fishing industries in developing countries believe that consumer boycotts or seafood guides are unfairly labelling their fisheries as unsustainable, there is generally less funding to mount a publicity campaign against these measures. Second, the definitions of 'sustainable' developed by NGOs are generally much stricter than what is commonly accepted by RFMOs, the FAO or even national governments. Thus, assuming a developing country is aware of what a particular NGO 'sustainability' standard is for

its fisheries, it is unlikely to have sufficient resources to cover the costs of meeting the standard anyway.

The setting of the Principles and Criteria of the MSC involved a relatively high level of transparency and participation. Extensive consultations took place around the world in the development of the Principles and Criteria and the drafting of the standards. Since its inception, the Technical Advisory Board of the MSC has included experts from developing nations. The TAB advises the MSC on the setting of the MSC Standard and continually reviews the Standard.

However, developing nations remain concerned about the level of transparency in the MSC, and about the ability of their fisheries to meet the current Standard. As the Standard is written, it relies heavily on the collection of data - e.g. for determining the status of stocks. The collection and maintenance of data is a very difficult and costly process for developing country fisheries, which may make it impossible for some of these fisheries to ever meet an ecolabelling standard. It was partly due to these kinds of concerns that the FAO drafted its guidelines and the MSC launched its project on Guidelines for the Assessment of Small Scale and Data Deficient Fisheries, as mentioned in section 5.3.3.

8.3 Conclusions on developing country concerns

Developing countries have significant and often legitimate concerns about the trade and marketplace measures adopted by RFMOs, NGOs and the international seafood industry. RFMOs, funding agencies, NGOs and corporations are working with developing countries to address some of these concerns, but there is little doubt that more could be done. The MSC Guidelines project is a step in the right direction. Some of the developing country concerns might be addressed through the WTO,

Other developing country concerns regarding the efforts of NGOs and the seafood industry to source only sustainable seafood include the possibility that they will hinder market access by developing country fisheries, prevent products from these fisheries from obtaining any potential price premia available to sustainable seafood products, and reduce any comparative advantage developing countries might have in supplying seafood to the global market.

A response often offered up by developing countries to these issues is that there ought to be an intergovernmental agreement, usually suggested to be run by the FAO, on the criteria for sustainable fisheries. Presumably then, the agreed criteria would become the standard against which the criteria of NGOs and corporations would be measured. This approach may be appealing to some, but may result in the dilution of the sustainability criteria. As the world has already witnessed, a lack of political will to enforce international fishing agreements, and the need to dilute international agreements in order to obtain consensus, has created some of the current sustainability problems. Finding international agreement on specific criteria for a sustainable fishery, for both data-rich and data-poor fisheries, would be a very lengthy process that may not produce a conclusion of sufficient credibility for the different stakeholder groups involved.

via negotiations over ecolabelling, for example, while others could be addressed more directly through technical assistance and cost-sharing in fisheries enforcement. The determination of sustainability criteria by international governmental bodies (as proposed by some developing countries) is unlikely to produce criteria that are sufficiently credible to NGOs, the seafood industry or scientific communities to replace the current criteria used as standards for sustainable seafood by these groups.

9 FINAL CONCLUSIONS AND RECOMMENDATIONS

This section includes some final comments and conclusions on the various trade and marketplace measures in use to promote sustainable fishing, and a set of recommendations for making these measures more effective. As well as focusing

on the measures taken by NGOs, the seafood industry and RFMOs, we look at the particular measures taken to reduce the incentives for IUU fishing and trade.

