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Seafood Trade and Market Access: Threats and Opportunities

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Humans have been trading seafood and seafood products since time immemorial. This trade has commonly crossed national boundaries, but the scale of trade has increased markedly in the past twenty years.

By and large the distilled view of nations is that trade is good and there has been considerable international pressure to encourage and facilitate trade. As trade has increased, so too have the debates over the costs and benefits due to the changes to incomes, wealth distribution, cultures and social cohesion that this trade has driven.

Whilst trade has undeniable impacts on natural resources such as fisheries, it is not the sole and ultimate reason for the perilous state of many fisheries in the world. The sustainability of fisheries is ultimately dependent on good management, whether trade occurs or not.

The impacts of the increasing trade in seafood need to be seen within a wider context of societal change and the capacities of communities to embrace and manage such change. The question over whether increased trade poses an opportunity or threat depends on the perspective of those who stand to gain or lose — either financially or in some

other way.

The tools used by societies to manage the impacts of trade-induced change are many and varied. This paper explores some of the well-known tools such as tariffs, subsidies, phytosanitary measures, international agreements and the like. It places a particular focus on the impacts of such measures on developing countries.

The paper also explores some of the increasing range of private sector measures which either enhance or constrain trade. These measures have arisen as the private sector has sought to either address issues of governmental failure or exploit real or perceived demands from consumers.

Finally, in seeking to address the issue of whether trade is a threat or opportunity, some speculation about the future trade in seafood and the development of measures to control and harness it are discussed.

1.0 Introduction

The Food and Agriculture Organization (FAO) of the United Nations has documented the rapid expansion of international trade in seafood over the past twenty years. The value of exports has grown from \$US7 billion in 1976 (Josupeit and Franz 2003) to \$US58 billion in 2002 (Lem 2004).

Net export revenues for developing countries grew from less than \$US4 billion to \$US15 billion over the same period. Some nations have always been significant traders of seafood and seafood products but the increase in the past few years has been due to the rapid expansion of catches in the waters of developing countries and the export of seafood to developed countries. Some 22 million metric tonnes (MMT) of seafood entered the world trade in 1996, up from 8 MMT in 1976 (Deere 2000).

Dommen (1999) estimates that some 40% of world seafood now enters international trade (compared

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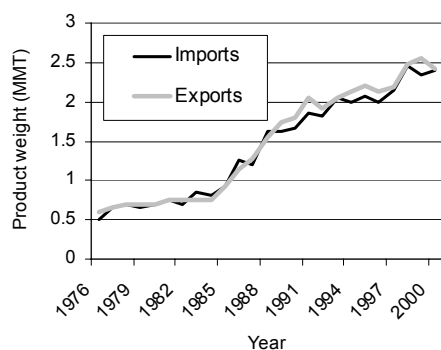


Figure 1. Growth in tonnage of seafood entering trade 1976 to 2000 (FAO 2002)

to 10% of meat — Delgado *et al.* 2003) and the proportion contributed by developing countries has grown from 40% to 50% over the period 1980 to 2001 (FAO 2002). Most trade is between developed countries and other developed countries, or between developing countries and developed countries (Deere 2000). Most seafood (80%) is exported to Japan (22%), the US and the European Union. The trade between developing countries is dominated by fishmeal and fish oil for use in aquaculture.

Aquaculture production has grown spectacularly from 15% of world seafood production in 1990 to 29% in 2001. The bulk of this increase has occurred in the People's Republic of China and the production is dominated by freshwater fish (Subasinghe *et al.* 2001). Whilst aquaculture is one of the few primary industries in many countries that is expanding (and is the main hope for satisfying the growing demand for seafood) this growth has not been without significant environmental impacts in some areas.

Co-incident with the increased trade in seafood has been an alarming deterioration in the state of many of the world's fisheries. Over the past few decades the FAO (FAO 2002) has documented a gradual increase in the number of fisheries listed as overfished (currently 18%), and there is concern that many of those that are currently listed as fully fished (47%) are merely in a state of transition to an overfished status. As catches have risen (now 82 MMT) so too has the area of waters fished. In 1980 the high seas (waters outside of the 200 nautical mile zone claimed by maritime nations) provided 5% of the world catch, a figure which had grown to 11% in 1990 (Deere 2000), thus creating a variety of management and enforcement issues which continue to generate concern, especially in the context of regulating trade.

The loss of food fish is only one part of the equation. Fishing has its own impacts, and there is great concern in many quarters over the effects of fishing on certain groups of species such as turtles and seabirds, as well as more general ecosystem alteration (FAO 2001). In coastal areas, fishing pressure adds to a wide suite of pressures on waterways (estuaries and rivers) such as pollution, dams, wetland drainage and urban development. Indeed, coastal development is proceeding at such a pace in some countries that the future of many inshore fish stocks is bleak.

1.1 What is driving increased production and trade?

A myriad of factors have contributed to the growth in seafood production over the past few decades. Despite the increasing number of overfished stocks and clear limits to the productive capacity of wild stocks, demand has grown as a result of both global population growth and gradual increases in spending power. The growth in per-capita consumption is most pronounced in developing countries, especially Asia, whereas consumption in developed countries has largely remained static although this may cover up a shift to higher-value products as incomes have risen.

Technological innovation has been a significant factor in both capture fisheries and aquaculture. For the capture sector, technology has enabled fish to be produced far more efficiently than in the past, resulting in lower costs of production but not necessarily more fish. However, it is in the aquaculture sector that these efficiencies have translated into significant reductions in unit prices. Reduced costs have increased demand and the spectacular growth in the production of farmed salmon, for example, has been associated with price reductions which have made salmon almost a seafood staple as compared to its once luxury status.

