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**international
environmental
instruments**

- Their
Effect on the
Fishing Industry
(Second Edition)

by Martin Tsamenyi
and Alistair McIlgorm

JANUARY 1999

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**The report of the FRDC
(Fisheries Research and Development Corporation) project 97/149**

**INTERNATIONAL ENVIRONMENTAL INSTRUMENTS-THEIR
EFFECT ON THE FISHING INDUSTRY (Second Edition).**

By Martin Tsamenyi and Alistair McIlgorm,

January, 1999.

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Preface to the second edition

This is the second edition of the FRDC project *international environmental instruments-their effect on the fishing industry*. The need for this project was identified in 1994 by the fisheries policy unit of the Department of Primary Industry and Energy (DPIE, now Agriculture, Fisheries and Forestry – Australia, AFFA). The first edition of the report was published in September 1995 and was well received by a wide readership. The FRDC has subsequently initiated a second edition of the report. The objective of the second edition is to identify the changes evident in the international legislative arena and discuss the development of responses to these changes.

The second edition recognises the development of international environmental instruments and updates these conventions and associated developments. The international legislative and trade perspective is continued, though it is recognised that national environmental legislation may be more directly impacting than instruments at the international level. The second edition does not give so much emphasis to the domestic legislation of the United States and includes several more international developments. It also examines the implications for industry and government of trade and legislative developments. The second edition focuses on the implications of international environmental instruments on fishing operations and fisheries management in particular. Specific examination of domestic legislation remains outside the terms of reference of the project.

The first edition made recommendations for the Australian industry. Developments in response to international instruments are investigated and several more issues are raised for the attention of industry and policy makers. The original research report was presented to the environmental sub-committee of the Australian Seafood Industry Council,(ASIC) for discussion, feedback, and clarification of emphasis. With the second edition, we thank a panel of seafood industry representatives, nominated by ASIC, for comments on a final draft.

The project has uncovered a large volume of material in this rapidly expanding area. In this second edition we wish the issues presented here to be discussed through the whole fisheries sector as international environmental instruments will have both negative and positive implications for the Australian fishing industry.

We thank Mr Peter Dundas-Smith, Dr Patrick Hone, Mr Alex Wells, and Ms Annette Lyons for their support in this project.

Disclaimer

The opinions expressed in this document should not be held to be the official policies of the fishing industry, the Fisheries Research and Development Corporation (FRDC), Australian Seafood Industry Council (ASIC), the Australian Maritime College (subsidiary AMC Search Ltd), the University of Wollongong, Dominion Consulting Pty Ltd or any other organisations consulted. They are provided on the basis of available research material and are the opinions of the authors. This report should not be used as the basis of commercial decisions: those doing so, do so at their own risk.

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Executive Summary.

Throughout the world, the fishing industry has come under increased pressure to comply with environmental requirements. This pressure has been prompted by scientific evidence that many of the world's major commercial fishery stocks have either been over-fished or are in danger of over-exploitation beyond sustainable levels. This development must be seen in a wider international context. In the past two decades, there has been an intensification of international environmental consciousness with many international governmental organisations and non-governmental organisations putting pressure on governments to develop legal frameworks to achieve environmental protection at the international level. Consequently, a number of international environmental instruments have been negotiated in response to this new international environmental consciousness. We are now seeing these instruments coming into force and impacting the way fisheries are managed and exploited.

At the same time some individual countries, notably the United States of America, in response to domestic pressure from conservation groups and its powerful domestic fishing industry, has enacted a number of domestic legislation to impose certain conservation standards on the fishing industry. The implementation of these legislation also have significant international trade implications for the fishing industry. Several rulings this decade indicated that domestic legislative initiatives by the United States restricting foreign fish imports on environmental grounds were in breach of the GATT/ World Trade Organisation (WTO) free trade principles. Recently in the ruling on the US Shrimp/turtle case, the WTO found for the national right to invoke trade restrictions to protect its natural resources, providing they were non-discriminatory. Australia has been drawn into another part of the trade dispute arena, in an on-going quarantine dispute over the importing of fresh salmon from Canada.

The international environmental instruments affecting fisheries fall into two broad categories. In the first category are those which may be described as treaties or conventions. They are legally binding on the Parties to them. Some of these instruments are directly aimed at the fisheries management, whilst some are of general application with potential to influence the fishing industry. In the second category are non-binding instruments which are resolutions or declarations by international organisations and some larger non-government organisations. Although the instruments in this category are not legally binding, they have moral and political force and may become the basis for binding instruments.

The broad findings of this report are that the generic objectives of fisheries management are stated in many binding instruments, whilst the second wave of instruments which fall into the category of non-binding declarations, are more problem specific; for example, protecting species, banning of specific gear, minimising bycatch and specific actions in management plans, such as the restoration of fish stocks. The trend identified is that international environmental instruments relating to the fishing industry are moving from general objectives in currently binding instruments to more specific constraints and management methods in subsequent non-binding instruments.

The study also finds that the tightening of environmental constraints in fisheries management will be gradual, though the diversity of issues make the time for implementation of policies uncertain. These restraints will undoubtedly translate into more prescriptive legislation and may adversely impact the fisheries management arrangements that have been developed over the past two decades which have sought to make fishers more responsible. Many of the environmental concepts and ideals are captured in the concept of "Responsible fishing". Codes of conduct have been developed at the international and national levels to promote responsible fishing. However

the debate requires that fishers are now seen to be fishing responsibly and are accountable for their environmental performance and environmental impacts.

The international legislative initiatives are saying “how it should be done”. All parties are now increasingly concerned with “how it is being done”, in comparison to stated objectives; we propose this trend will continue. The difference between the ideal and the actual, is at the centre of environmental concerns.

The report has identified a number of internal and external strategic questions for the fishing industry in response to the growing international environmental instruments. The industry needs to identify their policies on international instruments as a whole and particularly in bycatch issues, responsible fishing (moratoria, access and resource rights and area closures), and compliance and education of industry members. Added value and niche marketing opportunities among environmentally conscious consumers may be targeted by industry through eco-labelling. Currently the industry has a limited amount of representation to address these issues of national and international importance.

The major task for the fishing industry is coming to terms with the changes that are required in responsible fishing and fisheries management. International instruments cannot be ignored. The industry need to educate fishers on the practicalities of responsible fishing to reinforce strategic developments such as the Australian Seafood Industry Council (ASIC) Code of Conduct for the Seafood Industry. The industry have recently developed a coordinated response to the development of marine protected areas in the offshore area.

A national response to bycatch issues has been developed and dates have been set for implementation of bycatch reducing devices in several major Australian prawn fisheries. Members of industry who may not conform to good industry environmental practices are a major concern for industry leaders given the publicity spotlight that can be placed on the industry by the environmental Non Government Organisations (NGOs), recreational fishing organisations and concerned groups in the community. Environmental extension initiatives with the industry are to be commended and are required given the changes to come in the future.

Externally the government needs to have a more transparent process to consult between government agencies and the fishing industry in the development of environmental instruments and integrated policy. The seafood industry could support the formation of fishing industry NGOs to liaise with the other NGOs and government on management issues. Alternatively, groups of fisheries in the management process need to understand their environmental obligations. Similarly the fishing industry could put pressure on government to reduce marine pollution from land based and other developmental activities. This should be part of initiatives by the fishing industry to promote a more environmentally responsible fishing industry.

The second edition confirms that international environmental instruments will remain a significant source of change for the seafood industry. There are some signs around the world of public concern about the global overfishing problem and these are being well represented by some effective NGOs. The Australian seafood industry must move to be visibly above the perceptions of what is wrong with the global fishing industry. To ignore this could be costly in terms of disputes. Implementing change will require prudent and adept management and will bring more change. The industry should respond positively to this challenge as they stand to benefit from these changes in the long run.

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INTERNATIONAL ENVIRONMENTAL INSTRUMENTS AT A GLANCE

1. BINDING INSTRUMENTS DIRECTLY INFLUENCING FISHERIES

The Law of the Sea Convention (LOSC), 1982

The Law of the Sea Convention imposes obligations on Parties to adopt management measures to achieve a sustainable use of fisheries resources.

The Convention on the Conservation of Antarctic Marine Living Resources, 1982

This Convention is aimed at the conservation of Antarctic marine living resources. The rate of by-catch on non-targeted species has emerged as significant issue under the Convention.

The Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific Region, 1989

This Convention prohibits the use of gillnets or driftnets which are more than 2.5 kilometres long in the EEZs of the countries in the South Pacific, including Australia and New Zealand.

The Convention for the Conservation of Southern Bluefin Tuna, 1993

The aim of the Convention is to ensure the conservation of southern bluefin tunas by setting total catch quotas for Australia, Japan and New Zealand in respect of such species.

The Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, 1993

This Convention empowers parties to it to impose stringent conservation requirements on national fishing vessels fishing on the high seas. Such requirements may include gear and by-catch restrictions.

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

This Agreement provides for the conservation and management of straddling fish stocks and highly migratory fish stocks on the high sea; and in limited circumstances, it also applies to fisheries management in the EEZ.

2. BINDING INSTRUMENTS INDIRECTLY INFLUENCING FISHERIES

Convention on Wetlands of International Importance Especially as Waterfowl Habitat (RAMSAR Convention), 1971

This Convention aims to prevent the loss of habitats through encouraging the wise use of all wetlands. Convention Parties must designate at least one national wetland for inclusion on a List of Wetlands of International Importance which are to be subject to special protection.

Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention), 1972

The objective of this Convention is the conservation of natural and cultural areas of outstanding universal value through their inclusion on a World Heritage List and a List of World Heritage in Danger.

The Convention on International Trade in Endangered Species of Wild Fauna and Flora, 1973

The objective of this Convention is to prevent over-exploitation of endangered species of flora and fauna by means of import and export permits for species identified in the appendices to the Convention.

Convention for the Conservation of Migratory Species of Wild Animals (Bonn Convention), 1979

The objective of this Convention is to protect species of wild animals that migrate across national boundaries by placing strict conservation obligations on Parties that are range states.

The Convention on Biological Diversity, 1992

The Convention on Biological Diversity is aimed at the conservation of biological diversity and to promote the sustainable use of its components. In 1995 the Jakarta Mandate specifically addressed the relationships between conservation and fishing activities and established coastal and marine biodiversity as one of the first substantive sectors to be considered by the Convention.

3. NON-BINDING INSTRUMENTS

Agenda 21 (UNCED, 1992)

Agenda 21 is the programme of action agreed to by States during the Rio United Nations Conference on Environment and Development in 1992. Chapter 17 of Agenda 21 requires the international community to address environmental issues that affect the marine environment in a comprehensive manner. The adoption of the Precautionary Principle is one of the important aspects of Agenda 21.

The FAO Code of Conduct for Responsible Fishing, 1994

The Code of Conduct was developed by the FAO Committee on Fisheries. The aim of the Code is to guidelines for responsible approaches to fishing.

The Kyoto Declaration, 1995

The Declaration identified the critical link between food security and the sustainability of fisheries which contribute to the income, wealth and food security of all people.

4. NGO DEVELOPMENTS WITH IMPLICATIONS FOR FISHERIES

The International Union for the Conservation of Nature (IUCN)

The IUCN has two initiatives with fisheries implications. The first is the IUCN Species Survival Commission (SSC) including the IUCN Red List and the second is IUCN - Marine and Coastal Programme (IUCN-MCP).

The Marine Stewardship Council (MSC)

The MSC is an independent non-profit, non-governmental body which has established a certification program for sustainable fisheries. The objective is to harness market forces and consumer power in favour of sustainable fisheries.

Background to the second edition

Since the 1982 United Nations Convention on the Law of the Sea was concluded many countries have claimed Exclusive Economic Zones (EEZs). In 1980, only about 5% of the world fish catch was taken from the high seas (i.e. areas of the ocean outside the EEZ of any coastal state). By 1990, the figure rose to about 11%. The result has been that a number of fish stocks have come under pressure from overfishing with 14 out of 20 highly migratory tuna species being overfished (FAO, 1993).

Internationally, as demand for fish increases and prices for fish products rise, there has been a new surge in the race to over-exploit known fish stocks, and to find and develop new stocks. This has resulted in increased investments in bigger, powerful and more efficient vessels and in technical innovations.