9.1 NGO measures – Ecolabelling Programmes

- Voluntary ecolabelling programmes for sustainable fish, meeting the guidelines set by the FAO, should continue and expand, in order to provide market-based incentives to encourage sustainable fisheries management worldwide, with the potential to reward those to engage in responsible fishing practices rather than punish them. The MSC should make every effort to reach 100 percent consistency with the FAO guidelines.
- To the extent that the lack of participation of developing countries in the MSC ecolabelling programme is due to a lack of monetary resources, concerted efforts on the part of governmental bodies, NGOs, the seafood industry and private foundations should go into providing these countries with the resources they need to: (i) meet the MSC Standard (or an equivalent) for as many fisheries as feasible; (ii) apply for assessment against the MSC Standards; and (iii) if certified, maintain certification in the years to come. Efforts to define criteria for sustainability in data-poor fisheries should continue.
- Governments should support the efforts of ecolabelling organisations by purchasing ecolabelled products in government procurement programmes for seafood products, or other means.

9.2 Seafood industry measures – Corporate Social Responsibility

The seafood industry should continue and increase their practice of corporate social responsibility to encourage fisheries which practice responsible management. This

recommendation, rather than being one of governmental action, is one of suggesting governmental inaction - let the market work.

9.3 RFMO measures

Each of the trade and marketplace measures undertaken by RFMOs is essential to the functioning of these organisations. The problem, as discussed above, is that the measures do not always work as well as envisioned. Much has been written on how to improve catch documentation schemes - removing government corruption and improving vessel monitoring systems would be a start. Part of the problem is the self-policing of the easily forged documentation system, since the documents are usually paper documents with

no central database or computerised warehouse of information on product movements. A big improvement, according to industry members we spoke to, would be to institute independent, third-party certification of chain-of-custody systems - instituting a system similar to the South Georgia toothfish fishery in effect. Even if this system is not perfect, it would be an enormous improvement over the current state of affairs in catch documentation schemes. If such chains-of-custody could be applied in other fisheries, this would constitute a significant

step forward in effort to promote sustainable fisheries. We therefore recommend that:

- A governmental body such as the FAO or OECD should pursue the feasibility of voluntary chain-of-custody certification on the part of responsible fishing industries worldwide, and interest on part of buyers internationally in participating in such programmes.

The on-going discussions at the WTO concerning the relationship of the WTO and MEAs have important implications for RFMOs. We therefore recommend that:

- The international fisheries management community should be involved by contributing to these discussions. Given that WTO discussions and negotiations are not open to outside interests such as representatives of RFMOs, NGOs, or other relevant stakeholders, at a minimum, the government representatives to the WTO must maintain an open and transparent portal for input by the RFMOs. Preferably, the RFMOs would be solicited to provide input to submissions by governments to the CTESS and CTE on any possible amendments to WTO rules.

9.4 Measures to reduce IUU fishing and Trade

The following recommendations, while not particularly novel, are consistent with and supported by the OECD framework for analysing the incentives of IUU fishing and trade (OECD, 2005). Each measure is directed at either reducing revenues, increasing operating costs, or increasing capital costs from IUU fishing and trade. The strength of the proposed measures is that they form an integrated set of measures that weaken IUU incentives to the maximum extent. We therefore recommend that:

- Catch and trade documentation and traceability schemes (DTSs) should be applied to all of the principal IUU species. Such schemes should cover all phases of production, trade and marketing; and the basic design of the documentation on catch and trade should be harmonised and/or standardised in accordance with the principles developed by FAO (FAO, 2002). We further recommend that these schemes be strengthened to the extent possible to make them more effective.¹³

There is a growing practice of creating and publicising lists of vessels that are engaged in IUU fishing. The use of listing can reduce the incentives to participate in IUU fishing and trade, and should be encouraged. That said, however, there is considerable room for expanding and improving such listing efforts. We propose that

comprehensive lists of both legitimate and illegitimate entities be maintained, and the lists be used to maximise the deterrent effect of enforcement measures. Specifically, we propose the establishment of three lists of all entities engaged in the production and trade and marketing of IUU-related species; each entity would be placed on the list based on the extent to which it complies with all laws and regulations related to these species. The appropriate management authorities would set the criteria for membership on each list and either maintain the lists or delegate the maintenance of the lists to another party. The specific recommendation is as follows:

- Establish an international white or green list of production, trade and marketing entities (firms, ports, and perhaps countries). An entity would qualify for the white/green list by: (i) participating in a DTS; and (ii) maintaining an unblemished record of compliance with the DTSs and all other laws and regulations. In addition, to be on the white/green list, an entity must agree to be subjected to random audits, and to implement any compliance programme or measures as required by appropriate fishery or trading authorities. In effect, the onus is on an entity to demonstrate beyond reasonable doubt that it is in full compliance with all of the

relevant laws and regulations that govern the production, trade and marketing of IUU fish species.