One of the major factors that has influenced trade has been the declaration by nations of 200 nautical mile Exclusive Economic Zones over their adjacent seas. Delgado *et al.* (2003) partially credit the declaration of EEZs with a dramatic shift in trade, whereby developing nations went from being net importers of fish from developed nations in the 1980s to reversing this pattern by the late 1990s. Whereas many nations had distant-water fleets that fished without any need for permission in waters adjacent to foreign countries, the declaration of the

EEZs resulted in either access fees being sought (for example, the case of fees paid by European nations to African nations) or the replacement of the foreign fleets by domestic vessels, as occurred in Australia and the Pacific North West. The impacts have been dramatic — the Japanese catch has fallen from about 13 MMT in 1987 to 7.5 MMT in 1995 (Basir *et al.* 1998), and imports have risen in a corresponding fashion.

For developing countries in particular, factors such as growing national debts have forced some to develop fisheries so as to generate funds to service these debts. In other cases, such as prawn aquaculture in Asia, major development (investment) projects by international aid agencies have rapidly increased production.

In recent years the global trade liberalisation agenda has had a marked impact on seafood trade. Part of the reason for this is that fish and fish products are not linked to agriculture, and thus are not affected by ongoing high levels of protection and subsidies for agricultural products (Bache *et al.* 2000). Serious negotiations over the liberalisation of trade in respect of fisheries began during the GATT Uruguay Round and have continued under the auspices of the World Trade Organisation. Most recently, at the WTO Doha Round of negotiations, many fisheries issues such as market access, fisheries subsidies, environmental labelling, technical assistance and capacity building, and the relationship between the WTO and Multilateral Environmental Agreements (MEAs) continued to attract interest from a wide variety of stakeholders, each with their own views as to the impacts of change.

2.0 Trade and fisheries: what are the issues?

2.1 Benefits and costs of trade

By and large the world's nations have agreed that trade, in general, is good for economic development and that increased trade will result in benefits for people. According to Deere (2000) the expected positive aspects of trade could include:

- Comparative advantage — producer nations can specialise in areas where they have a natural advantage

- Potential to generate higher economic growth which could be allocated to poverty reduction and other beneficial uses
- Reduced prices for consumers as goods/services are sourced from the cheapest producers
- Greater choice for consumers
- Protectionism can cause environmental damage by encouraging inefficient (i.e. wasteful) resource use.

Not surprisingly there is a counter view which covers the following themes:

- Governments may not compensate for trade impacts
- Trade can promote environmental degradation, including overfishing
- Lower costs may be due to weaker laws, i.e. laws may not require sufficient investment in management controls
- Trade can facilitate transport-related pollution
- Trade can affect jobs and communities
- The international system of trade governance has problems
- Food security.

The issue of government control is central to managing the impacts of trade. Politics inevitably distort efforts to equitably distribute the benefits of trade. In addition, without adequate laws that can control resource use, there is little chance of preventing environmental degradation of any sort, whether trade is involved or not. In the case of fisheries, trade may well be one of a number of drivers of overfishing, but the primary driver is poor management.

Whereas some argue that the use of trade controls to stem demand in order to protect fish resources is an unwarranted distortion of the trading system, there has been an understandable tendency to use whatever means are available to address fishery decline in a timely manner.

As established above, an increasing proportion of seafood is entering the world trade system, especially from developing countries. Whereas the expectation is that this trade will improve the circumstances of people in the exporting nations, and that measures being taken to facilitate trade

will lead to further benefits, the reality is that there remain some significant issues to resolve.

Whilst it may be true that some of the blockages to reform may simply be due to fear of change and the inevitable political deal-making that surrounds powerful actors seeking protection, there are some genuine concerns about trade impacts on societal character and culture. Fish and fishing are inextricably linked with many coastal cultures, often for hundreds if not thousands of years. As with the case of agriculture, there are very legitimate concerns about the relative dominance of trade reform versus culture: in other words, is trade a tool to serve society or vice versa?

2.2 Tariffs

Following the Uruguay Round of the GATT, significant progress has been made on reducing the tariffs on many seafood products, although there remain issues to be resolved with certain countries and tariff escalation. Although the average tariff rate has been much reduced, this masks some significant peaks, both in terms of countries and species. For example, Korea and Taiwan have been identified as maintaining high tariffs on a large number of seafood products. It should be noted that, in the case of Korea, changes in the tariff regime have been accompanied by significant improvements in fisheries management, such as progress on the removal of excess fishing capacity and establishment of more robust catch control and monitoring systems (Lee 2004; Yeon 2004). The government has moved to ameliorate the impacts of these changes via significant public investments.

The European Union is also a significant user of tariffs. This is especially the case for processed products, thus helping the post-harvest sector. Whilst member nations are obviously aware of the production limitations of local waters (if not the severe depletion of many local fisheries) and encourage seafood imports, there is discrimination against processed and value-added products via the tariff regime.

A separate issue relates to how these tariffs are mitigated via bilateral trade agreements, primarily with developing countries, in exchange for access to fish resources in these countries. Moreover these developed countries may then compete in the same market with the same product. In recent years some EU nations have been criticised for signing access agreements with some African na-

tions that allow poorly-regulated fishing activities. The tariff system further compounds this by creating disincentives for the exporting countries to establish processing and value-adding industries, through tariff escalation, which would allow a much greater economic benefit to be delivered to local people. In contrast, these benefits are transferred to EU countries where the industries are protected by the tariff barriers.

From a sustainability perspective, strong views are held by both the proponents and opponents of tariffs. The Japanese government has argued that tariffs may protect a weakly-managed domestic industry from cheap imports which may drive overfishing by the domestic industry. A counter argument is that it is possible that overfishing of domestic species is alleviated if imports take the pressure off, and these imports are facilitated by trade liberalisation (Anon. 2002a).