These developments have led to international concerns by some coastal States and international governmental and non-governmental organisations concerned with the sustainable use of the resources of the sea. All parties have called for domestic and international action to promote a more rational conservation and utilisation of the fisheries resources of the oceans. These "green" concerns relate largely to target stock issues, selectivity and the impact of fishing gear on wider marine environment, over-capacity and the removal of fishery subsidies.

In response to these concerns, a number of international instruments have been concluded with the specific purpose of regulating how fishing is carried out. In addition to attempts to directly intervene in fishing, a host of other international instruments which have been developed to address wider conservation and environmental issues have the potential to be applied to fisheries.

We see that the problems have been recognised for some time and the legislative responses are saying "how it should be done". Since the first edition it is apparent that we are now increasingly concerned with "how it is being done", in comparison to stated objectives; we propose this trend will continue. The difference between the ideal and the actual, is at the centre of environmental concerns. The remedies can be legislative, political and economic, involving international agreements and cooperation at all levels, pressure from governments and non-government organisations and the use of economic prescriptions in trade and marketing to influence production methods and volumes. Behind the legislative overlay, there is a considerable need to communicate and inform industry on the requirements of responsible fishing. This is beginning to happen.

The FRDC response.

These international environmental instruments have likely economic ramifications for the Australian fishing industry. Recognising this, in 1994-95 the Australian Fisheries Research and Development Corporation (FRDC) commissioned the authors of this report to address the following issues.

* to identify, describe and analyse, from an Australian fishing industry perspective, the major aspects of relevant international environmental instruments that impact or have the potential to impact on the fishing industry;

- * to prepare a concise plain language report on current developments in relevant international fora;
- * to identify, describe and analyse applicable environmental legislation of the United States of America that impact on fisheries; (omitted in the second edition)
- * to identify and analyse the key areas of potential action and any Australian fisheries likely to be affected by any of these international developments;
- * to analyse the operational, fisheries management, legal and foreign policy implications of any action under the international environmental instruments;
- * to identify strategies, both domestic and international, to avert or minimise any impact or potential impact on particular Australian fisheries;
- * to identify opportunities for the Australian fishing industry in adhering to the international environmental instruments identified.

Tsamenyi and McIlgorm, FRDC project application, 1994.

The second edition proposal to FRDC indicated that the author's would :

Re-examine each environmental instrument and subsequent developments.

Re examine the overview of international fisheries trade instruments (updating, not expanding)

Present significant changes and trends for industry and management

Draw together changes and trends since the 1995 report and propose strategic issues for the fishing industry and fisheries management.

Tsamenyi and McIlgorm, FRDC 2nd Edition application, 1998.

Section A: International Environmental Instruments: description and analysis

PART I: INTERNATIONAL ENVIRONMENTAL INSTRUMENTS WHICH IMPOSE LEGAL OBLIGATIONS

This part of the report describes and evaluates the international environmental instruments affecting fisheries which are legally binding on Australia in international law or in which Australia has recently participated but not yet ratified. The instruments can be classified under two sub-headings; namely (a) those specifically dealing with fisheries and (b) environmental instruments with indirect application to fisheries.

A. Instruments specifically dealing with fisheries

1. United Nations Convention on the Law of the Sea, 1982

The *United Nations Convention on the Law of the Sea*, 1982 (LOSC) came into force on 16th November 1994. The LOSC provides rules to regulate all aspects of the uses of the sea and the conservation of the marine environment. The fisheries aspects of the LOSC are mainly found in the provisions dealing with the exclusive economic zone (EEZ) and on the high seas. The LOSC permits every coastal State to claim an EEZ which may not extend beyond 200 nautical miles from the territorial sea baseline of the coastal State. Within the EEZ, coastal States have been given sovereign rights for the purpose of conserving and managing the living resources of the area.

The areas of the sea outside the EEZ constitute the high seas for fishing purposes. Under international law, all fishing activities on the high sea are subject to the freedoms of the high seas. This concept of "freedom of the high seas", allows each State to regulate fishing activities carried out by vessels flying its flag or in appropriate circumstances by its nationals. In recent times there have been complaints from international conservation groups, international fisheries organisations such as the Food and Agricultural Organisation (FAO) and some coastal States, concerning the rapid depletion of high seas fisheries as a result of the lack of any effective national controls. At the international level these concerns are being addressed through the UN Agreement on Straddling/Highly Migratory Fish Stocks, the FAO Code of Conduct for Responsible Fishing and by a number of Non- Government Organisation initiatives. These developments are analysed later in this report.

Fisheries Implications

The LOSC is the main international instrument which regulates marine fisheries. It imposes an obligation on every coastal State that has declared an EEZ to put in place a management regime to ensure the sustainable use of the fisheries resources. To achieve these objectives, the Convention permits the coastal State to implement a number of measures. These include the obligation to determine the total allowable catch (TAC) and to promulgate laws and regulations to control fishing in the EEZ. Such control measures may include:

- the licensing of fishers, fishing vessels and equipment;
- determining the species which may be caught, and fixing quotas of catch;
- regulating seasons and areas of fishing, the types, sizes and amount of gear, and the types, sizes and number of fishing vessels that may be used;
- fixing the age and size of fish and other species that may be caught; and
- regulating the by-catch of other species

In addition to the requirements to conserve the living resources of the sea, the LOSC also imposes obligations on coastal States to protect the marine environment generally and to control the pollution of the sea. The legal and administrative measures which a coastal State can take to protect the marine environment as a whole are very broad and may impact on fishing operations. These measures include the following:

- prohibition of the release of toxic, harmful or noxious substances into the sea;
- protection and preservation of rare or fragile ecosystems and the habitats of depleted, threatened or endangered species or other forms of marine life;
- the design, construction and operation of all vessels; and
- prohibition of pollution by oil.

The conservation and the general environmental obligations of the LOSC are gradually being implemented into domestic law by many coastal States. In Australia the broad objectives of the Law of the Sea Convention have been incorporated into the *Fisheries Management Act, 1991* (Cwth). According to section 3(2) of this legislation, in implementing the objectives of the legislation, the Minister, AFMA and Joint authorities are to have regard to the objectives of ensuring through proper conservation and management measures, that the living resources of the EEZ are not endangered by over-exploitation.

In the years ahead, general environmental legislation will be developed by relevant Commonwealth and State Departments to implement Australia's obligations under the LOSC. These are likely to affect various fishing operations in the Australian EEZ, including the types of species to be caught, gear and vessel limitations and areas of fishing.

2. The Convention on the Conservation of Antarctic Marine Living Resources, 1982 (CCAMLR)

This Convention came into force in April 1982. The objective of the Convention is to promote the conservation of Antarctic marine living resources. The Convention applies to the areas between south of 60 degrees South Latitude and the Antarctic Convergence. The convention has been described as a landmark in international law because it was the first convention to adopt "an ecosystem conservation standard."

Fisheries implications

CCAMLR institutes common guidelines for the harvesting of Antarctic marine living resources. Under Article II, any harvesting and associated activities in the Convention area are to be conducted with the view to:

- maintaining any harvested population at levels above those which ensure stable recruitment;
- the maintenance of the ecological relationship between harvested, dependent and related populations of Antarctic marine living resources and the restoration of depleted populations to sustainable levels

Australian fishers fishing in areas covered by the CCAMLR will also be required to comply with bycatch restrictions relating to non-targeted species of fish and seabirds. Measures have been instituted to reduce the by-catch of sea birds. In addition, the meeting of the parties also endorsed certain conservation measures to regulate long-lining in the Convention area. These include operational techniques which sink baited hooks as soon as possible after their placement in water; mandating the setting of lines at night; the prohibition of dumping of offal and trash while lines are set or hauled; the requirement that every effort should be made to release live birds from lines; mandating the use of streamer lines as bird scarers.

3. Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific Region and Protocols (Driftnet Convention) 1989

The Driftnet Convention in the South Pacific Region was concluded in November 1989 in response to the rapid increase in the use of long driftnets by some Distant Water Fishing Nations (DWFN) operating in the South Pacific region in the late 1980s. The use of fine, small mesh size, nylon nets which could be stretched to distances up to 40 or 60 kilometres is generally believed to have devastating effects on the environment and marine living resources. As a result, environmental groups and governments in the region became concerned about the effects of driftnets on the ecological balance of the marine environment.

The Driftnet Convention commits States Parties to prohibit their nationals and vessels from engaging in driftnet fishing within the Convention Area. The "Convention Area" is defined as the area lying within 10 degrees North latitude and 50 degrees South latitude and 130 degrees East longitude and 120 degrees West longitude. This includes Australia's internal waters, territorial sea and exclusive economic zone.

"Driftnet" is defined as a gillnet or other net or a combination of nets which is more than 2.5 kilometres in length which enmesh, entrap or entangle fish by drifting on the surface or in the water.

Driftnet fishing is defined as catching, taking or harvesting fish with the use of a driftnet; attempting to catch, take or harvest fish with the use of a driftnet; engaging in any activity which can reasonably be expected to result in the catching, taking or harvesting of fish with the use of a driftnet, including searching for and locating fish to be taken by that method. Support services which may not be directly related to fishing are also included in the definition. Any operations at sea in support of, or in preparation for any activity described above including operations of placing, searching for or recovering fish aggregating devices or associated electronic equipment such as radio beacons are also defined as driftnet fishing. The use of aircraft to support the activities described above, and transporting, transshipping and processing any driftnet catch and cooperation in the provision of food and other supplies for vessels equipped or used for driftnet fishing are also defined as driftnet fishing.

Australia's obligations under the Driftnet Convention have been implemented under the *Fisheries Management Act 1991* (Cwth). Section 13 of the Act requires that:

- a person must not engage in driftnet fishing activities in the Australian Fisheries Zone (the penalty for this offence is \$50,000);
- an Australian citizen must not engage in driftnet fishing activities outside the Australian Fishing Zone. This provision literally prohibits the use of driftnets by Australian citizens on the high seas and in the EEZs of other countries (the penalty for this offence is \$50,000);
- a body corporate that is incorporated in Australia or carries on business activities mainly in Australia must not engage in driftnet fishing activities outside the Australian Fishing Zone (the penalty for this offence is \$250,000);
- a person must not, whilst outside the Australian Fishing Zone, engage in driftnet fishing activities from an Australian boat (the penalty for this offence is \$50,000).

Fisheries Implications

The main implications of the Driftnet Convention may be summarised as follows:

- It requires that the parties to it to prohibit their nationals and vessels registered under their laws from engaging in driftnet fishing activities in the areas covered by the Convention. This means that no Australian national or vessel registered in Australia and flying the Australian flag may use driftnets any where within the Convention Area;
- Parties are under obligation to prohibit landing of driftnet catches within their territories and prohibit the processing of catches in facilities under their jurisdiction. This means that no vessel including those of non-Parties may land their catch or transship their catch in areas under the jurisdiction of Parties;
- Parties may prohibit the importation of fish or fish products whether processed or not, caught using a driftnet and restrict access and port servicing facilities for driftnet fishing vessels. They may also prohibit the possession of driftnets on board any fishing vessels within their fisheries jurisdiction.

4. Convention for the Conservation of Southern Bluefin Tuna, 1993

The Convention for the Conservation of Southern Bluefin Tuna (CCSBT) was concluded on 10 May 1993 between Australia, Japan and New Zealand and formalised the trilateral arrangements in place since 1985. The CCSBT which was largely in response to concerns that the southern bluefin tuna fishery is vulnerable to potential stock collapse, has the objective "to ensure, through appropriate management, the conservation and optimum utilisation of southern bluefin tuna."

Fisheries Implications

The immediate implications of the CCSBT for the fishing industry has been the imposition of catch limits through quota allocation. Of late, Australia, New Zealand and international conservation groups have expressed serious concerns about the declining conservation status of southern bluefin tuna and are opposing Japan's insistence on quota increases. The Convention has resulted in greater attention being paid by the Parties to the wider issues such as by-catch reduction. The key problem remains the increasing SBT catch of non-CCSBT countries.