Categorising regulated entities by their compliance behaviour provides opportunities to generate greater compliance for limited levels of monitoring and enforcement. Russell (1990) applied game theory to the environmental enforcement problem to develop what is popularly referred to as the heaven, hell and purgatory model of cost-effective enforcement (Russell, 2003). We propose to apply a variant of that approach to the entities engaged in the production, trade and marketing of IUU-related fisheries. By categorising the entities according to their compliance behaviour, it is possible to maximise the incentive to comply with regulations. Implementation of this approach involves the following four elements:

- Specify and establish a set of privileges to which white/green list entities are entitled. For example, importing countries should allow imports only by/from entities on a white/green list, or should apply only minimum restrictions (e.g. tariffs, documentation, inspections) on imports from these entities. White/green list entities would have more freedom/flexibility of movement and other forms of operating their business. The operating principle is to give white/green list entities an efficiency or cost advantage over non-white/green list entities.
- Establish additional 'yellow' and 'black or red' lists of entities. An entity with a modest or slightly blemished record of compliance (with the terms of the white/green list) would be placed on the yellow list. Members on the yellow list can continue to participate in the production, trade and marketing of IUU species, but are not eligible for certain privileges (see below).
- Yellow list entities remain entitled to some, but not all, of the specified set of privileges. In other words, they may continue to produce, trade and/or market the IUU species; but they do not have the full freedom/flexibility of operations available to white/green list entities. They are also subject to greater scrutiny and self-reporting than those entities on the white/green list. As a result, they are cost-disadvantaged relative to the white/green list entities. Yellow list entities may earn elevation to the white/green list by demonstrating suitable compliance for a specified period of time.
- Red or black list entities have none of the above-mentioned privileges; and additional measures are imposed on them that are intended to impose higher costs and/or lower revenues. Such additional measures may include those identified by the OECD Committee on Fisheries:¹⁴
 - Banning, or otherwise restricting imports of IUU-related species from specified Flags of Non-Compliance states.
 - Make any and all trade and marketing of IUU fish an offence; this could apply to the importing, exporting, transporting, selling, receiving, acquiring, possessing or purchasing of IUU fish.
 - Restrict accessibility to goods and services for blacklisted IUU operators (such as fuel, landing, insurance, communications and navigation services).
 - Make flag states legally liable for uninsured, or inappropriately insured, vessels.
 - Restricting outward investment rules on IUU vessel capital, to attempt to prevent investments in IUU fishing operations.
 - Restrict banking laws use of IUU vessel capital as collateral.
 - Make flag states legally liable for any non-compliance with safety and pollution control requirements, and/or any damage resulting from the lack of appropriate maintenance.

As explained by Le Gallic (2004) and OECD (2005), all of these actions strengthen the disincentives to participate in IUU fishing.

Finally, given the increasing importance of China in seafood processing and trade and the risks of this driving unsustainable fishing and IUU fishing in particular, we recommend that:

- Concerted efforts should be made to ensure that China plays an active role in international efforts to enhance sustainable fishing, by becoming a party to RFMOs;
- Incentives should be provided for China to participate in the traceability of IUU fish, with effective enforcement to ensure compliance;