2.3 Technical measures

Every nation has rules that guide the production of goods and services. In the case of fish, where the protection of public health is paramount, there is commonly a myriad of regulations designed to protect consumers from disease. Compliance with these regulations may come at a significant cost to producers. These regulations vary from country to country and thus, other factors being equal, there will be a difference in production cost that may be significant if the products are traded. Whilst there are obviously quite legitimate reasons for nations to protect the health of their citizens, there is also an opportunity for local industry to be protected against imports if the imported products are required to meet costly standards.

The resolution of claims that certain national standards may constitute disguised protectionism is guided by two main WTO agreements, namely, the Agreement on Application of Sanitary and Phytosanitary measures (SPS Agreement) and the Agreement on Technical Barriers to Trade (TBT Agreement). The former deals primarily with matters relating to public health, whilst the latter deals primarily with matters relating to standards for production systems and consequent labelling and testing requirements. The SPS Agreement seeks, by reference to the principles of harmonisation and equivalence (or, in the absence of these, via risk assessment) to provide a level playing field whereby there is an acknowledgement that local SPS measures are not disguised trade barriers. The

WTO has a set of agreed Dispute Settlement Procedures where a disagreement arises between nations.

Developing countries have raised quite a number of issues in regards to SPS measures and other technical barriers to trade. There are obvious cost implications for producers in developing nations that may have to meet standards designed covertly to even out the disparity between production costs in developed and developing countries. There are also capacity issues for developing countries in terms of being able to satisfy markets, via testing regimes, that exported products comply. There are concerns in some developed countries that the natural advantage in production costs (in general) in developing countries is related to inadequate laws controlling pollution, resource management and child labour, and that by allowing products from such production systems into their countries they are condoning undesirable practices.

An upcoming issue is traceability requirements in developed countries (for example the EU, which I think has set a deadline by which all seafood must be labelled for origin and type of production) and the potential impact this might have in developing countries that lack the technology to put in place systems to facilitate traceability, especially if the system required is complicated.

2.4 Subsidies

The fishing industry is one of the most heavily subsidised industries in the world after agriculture, aviation and energy (electricity production), which are likely to be the most subsidised. Although there have been great difficulties both in defining what constitutes a subsidy and then in obtaining relevant data, the generally accepted figure for government financial transfers (subsidies) is of the order of US\$6 billion. In 1999 this was 20% of the recorded landed catch value and has been a source of concern regarding both sustainability and economics, as there is evidence of both overfishing and trade distortions being driven (at least in part) by subsidies (Porter 2002; WWF 2002).

Subsidies take a variety of forms such as government aid for boat building, government accepting the risk in bank loans and insurance, price support, and public funding of research and management. Lowering the costs of production to protect industries, livelihoods and communities almost always becomes a Faustian bargain — the recipients become dependent on the funds and are able to fish

at times and in places that fishing should not occur, either because the species caught are not naturally abundant or have been overfished. Subsidies undermine some of the protection afforded to fish such that when a species becomes scarce and the costs of harvesting become too high, fishers seek alternatives and thus, at least in theory, allow the species to recover. If the costs of production are artificially low, fish can be harvested at lower levels of abundance, thus increasing the risk that recovery will either not occur or be slower than desirable.

Lower costs of production distort the trade system by undermining the principle of competitive advantage. A ratcheting-down effect on prices also occurs when an excluded industry seeks parity via its own government subsidies. Given the concerns about overfishing, there is obviously a potential for subsidy-driven impacts to become more widespread.

Developing countries are affected by subsidies in a number of ways. Firstly, if the subsidies are operating in developed country markets, developing countries may be unable to compete with artificially-cheap seafood produced in the developed countries. The reverse is also the case if seafood from very economically efficient seafood producers is cheaper than locally-produced seafood in a developing country. The government in the developing country may have to artificially lower the production costs in that country to enable local producers to compete.

J. Fitzgerald (Agriculture, Forestry and Fisheries — Australia, *pers. comm.*) suggests that many developing countries cannot afford to provide subsidies and choose to protect domestic industries via increased tariffs. The economic effect of a subsidy is exactly the same as a tariff, but only developed economies can afford to pay subsidies as the funds come from consolidated taxation revenue. Many developing countries struggle to develop a tax revenue base strong enough to fund subsidies. On the other hand, tariffs are paid as a product enters the country and are funded through higher prices paid by the consumer. It should be no surprise that developed countries are strong on tariff reduction and reluctant to reduce subsidies.

There is a growing consensus on the need to eliminate subsidies that contribute to over-capacity of fishing fleets or that support the export of that overcapacity to other fisheries. There is little consensus on whether failure to recover the costs of

fisheries management constitutes a subsidy — but in those countries that do recover management costs, the burden on the industry can be high and it cannot be recovered in export prices determined by the totality of supply meeting demand.

2.5 Illegal fishing

Environmental crime, including illegal dumping, use of banned substances and the take and trade of plants and animals that are either protected or illegally supplied is one of the fastest-growing areas of organised crime in the world (Hayman and Brack 2002; Schmidt 2004). Whilst illegal fishing (Illegal, Unregulated and Unreported fishing, or IUU fishing) is rarely described as being a crime *per se*, the international nature of IUU fishing and the documented links between some types of fishing activity and other, more serious crimes such as drug trafficking has put the illegal trade in some species into a whole new arena. As mentioned above, fishing illegally provides a lower cost structure for operators. Due to the nature of this trade, detailed information on impact is even harder to obtain than normal. However, if the fishing activities are ‘subsidised’ or simply a front for other, more lucrative activities such as drug or people smuggling, the cost structure is distorted even further.