5. Agreement to Promote Compliance with International Conservation and Management Measures by fishing Vessels on the High Seas, 1993 (Compliance and enforcement).

This agreement was concluded as part of the efforts by the FAO to institute a code of conduct for responsible fishing on the high seas. The Code of Conduct is described later in the report. The aim of the Compliance Agreement is to regulate the re-flagging of fishing vessels which, according to the FAO, has become a means of avoiding compliance with international conservation and management measures for living marine resources.

The Compliance Agreement requires that Parties take certain measures to ensure that fishing vessels entitled to fly their flag do not engage in any activity that undermines the effectiveness of international conservation and management measures. However, a Party may exempt a fishing vessel of less than 24 metres in length from the application of the Agreement. Where a Party has granted such an exemption to a fishing vessel, the State is nevertheless required to take effective measures in respect of any such fishing vessel that undermines the effectiveness of international conservation and management measures.

Fisheries Implications

Australia has not yet ratified this Agreement. Ratification by Australia will give power to the Commonwealth to impose stringent conservation requirements on Australian fishing vessels fishing on the high seas. The specific measures that may be imposed on Australian vessels under the Compliance Agreement include:

- Vessels with require authorisation to fish on the high seas;
- a fishing vessel that has been previously registered in another country and which has undermined the effectiveness of international conservation and management measures can only be authorised to be used for fishing on the high seas under two conditions: (a) if any period of suspension by another Party of an authorisation to use the vessel to fish on the high seas has expired and (b) no authorisation for such fishing vessel to be used for fishing on the high seas has been withdrawn by another party within the last three years.

6. The Agreement for the Implementation of the Provisions of the United Nations Convention on the Law of the Sea 10 December 1982 relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995 (The Straddling/Highly Migratory Fish Stocks Agreement).

This agreement was adopted on 4 August 1995 and will enter into force 30 days after the deposit of the thirtieth instrument of ratification or accession. As of 4th August 1998, 18 States had ratified the Agreement.

The objective of the Straddling/Highly Migratory Fish Stocks Agreement is to ensure the long-term conservation and sustainable use of straddling fish stocks and highly migratory fish stocks through effective implementation of the relevant provisions of the Convention. To achieve its objectives the Agreement imposes a number of obligations on States Parties which include:

- adopt conservation and management measures to ensure long term sustainability of fish stocks;
- ensure that such measures are based on the best scientific evidence available and are designed to maintain or restore stocks at levels capable of producing the maximum sustainable yield, as qualified by relevant environmental and economic factors;
- apply the precautionary approach;
- adopt where necessary, conservation and management measures for other species belonging to the same ecosystem or dependent upon or associated with the target species, with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened;
- promote the development and use of selective, environmentally safe and cost effective fishing gear and techniques in order to minimise pollution, waste, discards, catch by lost or abandoned gear, catch of non-target species (both fish and non-fish species) and impacts on ecologically related species, in particular endangered species;
- take into account the need to protect biodiversity;

- take measures to eliminate over-fishing and excess fishing capacity and to ensure that levels of fishing effort do not exceed those commensurate with sustainable utilisation of fisheries resources; and
- collect and share, in a timely manner, complete and accurate data concerning fishing activities, *inter alia*, on position, catch of target and non-target species and fishing effort, as well as information from national, regional and international research programs.

Fisheries implications

The Straddling/ Highly Migratory Fish Stocks Agreement, when it enters into force, contains provisions which will impact on fishing operations as currently undertaken. Actions which Australian Commonwealth and State governments may have to take to implement the Straddling/ Highly Migratory Fish Stocks Agreement are listed below:

- Precautionary approaches will need to be applied in fisheries management (this is discussed further below);
- The development and use of selective, environmentally safe and cost effective fishing gear would be required;
- The need to protect bio-diversity will require changes to fishing gear, and the institution of other protective measures such as reducing catch quotas, designating closed seasons or closed areas;
- Measures which eliminate over-fishing and excess fishing capacity may be implemented on the Industry;
- Australia would be required to cooperate with other States to agree on conservation measures for straddling fish stocks and highly migratory species;
- Australian fishers will be required to comply with such conservation and management measures in order to gain access to the fisheries covered by any cooperative management arrangements;
- Enforcement action may be taken on the high seas by other States against Australian fishers who violate agreed regional conservation measures.

B. Instruments indirectly impacting on fisheries

7. Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar Convention) 1971

The objective of the Ramsar Convention is to protect wetlands which are habitats supporting flora and fauna. This is to be done by establishing nature reserves. The Convention defines wetlands as areas of marsh, fen, wetland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres. Parties to the Convention are required to designate at least one suitable wetland within their territories for inclusion in a list of “Wetlands of International Importance”.

Fisheries Implications

So far, Australia has designated 49 wetlands under the Ramsar Convention. Some of the Australian designated wetlands are very important fish habitats, for example the Kooragang Wetland in New South Wales. The short-term fishing implications of the Ramsar Convention may include fishing closures, total prohibition of fishing in areas convened by or near a wetland, gear restrictions and bycatch restrictions. However, in the long term, compliance with the Ramsar Convention is in the best interest of the fishing industry because wetlands are important fish habitats.

8. Convention for the Protection of the World's Cultural and Natural Heritage (World Heritage Convention), 1972

The objective of the World Heritage Convention is to promote international cooperation to protect unique natural and cultural properties of outstanding universal value, whose conservation is deemed to be of concern to all people. Parties to the Convention are committed to a range of national and international obligations. In particular each party is required to identify, protect, conserve, present and transmit to future generations unique cultural and natural heritage situated on its territory. The identification of properties for inclusion on the World Heritage list is the responsibility of the State (Country) on whose territory the property is situated. It is also the State's responsibility to nominate property for world heritage listing.

Australia has implemented the World Heritage Convention in domestic law through the *World Heritage Properties Conservation Act 1983* (Cwth.). This legislation allows the Commonwealth government to make regulations to prohibit activities in a world heritage area that are incompatible with the world heritage status of the area. It is then unlawful for a person to undertake such activities without the consent of the Commonwealth Minister for the Environment. For the prohibition to take place, two conditions must be satisfied. First, the property must be "identified property." This means that it must either be placed on the World Heritage List; or nominated for World Heritage listing; or subject to an inquiry as to its world heritage values; or form part of the cultural and natural heritage. Second, the Governor-General must be satisfied that the property, or part of it, is being or is likely to be damaged or destroyed.

Fisheries Implications

Australia is one of the key supporters of the World Heritage Convention. There are currently 12 Australian properties on the World Heritage List. Five of these properties comprise marine areas which are significant fishing grounds. These are the Great Barrier Reef, Shark Bay, Fraser Island, Lord Howe Island and Kakadu.

Each of the Australian world heritage properties are to be managed under separate management plans. At present, management plans have been promulgated for the Great Barrier Reef and parts of Shark Bay. The existing management plans do not prohibit fishing activities in the world heritage areas. For example, commercial fishing is permitted in some parts of the Great Barrier Reef under a zoning plan.

Restrictions are likely to be placed on fishing operations in world heritage areas that are shown to damage or reduce the world heritage qualities of listed properties. Such restrictions may include gear restrictions, the prohibition on harvesting certain species, and restrictions on fishing in certain areas. For example, fisheries closures have been imposed under New South Wales Fisheries legislation in some parts of Lord Howe Island. Further, the combined impact of the World Heritage Convention and the Convention on Biological Diversity is likely going to increase pressure on governments to ban certain types of fishing operations such as trawling in

world heritage areas because of their potential impact on the marine environment. Already there has been an attempt to ban trawling in Shark Bay, Western Australia.

9. Convention on International Trade in Endangered Species of Flora and Fauna (Washington Convention - CITES), 1973

The aim of the *Convention on International Trade in Endangered Species of Flora and Fauna* (CITES) is to regulate trade in certain species of flora and fauna which are being threatened with extinction. The Convention seeks to achieve this objective through regulation of international trade in these species. Trade is defined in the Convention as "export, re-export, import and introduction from the sea". Introduction from the sea is defined to mean "transportation into a State of specimens of any species which were taken in the marine environment not under the jurisdiction of any State". As a non-binding instrument, the term "introduction from the sea" must be of concern to the effective working of the Convention.

CITES classifies the species regulated into two appendices. Appendix I includes species, subspecies or populations threatened with extinction that are or may be affected by trade. Generally, commercial trade in these species is prohibited. International trade in these species may be permitted for "scientific or conservation" purposes. In this case, import permits from the importing and the exporting country are required. Appendix II includes species which might become endangered if trade in them is not controlled and monitored.

Trade in Appendix I species may only take place in accordance with certain laid down criteria. For the exporting country, the scientific authority of the exporting State must certify that the export of the specimen will not be detrimental to the survival of the species. In addition, the management authority must certify that the specimen was not obtained in contravention of its laws for the protection of fauna and flora and that it is satisfied that any living specimen is prepared and shipped in a manner that minimises the risk of injury, damage to health and cruel treatment. The management authority of the exporting country must also be satisfied that an import permit has been obtained by the exporter. An export permit will only be granted if the relevant scientific authorities of the exporting States have advised that such export will not be detrimental to the species. Furthermore the management authority of the exporting State must satisfy itself that the species have not been obtained in a manner which violates its laws regarding the protection of those species, and that the species being traded are well prepared and shipped in a manner that minimises risk of injury, damage to health or cruel treatment and that an import permit has been granted for the specimen.

Trade in Appendix II species requires an export permit from the country of origin, issued by the competent authority. If the species are exported from a country other than where they originated, a re-export permit is required.

The *Wildlife Protection (Regulation of Exports and Imports) Act 1982* (Cwth) gives effect to Australia's obligations under CITES. Under the Act the export of Schedule 1 species is strictly regulated to prevent their becoming more endangered. The species in this category include marine turtles and dolphins. Export of Schedule 2 species may only be undertaken under an approved management plan. Marine species in this category include dugongs and giant clams.

Fisheries Implications

CITES is designed to cover all species of plants and animals, including marine species. Presently, few marine species are listed under CITES. The marine species listed are primarily higher vertebrates, such as great whales, sea turtles, and the salt water crocodile. Five species of marine fish and six taxa of corals are listed under CITES. Three of the fish species are

anadromous sturgeons that migrate into fresh water rivers to spawn. The other two are the *coelacanth* and the *totoaba*.

In recent times conservation groups and some countries, have mounted pressure to broaden the scope of CITES to include some marine species of commercial value. For example, there was an attempt by Sweden in 1992 to include Atlantic bluefin tuna on Appendix 1 of CITES. This proposal was not successful because of opposition by members of Commission for the Conservation of Atlantic Tunas. Similarly, in 1994, Kenya proposed the listing of both northern and southern bluefin tuna on Appendix 2 of CITES. The proposal was later withdrawn. In 1994 the authors of this report were advised by the CITES Secretariat that “there has been very little discussion of fisheries matters”. Some discussion was generated at the eighth meeting of the Conference of the Parties (Kyoto, March 1992), as a result of the submission of proposals to include populations of herring and the bluefin tuna in the appendices. These proposals were withdrawn following brief discussions in the committee stage of the meeting. Fisheries issues have been part of subsequent meetings.

The 9th meeting of the parties to CITES which met in Fort Lauderdale from the 7th to 18th November 1994 agreed on two important issues:

- to revise the criteria for listing species under the Convention and to make the process more objective;
- to consider in future the issue of international trade in and status of sharks. To this end, the Animals Committee of CITES was requested to prepare a discussion paper on the biological and trade status of sharks before the 10th meeting of the parties.

At the Tenth Meeting of the Conference of the Parties in Harare (Zimbabwe), 9 to 20 June 1997, four decisions concerning sharks were made. The first decision set out activities Parties should undertake for the conservation of sharks; the second called on the CITES Animal Committee in conjunction with the Secretariat to establish a plan of action for the conservation of sharks; the third requested the FAO to undertake activities and change some current practices such as methods of reporting and reporting requirements to enhance protection of sharks; and the fourth called on the secretariat to develop customs and tariff practices to protect sharks.