ENDNOTES

- 1 MRAG (2005) estimates that IUU fishing may range from 5 to 19% percent of the global landed catch - a range equivalent to US\$ 2.4 to 9.5 billion of first-sale value. Various forms of IUU fishing occur in nearly all fisheries of the world's oceans and all regulated species are taken by IUU fishing, to varying degrees. However, most studies identify tuna, shark, shrimp, toothfish, cod, sturgeon, abalone, and beche-de-mer as the principal high-value species taken by IUU fishing. There are regional variations in IUU fishing. MRAG found that IUU fishing in Africa centres on shrimp, demersals and tuna, in the Southwest Pacific on tuna and invertebrates, and in Latin America on crustaceans.
- 2 Traceability is the ability to trace, follow and uniquely identify a product unit or batch through all stages of production, processing and distribution. It shows the path of that unit or batch through all the intermediate steps of the product flow and the supply chain.
- 3 Flags-of-convenience are flags of one country, flown by a ship owned by a citizen of another country.
- 4 This section is taken from Tarasofsky (2003).
- 5 This section is partly taken from Wessells et al. (2001).
- 6 See for example Monterey Bay Aquarium (n.d.), Oceans Alive (n.d.), Audubon (n.d.) and Marine Conservation Society (n.d.).
- 7 It is possible that rival ecolabels may begin to appear in the near future. However, at the moment the MSC is the only large and international ecolabelling organisation for capture fisheries in existence and it is logical to focus on it.
- 8 The full reports on these certifications are available at the MSC website, www.msc.org.
- 9 Unilever announced in February 2006 that it is divesting itself of a majority of its frozen foods business in Europe, including its Birds Eye and Iglo brands of seafood. However, a spokesman for Unilever said that a commitment to sustainable fishing and to the MSC will be expected of the buyer of this business. (Evans (2006b)).
- 10 Note this move was made before the formation of the MSC and the certification of the South Georgia toothfish fishery. There is every reason to believe that if there is sufficient supply and demand, Whole Foods Markets could conceivably carry MSC-certified South Georgia toothfish in its stores if and when it becomes available on the international market.
- 11 Porter & Kramer (2002) report that corporate philanthropy is increasingly seen as a form of public relations or advertising that can be used to improve firms' competitive position. They develop a practical approach to implementing what they call 'strategic philanthropy.' See also Reinhardt (2000) and Lyon & Maxwell (2004).
- 12 Factor supply conditions may also be improved by firms practicing CSR, since they may find it easier to recruit skilled or highly motivated employees; and the employees of these firms may be more productive because of the good will they have for their employer and the work that they do.
- 13 The National Environmental Trust, a US NGO, proposed a set of specific measures which would make CDS more effective. These measures include: (i) using scientific names of species rather than market names on import documentations at customs; (ii) prohibiting the importation of products simply identified as 'frozen fillets';(iii) accepting product only from countries that have assigned 10-digit harmonized shipping codes for seafood products; (iv) accepting only shipments using electronic catch documentation rather than paper documentation; and (v) requiring valid catch documents to accompany fish to final destination demonstrating unbroken chain-of-custody. (NET, 2004).
- 14 The measures listed are among the trade and market-related actions identified by the OECD Committee for fisheries at its workshop on IUU Fishing Activities in April 2004

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The High Seas Task Force (HSTF) was formed following a meeting of the Round Table on Sustainable Development at the OECD held on 6 June 2003 which focused on how to minimise illegal, unreported and unregulated (IUU) fishing on the high seas and provide for orderly management of high seas fisheries. The goal of the HSTF is to set priorities among a series of practical proposals to apply significant leverage to the problem of IUU fishing on the high seas. The end result is a pragmatic and prioritised action plan that is both analytically sound and politically saleable and will act as a catalyser. The final report "Closing the Net: Stopping Illegal Fishing on the High Seas" drew on a series of studies and expert panels to identify the legal, economic, scientific and enforcement factors which permit IUU activity to thrive and then determine the key points of leverage that can be brought to bear at national, regional and global levels in order to minimise the incentives to carry out IUU fishing on the high seas.

For further information and to access the report, see <http://www.high-seas.org/>.