The term IUU fishing refers to fishing which occurs outside of established laws (illegal), occurs in areas where there are no laws, such as on the High Seas (unregulated) or where no record of catches is kept (unreported). The obvious concern is that information on the amount of fish extracted from a stock is unaccounted for, thus increasing the likelihood of overfishing. However, there are also concerns about fishing activities affecting vulnerable components of the marine ecosystem (such as albatrosses). From a trade perspective, vessels that engage in IUU fishing have lower production costs and thus product from such vessels can undermine legitimate fishers in the marketplace (Agnew and Barnes 2004). For example, work in Japan suggests that, in the case of tuna, the production costs for IUU vessels is 30% lower than those for legitimate vessels (OECD 2003).

Although IUU fishing has always occurred, it has emerged as one of the key issues facing fish stocks and other components of the marine environment in recent years. Major efforts, such as the FAO’s International Plan of Action, have been made to put in place measures to control IUU fishing, with

some limited success. In the case of Patagonian toothfish, the measures have included increased enforcement and better catch documentation via a scheme operated by CCAMLR. The latter measure dovetails into a growing demand for much more rigorous and complete information about the source and identity of seafood products for public health and consumer information reasons (see below with respect to ecolabelling). However, the system operated by CCAMLR has a number of crucial limitations (Lack and Sant 2001) that create loopholes for illegal operators. For example, the Catch Documentation Scheme applies only to catches taken in the area covered by CCAMLR, and a number of nations have declined to participate.

Whereas the perpetrators of environmental crime may come from any country, there is little doubt that ineffective legal regimes and inadequate capacity to monitor and enforce the law — a situation more common in developing countries — means that criminals are more likely to base their operations in such countries or use such countries as a channel for illegally-sourced seafood products.

2.6 Multilateral Environmental Agreements (MEAs)

Pressure on natural resources has grown to such an extent that the need for collaboration amongst nations to curb the impacts has been recognised via a growing number of agreements amongst nations on either a regional or a global level. For the specific case of fisheries, these agreements include Regional Fisheries Management Organisations which seek to put in place management regimes for highly migratory species such as tuna or other stocks outside of national management, and trade-related measures such as the Convention on Trade in Endangered Species (CITES), which operates at a global level.

The CITES agreement has some advantages over regional fisheries management arrangements in that more nations are members and thus it is easier to deal with transgressions. However, because it was set up primarily for terrestrial flora and fauna, it has a number of limitations when applied to fisheries.

Trade is a recognised pressure on natural resources such as fish, and action to control trade is viewed by many nations as appropriate when fisheries management measures are inadequate. For exam-

ple, the ICCAT has made use of provisions for controlling the trade in tuna and swordfish to deny suppliers that subvert hard-won catch controls the benefit of selling their catch to signatory countries. However, such sanctions apply only to member nations and not to others fishing in the same area.

The encouragement of trade and the protection of the environment interact on a number of levels (UNEP 2000). Unilateral action by the United States to protect sea turtles caught in prawn nets, by preventing imports from countries without adequate (as defined by the US) measures in place to prevent sea turtle deaths, has been one of the events that has driven discussion about the relative strength of trade versus environmental agreements. Nations opposed to the US action claimed (successfully) that by discriminating against a product (prawns) on the basis of a production method (trawling) the action was in breach of the TBT Agreement of the WTO.

The need to resolve the relationship between trade and multilateral environmental agreements, especially in the context of fisheries, has grown to such an extent that discussions were a significant part of the most recent WTO negotiations in Dohar, Qatar, in 2002. Some nations see the imposition of more rules relating to fish (e.g. listing on CITES) as being an unnecessary burden when existing laws designed to manage fisheries are not working because of capacity issues. In other words, if the capacity issues remain unresolved, more laws will not protect the fish resources.

Whereas some nations and industries have opposed the application of CITES to seafood products, the fact remains that the traceability systems in place are clearly inadequate to deal with the global nature of trade, as exemplified by the Catch Documentation Scheme (CDS) operated by CCAMLR. Whether CITES is the appropriate tool is an open question, but the need for a more globally-focused traceability scheme is undeniable.

2.7 Threats and opportunities

In the past few decades there has been enormous growth in the production and trade in seafood products. Although the wild harvest has reached a plateau, aquaculture production continues to grow at an enormous rate. Trade liberalisation has provided incentive to catch more fish and earn more from export markets. Opportunities for the satisfaction for the seemingly insatiable demand have been exploited by industries and governments

throughout the world. New markets and new products have been created as a result of the increasing and diverse technological capacity to catch, process and transport fish and seafood products. For developing countries, there is the potential for job creation and increased wealth; Kurien (2004) documents a number of examples where the increased wealth has been used to benefit local fishing communities.

Unfortunately the ability to catch fish and move them around the world has far outstripped the capacity to properly manage the fisheries. Whilst some authors (Kurien 2004) highlight the 'uncanny relationship between a fish species entering international trade and its depletion', others (Schmidt 2003) argue that the fault is the absence of good management, not the destination for the fish products. The financial benefits of enhanced trade obviously provide added incentives for increased catches, and to ignore such incentives when designing catch controls would certainly pose a threat. However, to curtail trade as an alternative to good fisheries management would definitely deny opportunities unnecessarily. Countries such as Namibia are widely regarded as having been unable to harvest the trade benefits whilst putting in place good fisheries management.

The potential for trade to be a positive benefit for fishing nations is great, but it is hampered by the fact that the regulatory framework at the international level is still evolving. Regional Fisheries Organisations (RFOs) have sought to strengthen reporting and catch controls and although, to date, these have not been tested in the WTO they are believed to be in compliance (Tarasofsky 2003). Lack of a robust regulatory framework is a threat to trade in that a lack of clarity and certainty accompanies such a regime, including the increased risks of illegal fishing. On the high seas, for example, uncertainty over access and allocation breeds short-term thinking which puts resources at risk and undermines the long-term benefits of harvest and trade.