The first decision has the most significant implications for Australian Fishers. It requires the following actions be taken:

- a) the Parties concerned should, in collaboration with FAO and regional fisheries organizations, improve methods to accurately identify, by species, record and report landings of sharks from directed fisheries and sharks taken as a by-catch in another fishery;
- b) Parties that have a shark fishery and/or trade in sharks and shark parts and derivatives should establish appropriate species-specific recording and reporting systems for all sharks that are landed as a directed catch or a by-catch;
- c) Parties that have a shark fishery should initiate efforts to:
 - i) collect species-specific data on landings, discards and fishing effort;
 - ii) compile information on life-history and biological parameters such as growth rate, life span, sexual maturity, fecundity and stock-recruitment relationships of sharks taken in their fisheries;

- iii) document the distribution of sharks by age and sex, as well as their seasonal movements and interactions between populations; and
 - iv) reduce mortality of sharks captured incidentally in the course of other fishing activities; and
- d) the Parties concerned are encouraged to initiate management of shark fisheries at the national level and establish international/regional bodies to co-ordinate management of shark fisheries throughout the geographic range of species that are subject to exploitation, in order to ensure that international trade is not detrimental to the long-term survival of shark populations.

While the number of marine species listed is few, it is clear that the Conference of the Parties is prepared to recommend actions be taken for the protection of sharks prior to any listing. This will increase the pressure on States to develop fisheries management plans which take into account the need to protect sharks.

The Tenth Meeting of the Conference also rejected the proposal to have a Marine Finfish working group and to accept amendments to the listing criteria for Appendices I and II which make listings easier.

Should any commercially harvested species of fish be listed under CITES, the impact on the fishing industry will depend on the particular appendix under which the listing occurs. An Appendix I listing would trigger international trade prohibitions on any marine species taken from areas outside national jurisdiction and transported into areas under national jurisdiction since that would constitute "introduction from the sea." However, listing by itself would not prohibit the harvesting or domestic sale of such species.

Within Australia there have been debates as to the merits of having the following species listed on CITES – patagonian toothfish, southern bluefin tuna, orange roughy, the great white shark and dugong. It is difficult to measure the status of these proposals and if they will progress given the international consensus required to list species. Fish species listing proposals may be a feature of the next CITES meeting in 2000. It is difficult to evaluate their chances of success.

10. Convention on the Conservation of Migratory Species of Wild Animals, (Bonn Convention) 1979

The aim of this Convention is to conserve terrestrial, marine and avian migratory species throughout their range. The Convention defines "migratory species" as "an entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries". The species covered by the Convention are regulated under two separate appendices. Appendix I contains a list of species that are "endangered", while Appendix II covers species which are likely to be endangered.

The obligations of Parties in respect of species listed in Appendix I include the following:

- to conserve and where feasible and appropriate, restore those habitats of the species which are of importance in removing the species from danger of extinction;
- to prevent, remove, compensate for, or minimise, as appropriate, the adverse effects of activities or obstacles that seriously impede or prevent the migration of the species; and

- to prevent, reduce or control factors that are endangering, or are likely to further endanger the species, including strictly controlling the introduction of, or controlling or eliminating already introduced exotic species.

Parties to the Convention also undertake to prohibit the taking of animals belonging to such species. Exceptions may be permitted where (a) the taking is for scientific purposes; (b) the taking is for the purpose of enhancing the propagation or survival of affected species; (c) the taking is to accommodate the needs of traditional subsistence users of such species; or (d) extraordinary circumstances so require.

Species listed under Appendix II are considered to have unfavourable conservation status and require international agreement for their conservation and management. Such an Agreement must achieve the following objectives:

- identify the migratory species covered;
- describe the range and migration route of the migratory species;
- provide for each Party to designate its national authority concerned with the implementation of the agreement; establish, if necessary, appropriate machinery to assist in carrying out the aims of the agreement, to monitor its effectiveness, and to prepare reports for the Conference of Parties;
- at a minimum, prohibit, in relation to a migratory species of the Order Cetacean, any taking that is not permitted for that migratory species under any other multilateral agreement.

Fisheries Implications

The Bonn Convention applies equally to migratory marine species; as such the Convention has the potential to affect fishing operations. Some marine species of commercial value such as tuna and billfish are classified as "migratory species".

In the past the Bonn Convention was applied in the international debate on migratory whale species. More recently the Australian Government have had 14 species of Albatross listed under the Bonn Convention due to the impact that international tuna longline fishing has had in the Southern Oceans (AFMA News, September, 1998).

Given the ongoing pressure from conservation concerns about fishing, it is possible that some commercially harvested species may be listed in future. The possible implications of this may include gear restrictions, by-catch reduction and restrictions on catching certain species.

11. United Nations Convention on Biological Diversity, 1992

The Convention on Biological Diversity was concluded as part of the United Nations Conference on Environment and Development (UNCED) process in 1992. The aims of this Convention are to conserve biological diversity, promote the sustainable use of its components and ensure fair and equitable sharing of the benefits arising out of the utilisation of genetic resources. The Convention defines biological diversity very broadly to include "variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part".

The Convention regulates the *in-situ* and *ex-situ* conservation of biological diversity. *In-situ* conservation is defined to mean the conservation and maintenance of ecosystems and natural habitats in their natural surroundings. *Ex-situ* conservation means the conservation of biological diversity outside their natural surroundings.

To protect biological diversity situated in their territories, the Convention requires Parties to it, to implement a number of broad policies. These include:

- to develop national strategies, plans and programs for the conservation and sustainable use of biological diversity;
- where plans already exist, parties are required to adapt them to reflect the measures set out in the Convention;
- to integrate the conservation of biological diversity into relevant sectoral plans and programmes;
- to identify components of biological diversity important for its conservation and sustainable use;
- to monitor, through sampling and other techniques, the components of biological diversity identified;
- to identify processes and categories of activities which have or are likely to have significant adverse impacts on the conservation and sustainable use of biological diversity, and monitor their effects through sampling and other techniques; and
- to maintain and organise, by any mechanism data, derived from identification and monitoring activities.

In relation to *in-situ* conservation of biological diversity, the Convention requires that parties undertake the following actions:

- establish a system of protected areas;
- develop (where necessary), guidelines for the selection, establishment and management of such protected areas;
- regulate or manage such protected areas;
- promote the protection of ecosystems, natural habitats;
- rehabilitate and restore degraded ecosystems and promote the recovery of threatened species;
- manage and control all risks associated with the use and release of living modified organisms resulting from biotechnology which are likely to have adverse environmental impacts on particular ecosystems;
- prevent the introduction of and control or eradicate alien species which threaten ecosystems, habitats or species;
- provide conditions needed for compatibility between present uses of particular biological diversity;
- subject to its national legislation, respect, recognise and preserve the interests and lifestyles of indigenous peoples and their practices;
- develop legislation or adopt other regulatory mechanisms to protect threatened species and their populations.

The Jakarta Mandate

Concerns about the over-exploitation of marine biodiversity resulted in the marine environment being one of the first substantive issues to be addressed at the First Conference of the Parties to the Biodiversity Convention in 1995. The "Jakarta Mandate on Marine and Coastal Biodiversity" addresses specifically the relationships between conservation, the use of biological diversity and fishing activities.

The Jakarta Mandate establishes a new global consensus on the importance of marine and coastal biological diversity. The five areas of critical importance identified for action include:

- integrated marine and coastal area management;
- marine and coastal protected areas;
- sustainable use of marine and coastal living resources;
- mariculture; and
- alien species.

The Parties also agreed to apply the following general approaches in addressing these issues:

- the precautionary approach;
- interaction with relevant organizations and agencies;
- capacity building and technology transfer;
- knowledge of local and indigenous communities;
- community and user-based approaches; and
- use of the Convention clearing-house mechanism and national reports of Parties.

Following from the Jakarta Mandate, marine and coastal biodiversity was established as one the first sectoral issues to be addressed by the Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA). Amongst other things the SBSTTA has been responsible for a resolution calling for the reduction in over-capacity and subsidies which was endorsed at COP2; the establishment of a roster of Experts on Marine and Coastal Biological Diversity; and development of a three-year work plan focusing on issues such as; application of the precautionary approach to biodiversity impacts; implementation of integrated marine and coastal area management. While marine and coastal biodiversity remain on the Agenda of the SBSTTA it is likely that States will be asked to take further action to conserve and ensure the sustainable use of marine and coastal biodiversity.

Implementation of the convention on Biological Diversity in Australia

The Australian Government has ratified the Convention on Biological Diversity. At present, the Commonwealth has not enacted any domestic legislation to implement its obligations under the Convention, but has proposed to implement the Convention through a National Strategy. It is clear from the Convention on Biological Diversity and the Commonwealth's strategy that the Convention is intended to be applied to the terrestrial and the marine environment. Like the Convention, the Strategy makes it clear that the Convention on Biological Diversity Convention applies to the marine environment.

Section 2.3 of the Strategy is devoted to fisheries. The objective of the section is to achieve "the conservation of biological diversity through the adoption of ecologically sustainable fisheries management practices". To achieve this objective, the Strategy proposes two actions: (a) improving the knowledge base of fisheries and (b) improving fisheries management. The relevant parts of these actions are reproduced below.

Under 2.3.1, the Strategy proposes increase data collection and coordinated research into the biological diversity and human use of the Australian Fishing Zone and estuarine and freshwater areas, with priority being given to the following:

- the impact of recreational fishing on fisheries, fish and their habitats;
- the impact of commercial fishery practices on non-target and by-catch species and ecosystems, on the viability of populations, and on genetic diversity;

- the development of fishing techniques that are species specific, that have the least impact on non-target species, and that minimise waste of the resource, with particular emphasis on trawling and shellfish dredging;
- the development of rapid monitoring techniques, especially where native species are harvested;
- the identification of critical habitats for harvested native fishes, in particular spawning and nursery grounds;
- the development of ‘state of the environment’ reporting for freshwater, estuarine and marine area;
- the determination of the impact of both aquaculture species and aquaculture management practices on the environment, including aquatic wildlife.

Section 2.3.2 of the Strategy on improved management is aimed at ensuring “that the implementation of fisheries ecosystem management, as agreed to by the Australian and New Zealand Fisheries and Aquatic Council and outlined in the National Strategy for Ecologically Sustainable Development, is consistent with the conservation of biological diversity. Priority is to be given to the following areas:

- reviewing the appropriateness of current management strategies, techniques, standards, jurisdictions and legislation;
- using economic instruments and incentives for conservation activities, including rehabilitation programmes;
- developing and adopting practical and acceptable codes of practice for the management and monitoring of commercial and recreational fishing, for the conservation of invertebrates, for the rehabilitation of depleted stocks, and for key habitat and spawning areas;
- developing through the Australian and New Zealand Fisheries and Aquaculture Council, in consultation with relevant Ministerial Councils, the National Strategy and Guidelines for managing recreational fishing on an ecologically sustainable basis;
- implementing, in consultation with industry, such necessary changes to current practices as identifies under Action 2.3.1 above;
- developing through the Australian and New Zealand Fisheries and Aquaculture Council, in consultation with relevant Ministerial Councils, National Strategy and Guidelines for managing aquaculture developments;
- developing, where necessary, rehabilitation programmes for aquatic habitats of importance to biological diversity conservation.

Fisheries Implications

The high profile given to marine biodiversity conservation issues under the Biodiversity Convention means that, in future, measures may be adopted to regulate access to fisheries resources. From the provisions of the Convention and the Commonwealth’s Biological Diversity Strategy, the possible implications of the Convention for the fishing industry may include gear restrictions (the strategy specifically mentions trawling and shellfish dredging); species restrictions; area restrictions and by-catch reduction. The implementation of the Biodiversity Convention may also result in the declaration of protected areas where fishing will be totally prohibited or allowed in restricted circumstances. However, the National Strategy makes it clear that any action to protect biological diversity must be in consultation with the relevant stake holders. In the case of the protection of biological diversity in the marine environment, this means that relevant States and Territories fisheries administrations, industry, indigenous and recreational groups must be consulted before any actions are implemented.

PART II: NON-BINDING INSTRUMENTS

In addition to the treaties or conventions described above, there are a large body of non-binding international instruments - mainly declarations and resolutions of international organisations and meetings of states, which address fisheries issues specifically. Although they do not create binding legal obligations, these instruments may influence international and domestic fisheries policy making. They may also provide the basis for binding agreements at a future date.

1. Agenda 21 (UNCED, 1992)

Agenda 21 is the programme of action agreed to by States during the Rio United Nations Conference on Environment and Development in 1992 . The part of Agenda 21 that directly deals with fishing is Chapter 17. Chapter 17 of Agenda 21 is the basis of the Agreement on Straddling Stocks/Highly Migratory Species and the FAO Code of Conduct. Chapter 17 of Agenda 21 requires the international community to address environmental issues that affect the marine environment in a comprehensive manner. Chapter 17 requires, among other things, that States must:

- maintain and restore populations of marine species at sustainable levels, qualified by relevant environmental and economic factors and taking into consideration relationships among species;
- minimise waste in the catch of target species, to protect and restore endangered species;
- manage marine living resources under their national jurisdiction sustainably;
- protect and preserve endangered marine species;
- protect fragile ecosystems as well as habitats and other ecologically sensitive areas;
- impose limitations on the use of critical habitat areas;
- ensure that destructive mechanisms used for fishing are prohibited within national boundaries; and
- ensure that the sustainable use and conservation of marine living resources under national jurisdiction include developing and increasing the potential of marine species for nutritional, social, economic and developmental goals;
- that local communities, indigenous people and small-scale artisanal fisheries are involved in the development of fisheries management programmes.

The 1997 review of actions taken to implement Chapter 17 of Agenda 21 by the Commission of Sustainable Development acknowledged that efforts were being taken to improve the conservation and management of fish stocks. However given that core problems, such as rising levels of pollution and increasing discard still persist, the Commission recommended *inter alia*:

- that all Governments ratify or accede to the relevant agreements as soon as possible and to implement effectively such agreements as well as relevant voluntary instruments (the Agreements in question include the Biodiversity Convention);

- further international cooperation to support the strengthening, where needed, of regional and subregional agreements for the protection and sustainable use of the oceans and seas;
- that all Governments prevent or eliminate overfishing and excess fishing capacity through the adoption of management measures and mechanisms to ensure the sustainable management and utilization of fishery resources and to undertake programmes of work to achieve the reduction and elimination of wasteful fishing practices, wherever they may occur, especially in relation to large-scale industrialized fishing;
- that Governments consider the positive and negative impact of subsidies on the conservation and management of fisheries through national, regional and appropriate international organizations and, based on these analyses, consider appropriate action.

Fisheries Implications of Agenda 21- the precautionary approach

One of the key concepts that emerged from Agenda 21 is the Precautionary Approach. The Precautionary approach, as stated in Principle 15 of the Rio Declaration, requires that “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation”.

Chapter 17 of Agenda 21 builds on the Rio Declaration by stating that approaches to fisheries management should be precautionary and anticipatory in ambit. This is in response to the fact that many fish stocks are now fully exploited or are exploited beyond sustainable levels.

The precautionary approach has been recognised in all the most recent global legal and non-legal agreements impacting on the conservation of large migratory fish; including the Straddling/Highly Migratory Fish Stocks Agreement, the Convention on Biological Diversity and the FAO Code of Conduct for Responsible Fishing. The approach has been endorsed by the FAO(FAO, 1996b).

The most recent and comprehensive practical guide to how the precautionary approach should be applied in the fisheries context is set out in the Straddling/Highly Migratory Fish Stocks Agreement. Article 6.1 of the Agreement requires the application of “the precautionary approach widely to conservation, management and exploitation of straddling fish stocks and highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment.” States are enjoined “to be more cautious when information is uncertain, unreliable or inadequate” (Article 6.2). Specifically Article 6.3 requires, “the absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.”

Incorporation of the precautionary approach into Article 6 of the Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks creates a legal obligation on States who ratify the Agreement to apply the approach in decision-making on fishery issues at the national level.

In Australia the New South Wales *Fisheries Management Act* 1994 has included the precautionary principle in Section 30 of the Act. One of the factors which the Total Allowable Catch (TAC) Committee is to take into consideration in allocating the TAC is the "precautionary principle", i.e. "that if there are threats of serious or irreversible damage to fish stocks, lack of full scientific certainty should not be used as a reason for postponing measures to prevent that

damage". The precautionary principle has also been introduced to AFMA legislation by a 1997 amendment to the *Fisheries Management Act, 1991*.

2. The Kyoto Declaration, 1995

From the 4th to 9th December 1995, 95 States met in Kyoto for the International Conference on the Sustainable Contribution of Fisheries to Food Security. The conference focused on the critical link between food security and ensuring the sustainability of fisheries which contribute to the income, wealth and food security of all people, and are of particular significance to some low- income food-deficit countries. The Conference emphasised that unless appropriate action is taken very soon, the combination, at the global level, of population increase and economic growth, in conjunction with continued overfishing, excess fishing capacity and degradation of the aquatic environment, will place enormous strains upon the fishery sector's capability to sustain its necessary contribution to food security. The Kyoto Declaration among other things requires that States:

- Promote fisheries through research and development aiming at: (i) optimum use of unexploited or underexploited resources (requires intensive surveys); (ii) identification of new, harvestable, aquaculture sources; (iii) reduction of discard mortality; (iv) development and use of selective, environmentally safe and cost-effective fishing gear and techniques;
- Increase the available supply of fish and fishery products for human consumption, nationally and internationally, through: (i) making optimum use of harvests and reducing post-harvest losses; (ii) developing, improving and sharing appropriate storage, processing and distribution technology; and (iii) developing and promoting effective systems ensuring the safety of food of aquatic origin, including harmonization of international regulations;
- Support enhancement of fisheries in coastal marine and inland waters, when and where appropriate, by: (i) assisting in the stocking of resources and restocking of depleted resources through providing suitable organisms; (ii) assisting fishers to organize themselves; (iii) promoting the use of integrated community based and/or co-management schemes; and (iv) subject to national priorities, establishing access or user rights in waters exploited under open access regimes;
- Promote the use of sustainable and environmentally sound aquaculture and ranching in coastal marine and inland waters through, inter alia: (i) establishment of appropriate institutional and legal frameworks; (ii) coordination of the use of lands and waters with other activities; (iii) use of the best and most appropriate genetic material in conformity with the conservation and sustainable use of the environment and conservation of biological diversity; and (iv) application of social and environmental impact assessments;
- Ensure that trade in fish and fishery products promotes food security, does not result in environmental degradation or adversely impact the nutritional rights and needs of people for whom fish and fishery products are critical to their health and well-being and does not undermine applicable global, regional and subregional conservation and management measures being conducted in accordance with the principles, rights and obligations established in the World Trade Organization (WTO) Agreement.

3. The FAO Code of Conduct for Responsible Fishing, 1995

The FAO Code of Conduct is voluntary, global in scope and directed not only at States, but also all "members and non-members of FAO, fishing entities, sub-regional, regional and global

organisations, whether governmental or non-governmental and all persons concerned with the conservation of fishery resources and the management and development of fisheries” (Article 2a).

The Code’s objective is to establish principles for responsible fishing and fisheries taking into account all their relevant biological, technological economic, social, environmental and commercial aspects (Article 2a).

The Code of Conduct originates from the Declaration of Cancun which defined responsible fishing as encompassing:

- the sustainable utilisation of fisheries resources in harmony with the environment;
- the use of capture and aquaculture practices which are not harmful to ecosystems, resources or their quality;
- the incorporation of added value to such products through transformation processes meeting the required sanitary standards; and
- the conduct of commercial practices so as to provide consumers access to good quality products.

Fisheries Implications

The Code covers a number of issues which will affect the manner in which fishing is carried out. These issues include the establishment of general principles for: responsible fishing; fisheries management; fisheries operations; post-harvest practices and trade; aquaculture development; integrated coastal area management and fisheries research.

Some of the practical implications of the FAO Code of Conduct for the fishing industry may be summarised as follows:

- Stock should be maintained at a level above the minimum required to secure a high probability of replenishment of the resource. This raises the issue of precautionary management of fisheries as discussed above.
- All stock management objectives should also provide a high probability that biodiversity is conserved.
- Adverse environmental impacts on the resources from all human activities should be assessed and where appropriate corrected (7.2.2). Here an industry concern should be who pays for this level of knowledge, identification and correction?
- “In implementing the precautionary approach, States should take into account, inter alia, uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distribution of fishing mortality and the impact of fishing activities, including discards, on non-target and associated or dependent species, as well as environmental and socio-economic conditions”(7.5.2). Is this happening sufficiently in fisheries management in Australia?
- In the case of new or exploratory fisheries, States should adopt cautious conservation measures including catch and effort limits. Such limits should remain in force until there are

sufficient data to allow assessment of the impact of any increase in fishing intensity on the long-term sustainability of stocks (7.5.4).

- Records of authorised fishing vessels be maintained containing relevant details for every vessels authorised, including type and size of vessel (8.2.1); and that data maintained in the record be used to monitor the capacity of the fleets in terms of catch requirements, capital invested and cost of operations. Both these suggest that better information is required on vessels, vessels characteristics, and market values of vessels than is currently held in many fisheries. This has cost implications for management and would cause valuation problems if enacted.
- Vessels granted authorisations to fish may have such authorisation withdrawn for non-compliance with conservation and management measures (8.2.7). This raises the quality and terms of rights in "authorisations" (licences?).
- "When deciding on the use, conservation and management of fisheries resources, due recognition should be given, as appropriate, in accordance with national laws and regulations, to the traditional practices, needs and interests of indigenous people and local fishing communities which are highly dependent on fishery resources for their livelihood." (7.6.6). This has implications for the Australian scene in line with the Mabo decision and the *Native Title Act*.
- Fisheries management authorities should introduce measures for seriously depleted resources that facilitate their sustained recovery (7.2.2). They should ensure that habitats critical to the well being of the resource which have been adversely affected by fishing or other activities, are restored to a productive condition (7.6.10). Who funds the restoration?
- The other part of the Code that is of most relevance to industry is post-harvest practices and trade regulations (Article 11).
- "States should adopt appropriate measures to ensure the right of consumers to safe, wholesome and unadulterated fish and fishery products" (11.1.1). This has implications for additives or substitution and naming of fish products.
- "States should cooperate to achieve harmonization, or mutual recognition, or both, of national sanitary measures and certification programmes as appropriate and explore possibilities for the establishment of mutually recognized control and certification agencies" (11.1.4). This is different from the current situation where mercury content regulations for species such as swordfish and testing of standards, are different in several states within Australia.
- "States should develop international agreements for trade in live specimens where there is a risk of environmental damage in importing or exporting States." (11.2.10). Are the fishing and aquaculture industries aware of the need to develop these? Internationally there are environmental concerns over where and how live fish are captured.
- "When a State introduces changes to its legal requirements affecting trade in fish and fishery products with other States, sufficient information and time should be given to allow the States and producers affected to introduce, as appropriate, the changes needed in their processes and procedures. In this connection, consultation with affected States on the time

frame for implementation of the changes would be desirable." (11.3.4). This provision could be used by Australia as a short term defence should trade sanctions be imposed under US legislation (see Section B below).

PART III. NON-GOVERNMENT ORGANISATION DEVELOPMENTS WITH IMPLICATIONS FOR FISHERIES

Non-government organisations (NGOs) are increasingly embracing fisheries issues through the development of policies, practical programmes, campaigns and the promotion of the implementation of international codes and agreements. Non-government organisations are in a powerful position in terms of their capacity to (i) reveal critical issues affecting fisheries and (ii) promote the action required to achieve sustainable use of fisheries. This section describes initiatives from two NGOs that may have implications for the fisheries sector. This section is by no means exhaustive and only illustrates some key NGO initiatives.

1. The International Union for Conservation of Nature (IUCN)

The World Conservation Union (IUCN), was established in 1948 as the "International Union for the Protection of Nature". Today it is a union of 74 State governments, 105 government agencies, and 700 non-governmental organisations. The mission of the IUCN is:

To influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature, and ensure that any use of natural resources is equitable and ecologically sustainable.