There are some clear inadequacies in monitoring and controlling the trade in seafood products. The lack of data hampers resource management efforts and may also create problems when the need to document the source of products becomes necessary, as will be the case for seafood products entering the European Union in 2005 and beyond.

Trade distortionary measures such as tariffs and subsidies are generally viewed as a threat to trade,

although there is much discussion over the impacts of some types of fisheries subsidies. As tariffs or subsidies are reduced there will be opportunities for the exporters of seafood products to access new markets: a recent example is the reduction in EU tariffs for uncooked Australian rock lobster which has enabled entry of 1500 t of this product (Edwards 2004). The potential passage of the Australia-US Free Trade Agreement will assist the export of Australian tuna to the United States. Industry needs to be aware of such changes in a timely manner if the opportunities are to be profitably exploited.

3.0 The private sector and trade control

A regime that facilitates and controls trade in fisheries products is of great interest to the private sector, for obvious reasons. Not only does the system provide the framework in which commerce can operate: it presents a wide variety of incentives and hurdles which can affect the viability and profitability of commercial activities.

In the same manner as governments step in to control areas of market failure, the private sector creates systems to compensate for perceived or real inadequacies in government control and to satisfy consumer demand. However, an added complexity is that a variety of alliances between industry, non-government organisations and government form to pursue matters of mutual benefit, as will be demonstrated below.

Some recent innovative responses to trade issues mentioned above are presented below, and the implications for stakeholders and the world trade system are considered. The discussion focuses more on efforts to control the negative effects of trade than on measures to exploit the potential benefits, although in some cases, such as ecolabelling, the overlaps are obvious.

3.1 Catch tracking and identification

One mechanism for controlling IUU fishing is to ensure that fish products are properly identified in terms of species and area of production. Whilst there have been widespread moves to address these needs for hygiene purposes, this has not been the case for catch control, although, as mentioned above, some systems have been put in place by Regional Fisheries Management Organisations. The threat of IUU fishing to the economic health

of legitimate industry activities has been a source of growing concern to some industry groups and, as a result of frustration with the lack of official control, mechanisms for addressing urgent issues have been developed.

Many of the ecolabelling schemes mentioned above have catch traceability incorporated as a central component of the system so as to reassure customers and ensure the integrity of their brands. For example, the Marine Stewardship Council requires those that use the MSC logo to have in place a Chain of Custody certificate to verify that product bearing the logo has come from a certified fishery.

3.1.1 Organisation for the Promotion of Responsible Tuna Fishing (OPRT)

The OPRT was established by tuna fishing interests in Japan in 2000 to address the growth in trade of black market tuna, and to provide a vehicle for reducing excess capacity in tuna fleets in the western Pacific. The number of participating nations has now grown to 15, and members include representatives from the post-harvest sector and a consumer organisation. The OPRT has brokered agreements that have resulted in the removal of thousands of tonnes of fishing capacity from participating fisheries.

The OPRT operates a simple labelling system which ensures that tuna entering Japan are assured to have been caught by legally licensed vessels. It also organises and analyses data collected in Japanese markets, and makes information about tuna available to the public and other interested parties.

3.1.2 Coalition of Legal Toothfish Operators (COLTO)

The plight of the Patagonian toothfish has become widely known in fisheries circles due to the rampant IUU fishing which has occurred in the waters of the southern ocean. Although the CCAMLR has put in place a mechanism for documenting catches (the Dissostichus Catch Documentation Scheme — DCDS) there remains significant concern about the ability of CCAMLR and member nations to stem the illegal toothfish catch. Several years ago the concern of some legal toothfish operators and environment groups resulted in the creation of ISOFISH, the role of which was to identify and publicly report upon illegal fishing in the southern ocean. Although ISOFISH is no longer operational, its success was critical to the formation of

COLTO and, ultimately, to some limited industry support for a proposed listing of Patagonian toothfish on CITES due to the need for a trade control scheme that had a wider membership and a more comprehensive scope than that operated by CCAMLR.

3.2 TRAFFIC and other environmental groups

TRAFFIC is one of a number of non-government environmental groups that research and monitor trade in fisheries (as well as other plant and animal products, most of which are listed by the CITES). Although heavily involved in terrestrial plants and animals, TRAFFIC has become increasingly involved in fisheries issues due to the heavy influence of trade in some high-profile species such as Patagonian toothfish (Lack and Sant 2001) and tunas (Hayes 1997), especially in the Oceania region.

TRAFFIC operates by documenting trade flows and providing this information to authorities and other interested parties which may not have the capacity to gather the information to enable effective control. This is especially the case for developing countries, which commonly do not have adequate systems in place to monitor and control trade.

Not all of the issues reported on by TRAFFIC may involve illegal activity although, as exemplified by the issue of Patagonian toothfish, this may well be the case. Investigating the sorts of environmental crimes mentioned previously can be dangerous work. Although not specifically active in the area of fisheries, the Environmental Investigation Agency, a non-profit organisation, provides some of the 'on-ground' investigation and intelligence gathering that seeks to identify and expose illegal operations.

Trade issues also create alliances between the government and non-government sectors. For example, the specific issue of the trade in live fish from tropical coral reefs has also generated a high profile in Pacific countries due to the serious decline in target species and the habitat damage occasioned by the use of dynamite and poisons as fishing tools (Sadovy *et al.* 2003). The diffuse nature of this trade, coupled to poor or non-existent record keeping in many of the nations hosting this form of fishing, has made control, even via trade measures, almost impossible. Concern over this trade has resulted in collaboration between agen-

cies (Queensland Department of Primary Industries), a regional management organisation (Secretariat of the Pacific Community) and environment groups (International Marinelife Alliance and The Nature Conservancy). This coalition may be the first step towards a multilateral agreement that results in the legal and administrative measures required to properly control trade and conserve affected species.