Two initiatives of the IUCN have potential implications for the Australian fishing industry. The first is the IUCN Red List and the second is the IUCN - Marine and Coastal Programme (IUCN-MCP).

The IUCN Red Lists of Threatened Animals and Plants are the most comprehensive and authoritative global surveys of threatened species in existence. They identify taxa that are most threatened, thereby serving as tools to help set priorities for conservation action and providing baseline information for monitoring. The Red List provides a framework for more specific information about taxa under threat - such as national lists and conservation strategies - and alert regions, nations, and communities of taxa of international conservation concern. The Red Lists are frequently used to create and strengthen national species protection laws.

In the past, marine fish have not been well represented on the list because the criteria for listing have been based on terrestrial, rather than marine life. Increasing awareness of the potential risk to many marine animals has resulted in the development of supplementary conditions which apply to such animals. As a result, recent work has been carried out to identify the status of a range of marine animals and a list indicating their conservation status according to the IUCN Guidelines has been prepared. The land based criteria may not be particularly suited to marine species listing.

The goal of the IUCN-MCP is to ensure the conservation of marine biodiversity by promoting, influencing and catalysing sustainable uses and equitable sharing of the resources as well as protecting the ecosystems. The types of activities the IUCN-MCP undertakes with likely implications for fisheries include:

- Development of a representative system of marine protected areas;

- Development of strategies for sustaining the conservation of trans-boundary (shared) marine and coastal resources as well as biodiversity;
- Marine Biodiversity conservation;
- Implementation of the International Coral Reef Initiative;
- Participation in and implementation of international legal instruments and institutional arrangements such as are discussed in this report.

Implications for fisheries

The IUCN Red Listings are recognised internationally and are referred to by government and non-government organisations. The listing of a species therefore enables non-government groups to exert pressure on governments to adopt conservation measures for such species. Listing can also be used to support the nomination of species for protection under international agreements such as the Convention on Trade in Endangered Species of Flora and Fauna or the Convention on the Conservation of Migratory Species.

The very existence of the IUCN Red List provides some guidelines for decision-makers to determine when a species is endangered or threatened. In this sense, the IUCN Categories may be seen as setting a reference point for identifying when a species requires protection. Yet there has been concern that many IUCN listings have little published analysis. Australian industry note that for the listing of southern bluefin tuna, the IUCN did not document any analysis on pre or post listing.

The IUCN List is also internationally respected because it is independent of any State's national interest. Listing does not depend on nomination by a State and it provides a more accurate indication of endangered species than any of the lists under international Conventions. The appropriateness of the list for marine species requires evaluation.

2. The Marine Stewardship Council

The Marine Stewardship Council (MSC) was founded in 1996 as a joint initiative between World Wide Fund for Nature (WWF) and Unilever Plc and is one of a range of eco-labelling initiatives. Both organisations sought to ensure the long-term viability of global fish populations and the health of marine ecosystems on which they depend by harnessing market forces and consumer power in favour of sustainable fisheries. The MSC is now an independent non-profit, non-governmental body.

The MSC's aim is to work for sustainable marine fisheries by promoting responsible, environmentally appropriate, socially beneficial and economically viable fisheries practices, while maintaining the biodiversity, productivity and ecological processes of the marine environment, through:

- conserving marine fish populations and the ocean environment on which they depend;
- promoting responsible management of fisheries, ensuring the sustainability of global fish stocks and the general health of the marine ecosystem;
- establishing and promoting the application of a broad set of Principles and Criteria for Sustainable Fishing; and
- providing certification and accreditation services.

To achieve its objectives, the MSC has established a broad set of principles and criteria which will be implemented through a standardised certification scheme. Fisheries meeting these standards will be eligible for certification by independent, accredited certification bodies. The certification and logo scheme is designed to provide the incentives for sustainable practices. By opting to use the MSC logo, producers of fish products will give consumers the option to buy fish products from sustainable, well managed sources.

Signatories represent a wide spectrum of fisheries stakeholders and others concerned with the growing international fish supply problem. These include fishers organisations, fish processors, fish buyers and food retailers. Support has been stronger amongst countries who are already making efforts to improve fisheries management. However as with any new concept, a number of fisheries organisations have reservations about the program. The potential effectiveness and influence of this approach is unknown.

Fisheries Implications

The MSC has just been established and it is too early to assess the potential implications of the MSC's certification process for Australian fisheries. The potential implications may include:

- pressure being exerted on governments by fishers to ensure that management programs meet the MSC criteria for certification;
- retailers which become signatories will create a demand for certified fish, therefore encouraging fishers to apply for certification;
- as consumers become educated about their choice between certified and uncertified product, consumer pressure will be placed on retailers to become signatories to the MSC;
- fishers meeting the MSC's criteria will gain a premium price for sustainably produced fish;
- achieving certification may require activities such as reducing quotas, restricting catch areas, changes in equipment, reducing fishing capacity and in some instances temporary closure of fisheries.

There are many hurdles to be overcome in the establishment of this and other accreditation schemes as discussed in section C.

Section B: Fisheries trade and the environment.

This section commences by reviewing some of the key elements of the trade and environment debate. The environmental influence on trade policy is increasing in many natural resource sectors (Sheehan, 1994), and in fisheries trade in particular (Downes and Van Dkye, 1998). We examine recent decisions in international trade disputes, policy developments in the international trade arena and fisheries environmental issues. The section concludes with a discussion of the general issues in the fisheries trade and the marine environment debate.

The environment and fish trade

International trade in fish and fisheries products may have both positive and negative effects on the environment. Fisheries trade is not the root cause of the fisheries problem, but where fish stocks are not properly valued and managed, trade can increase the exploitation of the unmanaged fishery. For example in many developing countries demand from overseas markets may lead to producers overfishing an open access fishery. The problem is the lack of fishery management in the face of the trade stimulus to producers. In the Australian context demand from overseas challenges input and output management regimes due to the incentives given by export markets.

The resource management issue is at the core of the fish trade and environment debate. Where governments do not manage the market failure evident in an open access fishery, it is a case of government failure (OECD, 1994). Governments must manage their marine fish resources.

We also see the trade flows from resource to consumer as being a way to try and correct market and government failure internationally. This is a step removed from resource management and tries to bring economic pressure to bear on the fish producers through trade measures. This concept is now being expanded with consumers being given the opportunity to influence the way fishers produce via eco-labelling schemes, such as the “dolphin safe” labels on canned tuna.

The fish trade and marine environment debate has several different types and qualities of failure. The remedy is for different national governments to take responsibility for the sustainable management of their environmental assets.

Market failures

The market system can fail to value environmental and natural resources properly. Industrial firms often avoid expensive waste treatments and externalise their production costs by using the environment as a free waste sink, hence causing pollution in the fisheries environment. Similarly markets tend to under value the worth of ecosystems, counting only the value of the product as reflected in the price of the product. The valuation should include the direct, indirect values, existence and option values; the value of the field, not just the crops. An example of this would be to value the Great Barrier Reef Marine Park only on the basis of its renewable use by industries (e.g. fisheries and tourism). To do so would ignore its existence and option values, which value its bio-diversity and contribution to the welfare of this and future generations.

Property and access rights

Ill-defined access rights lead to over-exploitation of the resource. Thus the resource is degraded for this and future generations. Similarly nations can take resource decisions that fail to account for the costs and benefits to the world as a whole, such as in the management of straddling or highly migratory resources, and the management of the high seas, where a wider view than just single nation benefits must apply (OECD, 1994).

Economists suggest the enhancement of property rights to address the common property problem in fisheries. This can address the market failure and may provide an incentive for fishers to look after the environment. There is little evidence as yet, that enhancement of property rights will automatically lead to greater environmental integrity, but they may promote more controlled and rational fish exploitation and thus be an important tool in achieving more responsible fisheries management (McIlgorm, 1996).

Intervention failures

Intervention failures occur when government policy intervention fails to correct for or further exacerbates market failures. Subsidisation is an example, and has been a problem in the global fishing industry, where government capital and operational subsidies can lead to generation of a greater amount of fishing effort than in the free market. This in turn promotes unsustainable use of fish resources and overfishing.

Subsidies are often given to promote exports. There are many international examples of subsidies being given to promote ground fish, shrimp and tuna fisheries. Subsidies lead to greater vessel entry to the fishery than under the free market case and hence fisheries management and environmental problems (Sen, 1994; Milazzo, 1996). Australia had vessel import policies in the early 1980s that led to over capitalisation (e.g. the Northern Prawn Fishery).

Product effects

Negative product effects come from trade in a good that will be detrimental to ecosystems, for example the trade in an endangered species. The consumer demand for endangered species can come from abroad and lead to illegal trading activity. Process and Production Methods (PPMs) give rise to product effects, such as fisheries bycatch which is incidental to the fishing process.

If trade has been affected by subsidisation or differential tariff rates on product forms, then the liberalisation of trade can be positive for the environment. However, if fisheries management practices are unsound, then the liberalisation of trade measures may only lead to more destruction of the environment.

Trade barriers

Tariffs and non-tariff barriers may also be policy intervention failures which exacerbate existing market failures and intervention failures.

Tariff barriers

Under GATT, tariffs are preferred to quotas and approximately 80% of international trade in fishery products is GATT bound (Sen, 1994). Generally tariffs for processed or semi-processed fishery products are higher than for unprocessed fishery products. The global environmental concern with tariff rates is that developing countries get preferential tariff rates from exporting unprocessed products to developed country markets. The higher tariffs on processed products do not account for weight losses in processing and thus the effective difference between a 10% nominal difference in tariffs between cod and cod fillets may be an effective difference of between 43 and 52% when weight loss is considered (OECD, 1985). Thus the international tariff structure may lead to raw resource bearing countries exporting more fish in raw material form than desirable. Where there is poor fisheries management the tariff structure may contribute to resource depletion (Sen, 1994).

Non-tariff barriers and sanitary and phyto-sanitary regulations

Non tariff barriers (NTBs) are usually health and hygiene regulations or administrative procedures that may constitute an impediment to foreign exporters forwarding fishery products. A review of Non-Tariff Barriers faced by Australian seafood products is given in Dennis and Battaglione (1995). It is apparent that under Japanese import policy, up to 100% of fishery products could potentially be subject to non-tariff barriers. They are currently at low levels.

Munro (1995) reviewed the NTBs for several countries and suggests that Sanitary and Phyto-Sanitary (SPS) measures can impede imports and are in place by countries against perceived or actual SPS threats. SPS measures will have a much greater influence on the products of aquaculture than wild fisheries due to contaminants residing in many traded aquaculture products (Srisomboon and Poomchatra, 1995).

The international moves to Hazard Analysis and Critical Control Points (HACCP) programs in seafood trade has the potential to become a major SPS issue for seafood exporting countries (Wessels, 1998). The cost of installing a HACCP is relatively fixed and high, and is thus an impediment to small producers trading in markets where HACCP is a requirement. Non-HACCP product may be subject to a range of restrictions (Wessels, 1998).

Australian exports conform to HACCP programs. Non-HACCP imports could be a major issue for Australian seafood trade in the coming years. It is important that HACCP programs are not used as *de facto* trade barriers in breach of the WTO (see below).

Sen (1994) gives an example of a country rejecting the import of foreign produced fish which are under the size limits imposed in domestic fishery management legislation. It is possible that another country's attempt to manage fisheries and protect the environment under domestic law may have implications for foreign producers and constitute a non tariff barrier to trade with an environmental origin. This has now been the case in several international trade panel decisions.

Trade instruments and the environment- recent WTO decisions

International trade among nations is regulated by an agreement called the General Agreement on Tariffs and Trade (GATT), though this is being superceded by the World Trade Organisation (WTO). The main aim of the GATT was the liberalisation of international trade and the prohibition of discrimination and the imposition of unilateral sanctions by individual countries. Generally, the provisions of GATT prohibit the use of import quotas and other restrictions on quantities (such as quotas) on imports. The international trade in fish also comes within the WTO rules. The only exception is where the import restriction is related to a health concern. Even so, such health measures are to be applied without discrimination.

The preamble to the WTO Agreement includes direct references to the objective of sustainable development and to the need to protect and preserve the environment (WTO, 1998). The new Agreements on Technical Barriers to Trade (TBT) and on Sanitary and Phyto-Sanitary measures take explicitly into account the use by governments of measures to protect human, animal and plant life and health and the environment (WTO, 1998).