3.3 Marketplace identification and the role of consumers

Although it has been in use for decades, ecolabelling was formally recognised as a valuable tool in natural resource management at the World Summit in Brazil in 1992. Market-based incentives for environmentally beneficial behaviour were seen as making a potentially important contribution to the push for sustainable development (Wessells *et al.* 2001).

The potential value of ecolabelling relies on there being sufficient numbers of well-informed and motivated consumers who are prepared to actively select ecolabelled product over others. Surveys in a number of countries (see for example Aslin and Byron 2003, for Australia) reveal concern amongst the public about the status of fisheries and a stated preference (to researchers at least!) for products bearing an ecolabel.

3.3.1 Wild harvest labels

The number of ecolabels for wild harvest fisheries remains small but grows slowly. The oldest and best known is the Dolphin Friendly logo that was created by a US-based environment group, Earth Island Institute (EII), to identify tunas which had been taken without harm to dolphins. This system is global in scope but a regional label, created by governments involved in tuna fisheries in the eastern tropical Pacific, has been launched in recent years. The Agreement on the International Dolphin Conservation Program (AIDCP) has a different standard than that operated by the EII. There is also a 'Flipper Seal of Approval' program operated by the US-based wildlife conservation group Earthtrust. This program claims a greater emphasis on saving dolphins than merely being dolphin safe, and involves a number of employees of the EII.

Other species or issue-specific programs include the Turtle Safe Label, also created by the Earth Island Institute and which is designed to label prawns that have been taken by trawlers that use

Turtle Excluder Devices (TEDs) in their nets. This label was discontinued in 2001 due to funding problems. In 2003 a Sturgeon Stewardship Council was created by the caviar industry and the IWMA World Conservation Trust (a sustainable-use oriented NGO) in response to environmental NGO campaigns for a ban on the trade in caviar. Little information is currently available on how the SSC operates. The Maine (USA) Lobster Council operates a logo that is available to all lobsters, as the council believes that all its products are taken in an environmentally friendly manner.

Concern over wider aspects of fisheries than just dolphins has resulted in the creation of more comprehensive ecolabelling programs. The Marine Stewardship Council is an international accreditation and standard-setting body established to promote good fisheries management via certification and labeling (Phillips *et al.* 2003). The MSC's Principles and Criteria give equal weight to issues surrounding stock sustainability, acceptable environmental impact and effective management, and represents a significant move beyond single-issue labels.

A number of other ecolabelling programs for fisheries have been proposed or developed in recent years. Probably the simplest is operated by the Friends of the Sea, based in Italy. This program allows a candidate fishery to download a self-assessment form from the internet and the information supplied to Friends of the Sea is used to make a judgment as to whether their logo can be used.

More complex and rigorous programs have been proposed by government agencies. For example, the Nordic Group of countries has been developing a labeling program for fisheries for a number of years (Anon. 2002b). The criteria for labeling and the operation of the program are suited to fisheries from member countries. Single-country programs have also been proposed. For example, the Danish government has funded the creation of an ecolabel by the Fishermen's Ecological Network in Denmark. The criteria were created by the Danish Society for a Living Sea and seem remarkably generous. In Sweden the Association for Control of Organic Production (KRAV) has developed, with the support of the national board of fisheries, a label and criteria for sustainable fisheries.

The rapid growth in labels in recent years has resulted in pressure by some nations on the FAO which is in the process of developing international guidelines for ecolabelling of wild-caught seafood.

3.3.2 Aquaculture labels

Ecolabels for aquaculture products have been developed in a number of countries, primarily by organisations that have an involvement in organic farming. Programs can be found in Germany (Naturland e.V), Australia (National Association for Sustainable Agriculture), New Zealand (Bio-Gro), Holland (Millieuker), United Kingdom (Soil Association), United States (Aquaculture Certification Council) and Switzerland (BIO-Suisse).

These programs are part of a wide and well-organised network of organisations that are well established due to their long involvement in organic agriculture. Although the standards vary to some degree, there is generally a focus on seafood quality (especially contamination) and animal husbandry, as well as the environmental impacts of farming. The focus on contamination and animal husbandry arise directly out of experience gained in land-based farming.

Responses to the rise of ecolabels have been mixed. Leadbitter *et al.* (2004) review some of the commentary that accompanied the development of the MSC. It is developing countries, however, that have comprised the major source of opposition. Gardiner and Viswanathan (2004) provide a detailed analysis, and identify five areas of concern:

- legitimacy and credibility
- mismatch between certification requirements and the realities of tropical fisheries
- potential distortions to existing practices and livelihoods
- equity and feasibility
- perceived barriers to trade.

Without exploring all these issues in detail, the concerns boil down to issues relating to cost and the technical capacity to manage fisheries. The criteria and assessment systems used to evaluate fisheries for the purposes of ecolabelling are evidence-based. In the absence of even rudimentary catch reporting systems, there is little chance of many developing country fisheries meeting even some of the lower standards available. Given that developing countries are the main sources of organic tropical commodities such as coffee, the attitude about ecolabelling and seafood exemplifies the ongoing challenges of fisheries management. Whereas the ecolabelling systems have become a

target, the fundamental issue of inadequate fisheries management remains.

3.4 Sourcing policies: retailers and the food trade

Various retailers of seafood have sought to either highlight sustainably-caught fish, or remove those deemed to be unacceptable for environmental reasons from their sales portfolios. These moves have been driven by an increasing commitment to Corporate Social Responsible (CSR) by individuals and businesses in the private sector. By refusing to sell seafood products deemed to be environmentally unsound, these entities believe that they can place pressure on the seafood industry and fishery managers to upgrade fisheries management.