The tuna-dolphin controversy and the GATT Rulings

Over the years, the US has imposed trade embargoes on the importation of tuna and tuna products from tuna fishing nations and intermediary nations under the *Marine Mammal Protection Act* and other related domestic legislation of the US. Countries affected by such import bans have argued that the US unilateral action amounted to a violation of its GATT obligations. The GATT Panel has considered several disputes.

Mexico-United States Dispute (1991)

The first dispute was between Mexico and the US. Following the imposition of an embargo on the importation of yellowfin tuna and yellowfin tuna products from Mexico for the failure of its flagged vessels to comply with US dolphin conservation measures, Mexico challenged the legality of the embargo imposed by the US under the *Marine Mammal Protection Act* and the *Dolphin Protection Consumer Information Act*. Mexico argued that the US embargo was an unlawful disruption of international trade and was protectionist in nature.

In 1991, the special GATT Disputes Panel found that the prohibitions on imports of tuna products were contrary to the GATT. The intermediary nation provisions of the *Marine Mammal Protection Act* were also considered to be contrary to the GATT and should be made to conform with the GATT.

European Economic Community and the Netherlands v. the USA (1992).

In July 1992, the European Economic Community (EEC) and the Netherlands sought a ruling by the GATT panel on the legality of US trade restrictions to enforce the *Marine Mammal Protection Act*. The EEC and the Netherlands argued that the unilateral import prohibitions on tuna and tuna products by the US under its domestic legislation amounted to quantitative restrictions and therefore were contrary to the GATT. The EEC and the Netherlands were supported in their argument by Australia, Canada, New Zealand, Japan, Thailand and Venezuela.

In May 1994, the GATT Panel ruled against the US. As in the case with Mexico, the Panel found that the primary and intermediary import prohibitions by the US on tuna and tuna products under the *Marine Mammal Protection Act* were contrary to the relevant provisions of the GATT.

Prohibition of imported shrimp (1996 to present).

In 1996 the United States found itself being taken to the GATT panel over the "Import Prohibition of Certain Shrimp and Shrimp Products" the complaint being made by India, Malaysia, Pakistan and Thailand, against a ban on importation of shrimp and shrimp products from these countries imposed by the US under Section 609 of US Public Law 101-162 (WTO, 1998). This action was due to the US government being forced to take action under domestic environmental legislation to prohibit shrimps caught without acceptable Turtle Excluding Devices (TEDs).

The Panel found that the import ban in shrimp and shrimp products as applied by the United States is inconsistent with Article XI:1 of GATT, and cannot be justified under Article XX of GATT 1994. On 13 July 1998, the US notified its intention to appeal certain issues of law and legal interpretations developed by the WTO Appellate Body (WTO, 1998). The appeal was completed on 13th October, 1998. The US measure was arbitrarily and unjustifiably discriminatory. However the decision respected the right of the US to protect its natural resources under Article XX (See www.wto.org for full decision). The original US action only effected Australian product indirectly, due to shrimp intended for the US being diverted to markets supplied with Australian prawns.

Analysis of this recent decision has been limited, but several points have been proposed by Davies (1998):

- the appellate body did not mention production method based distinctions in the decision, which is in contrast to the earlier tuna/ dolphin case;

- the appellate body struck down the US law as applied on other nations- Davies suggests the same objective may be viable via certification of individual shipments;
- the US could have negotiated with countries regarding remedies, and could have followed a more equal policy in dissemination of TED technology;
- the appellate body held that the interpretation of terms in the WTO agreements is an evolutionary process and must take account of other international environmental law and the LOSC;
- the appellate body considered “*amicus*” briefs (friendly help to the benefit of the case from outside the parties involved, prepared by NGOs/academics/Greenpeace). This has started to bridge the divide between trade and environment identified in this report (Davies, 1998a&b).

The decision shows considerably more understanding of the environmental issues involved in trade and environment issues.

The Canadian-Australian quarantine dispute (1995 to present)

Australia have had direct dealings with the GATT over the complaint made in 1995 by Canada - "Measures Affecting the Importation of Salmon". Canada alleges that Australia's prohibition of imports of salmon from Canada based on a quarantine regulation is inconsistent with GATT Articles XI and XIII, and also inconsistent with the SPS (Sanitary and Phyto-Sanitary) Agreement. In June 1998, the Panel found that Australia's measures complained against were inconsistent with Articles 2.2, 2.3, 5.1, 5.5, and 5.6 of the SPS Agreement, and also nullified or impaired benefits accruing to Canada under the SPS Agreement (WTO, 1998).

On October 20th 1998, the panel found that Australia had not been consistent in its treatment of salmon imports as opposed to other species. The risk assessment evidence for not importing “ocean-caught” Pacific salmon was also less than expected. The appellate body was unable to find, on the basis of insufficient facts, that the import restriction constituted arbitrary or unjustifiable restrictions. The dispute will continue. The full decision is on the WTO net site (www.wto.org).

Fisheries Implications of GATT Rulings

The early GATT panel decisions affirmed that international trade law does not sanction the unilateral use of trade measures by any country to compel other countries to comply with domestic conservation measures imposed by that country. This conflicted with the principles of non-discrimination and free trade. However, collective international trade measures can be used to enforce international conservation measures. Examples of such measures may include trade restrictions as under the Driftnet Convention and under CITES.

Integrating trade and international environmental instruments

In the past few years the WTO have become aware of the potential conflict between environmental and trade regimes and have sought to defuse international trade becoming the arena of environmental disputes. The WTO Committee on Trade and Environment has brought environmental and sustainable development issues into the mainstream of WTO work (WTO, 1998). They have recognised Multilateral Environmental Agreements (MEAs - what we call international environmental instruments), but are concerned that nations may use "the environmental window" to avoid non-discrimination and transparency in trade.

Beyond that, and subject to certain important conditions, the exception clauses contained in Article XX of the GATT allow a WTO Member legitimately to place its public health and safety and national environmental goals, ahead of its general obligation not to raise trade restrictions or to apply discriminatory trade measures (WTO, 1998). As we have seen, this can lead to disputes between nations.

The WTO is attempting to see transboundary or global environmental problems tackled by cooperative, multilateral action under multilateral environmental agreements suggesting that this approach was endorsed by political leaders at the highest level in 1992 at the UNCED (WTO, 1998). Unilateral trade disputes are still likely to occur, but the WTO hope they will be minimal.

The 1998 US shrimp/turtle started as a production method dispute, but the Appellate Body ruling as discussed above, indicates that there has been a development in the WTO – international environmental law interface. The Canadian-Australian salmon dispute may also contribute to the reconciling of international trade principles and SPS issues. Sanitary and phyto-sanitary issues need to be monitored by the Australian seafood industry.

Eco-labelling

The WTO recognise the rise of eco-labelling and its potential effectiveness in environmental policy. Their concern is that trade under eco-labeling would not discriminate between home-produced goods and imports, nor between imports from, or exports to, different trading partners.

"Non-discrimination is the cornerstone of secure and predictable market access and undistorted competition: it guarantees consumer choice and it gives producers access to the full range of market opportunities. Subject to that requirement being met, WTO rules place essentially no constraints on the policy choices available to a country to protect its own environment against damage either from domestic production or from the consumption of domestically produced or imported products" (WTO, 1998).

The WTO suggest that some of those trade concerns can be met by ensuring transparency in the preparation, adoption and application of eco-labelling schemes (see Section C of this report). This also includes participation in their preparation by interested parties from other countries (WTO, 1998).

Other trade developments

The Multilateral Agreement on Investment (MAI) is a proposed trade framework which is to enable investor's capital to move more freely between nations. Should the MAI be successfully developed, (it may not be), it will have implications for the environment, and fisheries, particularly in less developed countries.

The OECD have been overseeing the preliminary development of the MAI (see www.oecd.org) and have made the following statement:

"MAI negotiators have recognised the importance of environmental concerns and will ensure that governments keep their freedom to implement policies to protect the environment, provided those policies are not more stringent for foreign investors than for domestic ones" (OECD, 1998 - website).

The implications for the international fisheries sector are unfolding. Downes and Van Dyke (1998) cite the UK/Spain Cod fishing dispute as an example of potential MAI impacts. Under the European Union nationality based fish quota scheme, each country was allocated quota. The UK amended its Merchant Shipping Act in 1988 to make sure that UK ownership should be 75%

of all merchant and shipping vessels in UK waters. The amendments were put in place to stop “quota hopping” where other nations register under the UK flag and fish the UK quota! After protracted legal argument under the Treaty of Maastricht, the European Court of Justice found against the UK as the measures violated investment liberalisation conditions of the treaty (Downes and van Dyke, 1998). The MAI may impact in a similar way.

The MAI may have implications for international investment in the Australian fisheries sector. The immediate concern would be that alterations by government to a range of fisheries management measures, such as licences and individual transferable quotas held by foreign nationals, may open Australia to compensatory claims under proposed expropriation conditions of MAI. The claim of foreign nationals would be that their investment has been diminished by government rules and hence should be compensated (Downes and Van Dyke, 1998 and see the Western Governors Association website – www.westgov.org).

The Australian position on the MAI is still under consideration by the Dept. of Foreign Affairs and Trade. In late 1998 it was considered that the MAI process has stalled, perhaps terminally, and will not be progressed.

Analysis

There has been concern that the free trade philosophy of GATT may have significant ramifications for the marine environment (McIlgorm, 1996, Campbell et al., 1997). The WTO approach, as described above, has been to attempt to minimise fisheries trade as the battlefield of environmental issues.

The WTO's Committee on Trade and Environment is pivotal in getting the "two worlds" of international trade and international environmental instruments to be reconciled. However this reconciliation is in a place where the trade framework of free trade may not sit well with managing a marine environment which has unique ecological qualities. It is a clash of the "level playing field" of free trade, with the desire to preserve environmental diversity. Protecting biodiversity is a place where the trade and environmental instrument clash will be greatest. This is only emerging.

Currently in Australia the Australian Quarantine Inspection Service (AQIS) is preventing the importation of some fish and fishery products from abroad. The import ban on fresh salmon has historically been advocated to preserve Australia's “disease free” status. The global liberalisation of trade under the WTO means that imports from abroad can lead to exotic diseases and organisms, such as starfish and viruses, entering the Australian marine environment. This could be to the detriment of native species and thus impact aquaculture and fishing industries. The importation of fresh Atlantic salmon from abroad may have ramifications for the domestic aquaculture industry and recreational fishing activities from introduced disease. Similarly there have been concerns that the import of frozen fish introduced into the marine environment may introduce exotic diseases.

In the first edition of this report we argued that there are inherent philosophical problems in reconciling the international free trade framework and international environmental instruments. The WTO trade and environment committee have moved to endorse the validity of multilateral environmental agreements as described within this report. These instruments indicate the need for the precautionary management of the marine environment and the preservation of marine biodiversity. Freedom of trade may promote economic efficiency with immediate benefits to the standard of living of the Australian community, but it may also lead to the erosion of the integrity of the marine environment and to the deterioration of our environmental comparative

advantage. This could have long term implications for both the fishing and aquaculture industries and will require national and international debate, as we attempt to protect the marine environment from viruses and diseases in imported fish products.

Trade policy makers need to recognise the global ecological significance and bio-diversity of the Australian EEZ (NOP,1999). The ocean medium is vulnerable to introduced viruses and disease by translocation. Quarantine policy and its marine environmental impacts, is an emerging area. The Australian - Canadian dispute is a significant test case.

Conclusions on fisheries trade and the marine environment

Since the first edition, threats of unilateral action from countries such as the United States on an environmental basis have been enacted. These have generally been found to be contrary to international trade agreements. The key question has been whether trade restrictions for environmental reasons are in fact *de facto* trade discrimination. Recent developments in the US shrimp/turtle case indicate that there may be an increasing capacity in the WTO to recognise protection of a nation's marine environment.