One of the early movers in this field was the multinational fish supplier, Unilever, which not only established the Marine Stewardship Council (in conjunction with WWF) but also has its own in-house Sustainable Fish Initiative to guide seafood sourcing where fish supplies of interest have not been assessed against the MSC Standard.

Wholefoods Market in the United States has made significant commitments to procuring seafood from sustainable sources, either by supporting appropriately labelled seafood, removing products deemed as unacceptable (Chilean sea bass — also known as Patagonian toothfish) from sale, and informing consumers. Similar policies have been put in place by Co-op and Migros supermarkets in Switzerland and by Sainsburys in the United Kingdom. Some of the retailers generate their own policies, whereas others use external advisors. For example, Co-op advises its seafood purchasers to select MSC labelled products if available, whereas the US-based retailer Ahold makes use of an evaluation system developed by the New England Aquarium as implemented by an organisation called EcoSound.

At the smaller end of the scale there have emerged specialist suppliers of sustainable seafood, such as EcoFish in the United States, which also have procurement policies that exclude species deemed unacceptable, many of which are traded internationally.

Influential individuals involved in the food trade are also having a small influence on trade. In Australia, the United Kingdom and the United States, well-known food identities such as celebrity chefs are using their positions of influence in the media

to promote their views about sustainable seafood. As with many of the companies, the criteria they use to deselect certain species may be variable, but certain species such as orange roughy which are traded globally are common to many of the 'don't eat' requests.

The views of developing countries on these sorts of initiatives are unknown. Unlike ecolabels, the owners of some of which at least try to integrate into globally recognised systems (such as the International Accreditation Forum, International Social and Environmental Accreditation and Labelling Alliance, and the International Federation of Organic Agriculture Movements) there is rarely any co-ordination (with the possible exception of the Seafood Choices movement in the US) due to commercial competition. Thus the chances of CSR choices by individual companies becoming a major threat to trade may well be perceived in developing countries to be low, and thus not of concern.

3.5 Species bans, advisory cards and related initiatives

Curbing trade by stifling demand has also been an approach pursued by environmental groups. Arguably one of the first campaigns run in this regard was the Give Swordfish a Break campaign, run by a mix of environment groups and chefs in the United States. This campaign dealt primarily with swordfish caught in the Atlantic, but may have had impacts on swordfish entering the US from other areas as well. More recently the US 'Take a Pass on Sea Bass' campaign specifically targeted an imported species (Patagonian sea bass). The overall effectiveness of such campaigns is unknown, but there is little doubt that they can be effective at a local level. Probably the major problem is their indiscriminate nature. For example, there are well-managed stocks of toothfish as demonstrated by the certification of the South Georgia stock to the MSC Standard. However, the cards and ban campaigns do not differentiate between poorly-managed and well-managed stocks.

A more widespread approach to curbing demand has been via the production of advisory documents for consumers (see for example Lee 2001). These documents are often summarised on credit-card-sized cards which list common seafood species and allocates each to one of three, colour-coded (green, amber and red) categories — eat, eat with caution, and don't eat. The criteria used by the groups for

allocating species to a category are generally quite variable and the level of consultation and transparency involved in the preparation of such documents is generally low. Indeed, a card recently produced by an environment group based in New Zealand allocated no fish to the 'eat' category — despite New Zealand's global reputation for good fisheries management. Such approaches tend to undermine what could, if properly and transparently prepared, be useful contributions.

3.6 Threats and opportunities for trade

The rise of the private and non-government sectors' involvement in seafood trade issues parallels both the increase in trade and rising concern over the state of world fisheries. The volume of trade has clearly overwhelmed the capacity of most nations to exercise sufficient control, and as a result a variety of responses have evolved to address some of the many gaps. In addition, governments exist to protect minimum values/standards/safety for their citizens and thus cannot be expected to do everything.

The private sector (including NGOs) is perceiving value in diversifying its involvement in the seafood trade beyond more traditional activities such as production, processing, distribution and service delivery. Opportunities created by new markets (such as the developing interest in ecolabelled products), new mechanisms for gathering and distributing information, and new mechanisms for influencing trade (e.g. product tracking) are opening up as the supply and demand for seafood products expands.

Current initiatives may also negatively affect trade, at least from the perspective of some producers. For example, there is a notable focus on seeking to influence consumers as the substitutability of species provides mechanisms for shifting consumer pressure without having to resort to unwelcome pressure on consumers to not eat seafood at all. Whilst there is little independently-documented evidence to date that the focus on consumer choice and seafood has had a widespread effect on consumption patterns and thus, by extension, trade, it may simply be that it is early days. It may also be that there is too much conflicting advice available, and some consumers may believe that they are doing the right thing by one organisation that is at odds with another. Although, in the case of the advisory cards, there are

some commonalities across cards across countries (for example Orange roughy and southern bluefin tuna are always on the 'don't eat' lists), by and large the volume of trade they represent is but a minor proportion of the world seafood trade.

The purchasing power of major supermarket chains may prove to be influential, even across continents. However, the supermarkets are very competitive and price sensitive. There will always be a balance between profitability and market positioning and the extent of corporate social responsibility.

There is a very real chance that there may be some unintended casualties of all these initiatives, and these are likely to involve small-scale fisheries which do not have the resources to fight unfair requirements or find new markets.

4.0 The future

With over one billion people relying on fish as their primary source of protein, the current squeeze on seafood resources has generated much discussion about the future. Will fisheries management suddenly improve and protect stocks? Will aquaculture supply any shortfall in an environmentally acceptable manner? Can trade be managed in a manner which provides a fair return? Can governments ensure that the benefits of trade are appropriately channelled?

Some of these questions may well be outside of the consideration of trade as threat or opportunity, but have obvious implications. Whilst it is true that good fisheries management and wise government are the keys to managing the impacts of trade, there is abundant evidence that simply focussing on facilitating trade without taking active steps to address the obvious negative impacts will be counterproductive in both the short and long terms.

Delgado *et al.* (2003) present a detailed analysis of various scenarios about seafood production and consumption to the year 2020. As they point out, developed countries play a major role in terms of production and will play an increasing role in consumption over the planning period. For example, about 90% of aquaculture production is from the developing world, and the annual consumption per capita in developing countries has risen from 7 kg in the 1970s to 14 kg in 2001. They note that consumption is related to per-capita income such that as incomes improve so too does seafood consump-

tion. However, the experience in developed countries is that there has been a decline in annual per-capita consumption from 24.3 kg in 1985 to 21.7 kg in 1997, but there has been a shift to higher-value species as income increased.

The scenarios explored cover various combinations of overfishing/stock recovery and low growth to high-growth aquaculture production. Depending on which scenario is used, Delgado *et al.* (2003) predict that by 2020 the developing world will be responsible for 79% of total world seafood production (wild harvest and aquaculture).

They also predict increasing prices for the products of wild harvest, which will put these products increasingly out of the reach of poorer people (in both the developed and developing world), especially as the price of other proteins (particularly chicken) continues to fall. This will continue the trend whereby developing countries export many high-value fish species but consume low-value species, especially cultured herbivorous fish such as carps. The impact of increasing income can be seen of the case of India, where the prediction is that this country will become a nett importer of high-value fish, rather than a nett exporter, as projected incomes rise towards the end of the planning period.

An interesting assumption used for some of the scenarios explored by Delgado *et al.* (2003) is that of 'total ecological collapse' for the wild harvest fisheries. Although the meaning of this term is uncertain, even if it simply refers to an increase over time in the number of overfished/depleted stocks, the implications for the cost of fish and access to protein for the world's poor are disturbing.

Delgado *et al.* (2003) do not explore the wider issues relating to trade into the future. Arguably the number of factors to consider would make the task far too complex and any results almost meaningless.

As demand increases, the existing holes in the world trade system will become increasingly apparent and new flaws will be identified and exploited by the unscrupulous. Nations with the weakest governance will be most vulnerable, and there will be potential for civil unrest (not unknown in fisheries) if adequate protections and controls are not put in place. Indeed the situation for seafood may parallel the situation unfolding for the supply of freshwater, for which a predicted shortage in supply may be a source of conflict

(Starr 1991). The need for good management has been emphasised by a number of authors of trade-related literature, and this dictates the urgency of investment in capacity building.

The future will also see greater linkages between trade and environmental agreements, but whether this means that the priorities between the two are resolved remains to be seen. These linkages will probably be strongest where new agreements are reached and there will certainly be more comprehensive arrangements put in place to track fishery products. However, much work remains to be done, especially in developing countries, and whether the agreements will be backed up by adequate monitoring, control and surveillance in sufficient time to prevent further overfishing is open to question.

There will probably also be greater collaboration and alliances between governments, and between governments and stakeholder groups. Industry groups, motivated by loss of market share, are exploring innovative mechanisms to address the impacts of regulatory inadequacy and, if existing approaches prove successful (as seems to be the case) then more will be encouraged to go outside more traditional systems of simply lobbying governments.

More than likely the number, scope and country spread of market-based attempts to influence consumer choice will increase, especially in developed countries. Card systems are cheap and easy to produce and thus may have limited influence. Certification and labelling, whilst more expensive, has greater credibility in the marketplace and may exert some control. Their impacts on trade, specifically, will obviously depend on which species go through the certification process. Whilst the concerns of developing countries have been well documented, there are opportunities as there is demand for ecolabelled products.

5.0 Summary and conclusions

From the virtuous aims of improving the conditions of the world's poor to the sordid links between drugs and illegally-caught fish, via the frustrating bureaucracy of international negotiations, it is easy to find evidence to support any view that trade is either an opportunity or threat. Whilst those that are opposed to globalisation may force the adoption of measures to reduce the impact of some of the more unfettered participants in

trading, the inescapable fact is that the lure of financial gain and the promise of a better life will provide overwhelming incentives for the current system to persist and prosper.

For the seafood trade specifically there are undeniable limits to the productivity of the oceans. Choices about the management of fisheries will see either an inexorable transition from underfished and fully fished to overfished and recovering, or a move to management that restores and protects productivity. Even if more and more can be squeezed from farmed species in terms of food conversion ratios, there are some ultimate limits to the amount of primary productivity that can be appropriated by humans.

There is compelling evidence that dire predictions about the uncontrollable growth of human populations may not prove to be true, as many societies experience radical cuts in population growth as standards of living reach a certain level. It is also likely that this will not lessen the need for increased in food production as developing countries continue to grow, especially those in Asia. The demand for seafood will continue to increase, but the patterns of trade may alter as more seafood is traded between developing countries. The rapid growth in middle and upper classes in Asian countries may provide competition for even more high-value species (in addition to lobsters, abalone and live fish) which currently go to the EU and US.

Channelling and appropriately distributing the proceeds from trade is the ultimate challenge. Whereas there is little doubt that trade can be either an opportunity or a threat (and possibly both at the same time), the key to reducing the risk of negative impacts appears in many cases to lie outside the trade area itself, and more in the realms of good management and good government. This is very much the case for fisheries, where there are many examples of inadequate fisheries management involving fisheries not involved in trade and, particularly in the developing world, many examples where the root cause of citizen angst is to be found in the poor decision-making processes of governments charged with the job of ensuring that the benefits from natural resource exploitation are distributed wisely.

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