The wider problem in fisheries trade is the need for better fisheries management practices. Ultimately this requires all governments to take responsibility for the management of their marine environment. We also have seen the emergence of eco-labelling. The Marine Stewardship Council initiative is an attempt to by-pass governments which are slow to manage fisheries by creating market based incentives for producers to be sustainable. The effectiveness of eco-labelling remains to be seen.

Barriers to trade, such as non-tariff barriers and sanitary and phyto-sanitary measures have the capacity to develop into considerable problems in their relationship to WTO rules. With the continued development of international environmental instruments the debate may well widen from the current position where trade through the WTO is pre-eminent. WTO Panel decisions are a key part of this debate, the Canadian and Australian salmon dispute will have significant ramifications.

Industry should develop policy to protect the marine environment in the long term and should monitor the development of non-tariff barriers and SPS requirements of our trade partners, particularly for our aquaculture products. It is also important to continue to monitor developments in the fisheries environment and trade debate.

Section C: Strategic questions for the fishing industry.

This section reviews some of the larger issues being brought to the fore by the development of international environmental instruments. The instruments identified and examined in sections A and B have potential impacts for the management and use of the marine environment. There are a range of strategic issues discussed with the intention of assisting debate within industry on these issues.

The impact of International Environmental Instruments on fisheries and their management.

The fishing industry has already been impacted by environmental instruments in the areas of fisheries management, fishing practices and trade in fisheries products. This process of change will continue and issues will become more fishery and industry sector specific. In fisheries management we can expect issues such as allocation disputes, closure of areas, and reduction or prohibition of catch/fishing methods to be common. Trade issues, such as embargoes, may still be a threat, unless strategic or prompt action is taken pre-empting such issues.

Many of the environmental issues will keep re-occurring in the future with more weight in international law, national law, and with a new political and moral force. A key question is whether industry are actually fulfilling the requirements of international environmental instruments?

The apparent advent of environmental management in fisheries management has been overstated in the environmental literature. Many fisheries managers have been disciplinary specialists in marine biology/ecology or fisheries science. Often management initiatives have been restricted by socio-political constraints from taking a stronger environmental position. The environmental movement faces these same challenges. The current regime of fishery management in Australia with Management Advisory Committees (MACs) is the product of many years of government and industry cooperation and is seen by international on-lookers as being practical and effective, in comparison to many other countries.

There is now more explicit involvement in fisheries issues by the environmental departments of government, for example, Environment Australia. This development imposes a range of environmental constraints which could impact existing fisheries management arrangements which have sought to make fishers more accountable. Will new bureaucracies take fisheries management down old administrative pathways for new environmental reasons? We hope not.

The potential conflict in the way fisheries are conducted can be managed in several ways: area based closures for ecological reasons, and involvement in fishing production processes, such as fishing gear and bycatch issues. The problems here are similar to those faced by the fisheries bureaucracy in a previous generation. Area closures have been used for a long time by fisheries managers and in a range of ways. They may be resource allocative in nature and also tend to be like a ratchet - incremental; once in place, not easily lowered. All these issues are surrounded by great potential for acrimony and the eroding of many years of work between the arms of government in fisheries management and the fishing industry.

Addressing environmental objectives involves a range of policy tools: resource allocation, reducing catch to sustainable levels and industry restructuring. The implementation of environmental obligations will not be painless and will have significant implications for both industry, government and the community. In addressing environmental concerns it is important that hard won achievements of past fisheries management are not eroded.

Revisiting fisheries management issues

Fisheries management has been based around maintaining the fish stock, their environment, and the economic well being of the commercial fishing industry and other user groups. The review of international environmental instruments has indicated that:

- the health, sustainable use and restoration of the marine environment is an established objective of management;
- the conservation of fish stocks is a key obligation for managers;
- certain fisheries habitats should be conserved;
- regulations on fishing methods and species captured are required to protect endangered species and address bycatch issues;
- restoration of fish stocks is essential;
- management plans should be more comprehensive and include more reference points, switching points and performance indicators required by decision makers.

Few of these points are new to fisheries managers, but they are now part of our international obligations and may also come into national law. Many of the issues are central to the precautionary approach to fisheries management. Management plans will increasingly reflect the precautionary approach, all be it lipservice? After 30 years of recommending scientific evidence for fishery actions, a move to precautionary management "by principle" is a significant leap. Fisheries managers must critically appraise what the precautionary principle means.

The binding and non-binding instruments call for better implementation and control of the harvesting strategies by industry with plans being phased in, in the development of new resources. There is a need to be seen to be on top of the management of new fishery resource developments and not replay the development rush scenario seen in past resource developments.

At the international level there have been significant developments in policies for implementation of policies espoused in International Environmental Instruments. The United Nations FAO fisheries organisation has developed technical papers to support the execution of sustainable fishing operations, precautionary fishing and fisheries management (FAO, 1996a&b, and FAO, 1997). The integration of the coastal zone is also part of the process (FAO, 1996c). (These are available on the internet – see references).

The cost of data

Enhanced management plans will require more information from fisheries science than is currently available and will re-open debates on the cost of management information. The funding of research and information required for management will continue to be a key issue as a consequence of international environmental instruments. It is difficult to appraise if current research management structure is sufficient to meet international obligations. Part of the problem is the need to structurally adjust fisheries so as to align capacity with sustainable catch.

The quality of science is also an issue. In many fisheries worldwide the "good science-bad science" debate has raged; for example the Northern Bluefin Tuna fishery (Drumm, 1994). In Australia the issue of the size and "recovery" of the Southern Bluefin Tuna stock has created similar scientific tensions between treaty members. Risk assessment and biological reference

points will be a central part of the scientific debate surrounding environmental instruments. In international trans-boundary fisheries the harmonisation of science between States requires harmonisation with international standards, a major challenge for scientists. It has also been a major problem in international trade and fish trade where different standards apply between nations (OECD, 1994; see Harmonisation of Science in Annex1).

Declaration of closed areas

The declaration of closed areas, endangered species, and endangering fishing practices have been controversial issues in the past. The process used to close an area or to declare an endangered species is in need of greater transparency and a consistent approach between countries and across different government agencies.

The recent closure of the Great Australian Bight Marine Park has had a structured process. There is a preparatory non-statutory pre-declaration process, before the statutory pre-declaration process and the final statutory post-declaration process (pers comm. Environment Australia). However, some transparency cannot by itself allay the fears of industry in the face of the philosophical gap between use and non-use policies. The costs and benefits of closures do not seem to be subject to a transparent rigorous appraisal? Closing marine areas to fishing is of concern for industry and environmental managers in all departments. The oft advocated solution is structural adjustment of the industry with possible compensation payments to fishers. Who pays and how much will environmental initiatives cost?

Measurement of environmental integrity

One of the most difficult issues is appraising environmental integrity or environmental quality. How accurately can these be measured? The incorporation of environmental integrity indices in management plans require examination of eco-auditing or eco-accreditation of fisheries environments as performance indicators of environmental stewardship. The practicalities of this are unclear. The means for payment of eco-audits are not within current industry or government fishery management budgets. Eco-accreditation will also pose debates on the role of science in the management process, similar to the debates on good and bad science in stock assessment.

Restructuring industry capacity to sustainable levels

Over-capitalisation in global fisheries has been promoted by government subsidies and restructuring back to sustainable fleet levels has been difficult. As part of the sustainable development process, over capacity in the fishing industry should be reduced. A nationally consistent approach to fisheries structural adjustment mechanisms in Australia is proposed in Metzner and Rawlinson, (1998). Restructuring has required the enhancement of access rights in fisheries. Potentially, enhanced resource security may lead to more responsible use of the fisheries environment as fishers have a designated stake in the future well being of the fishery.

However, substantial restructuring of industry will also generate rent which may be vulnerable to collection by management. This creates a 'catch 22' for industry in that the restructuring of industry to achieve sustainable / environmental objectives may lead to individual fishers being worse off due to rent collection. Policy on rent collection should be reconciled with the government's push for ecologically sustainable development. A moratorium on rent collection would assist industry restructuring and could be used as an incentive to upgrade the environmental performance of industry.

By catch issues

Both industry and fisheries management agencies have had to confront the bycatch issue as part of their international obligations. Internationally these are referred to as Processes and

Production Methods (PPMs). Bycatch is a major problem in fisheries management and has a well established and possibly increasing public profile. Bycatch can be split into trawling and non-trawling issues. Trawling devices are often called TEDs (Turtle Excluding Devices). Non-trawl gear bycatch includes incidental seabird mortality in longlining operations. The debates on seabird mortalities, such as Albatross in the Southern Ocean, are part of the bycatch problem and have had significant ramifications for industry fishing practices.

Invariably the solutions to trawling bycatch problems involve "technical fixes", the solution being the development of TEDS or Bycatch Reduction Devices (BRDs) (Crowley, 1994). Mandatory legislation can also be used to address specific bycatch practices, for example, incidental dolphin kills under Australian legislation lead to large fines for taking protected species. Alternative responses to bycatch problems involve trade measures (OECD,1998) and voluntary codes by industry to address the problem. Experience to date has shown the most direct way to solve these production issues is in consultation with the fishing industry. Awareness, education and improved fishing practices are essential steps.

Increasing in complexity?

International environmental instruments are increasing the complexity of fisheries management. The number of policy making bodies involved in developing environmental fisheries policy will also be more than in the past. There is a currently a Reform of Commonwealth Environment Legislation in Australia which may impact fisheries and environment issues (COA, 1998).

Part of the new environmental dimensions added to the fisheries debate come from Environment Australia (EA). Environment Australia have grown significantly from previous government bodies in the Environmental Protection, National Parks and Nature Conservation areas. This has given Environment Australia a much stronger profile and the ability to focus on marine problems and biodiversity as an all encompassing theme. They are unfortunately seen as "the bringer of bad tidings" for the fishing industry, particularly in proposing their subordinate standard; "non-use" in the pursuit of biodiversity.

Declaration of Marine Parks for intrinsic habitat reasons is one of the strongest areas of interaction with the fishing industry. The historical reasoning in selling Marine Protected Areas (MPAs) to the fishing industry was their apparent refugia characteristics, "with more fish being available". There is no "sugar coating" for industry on genuine intrinsic habitat protecting MPAs. Calls for compensation of fishers on MPA declaration, illustrate a large restructuring assistance need for industry. This is a national issue.

Greater transparency is needed in the development of MPA policy which will have ramifications for the fishing industry. This will always be an area of different perspectives. The fishing industry requires clarification of structural adjustment policies in disputes where fishers may be removed from key fishing areas.

All area closures should be progressed in consultation with the fishing industry, all relevant government agencies, and appropriate NGOs which are part of the policy making process. This cross table dialogue is starting to be more effective than in the past. Availability of information on which decisions are being implemented is paramount and there should be a dispute settlement procedure set in place. A process should also be established so that potential sanctions from international instruments and legislation can be considered. Communication between parties should be a top priority in these decisions.

Strategic questions for the fishing industry in the light of international environmental instruments.

In this section strategic questions for the fishing industry are raised in the light of international environmental instruments. The policy question will be indicated and potential actions discussed. Many of these issues were raised in the first edition and have been acted upon. Where there are developments they have been noted and where areas appear static, this is also discussed. For many of the issues it is apparent that improvements and developments must now *be seen to have been made*. This is an issue for industry and for the Management Advisory Committees in different Australian fisheries. Potentially critical onlookers must see progress to allay their concerns.

The issues are divided into *internal and external* issues for the fishing industry. It should be noted that the contents of this section have been discussed with industry, but remains the views of the report's authors. These are questions that need to be addressed by industry policy and action in the future.

Internal issues for the fishing industry

1. Living with international environmental instruments

Since the first report the fishing industry have continued to recognise that ignoring international environmental instruments is not a sensible strategy. Trade embargoes on prawns have served to illustrate the scale of these international environmental instruments and obligations, the resolution of which may be beyond the influence of local or federal agencies. Industry has had to adapt to the changes precipitated by environmental pressures and in so doing have been forced to examine and adapt their longer term management strategies.

The international stage has often been a precursor to action in national legislation. National legislative instruments have a more direct potential to alter fisheries practices, but are at least within the national political sphere. The industry have adapted well to changes to date, but the reality is that change will continue. The issues may be as confrontational as earlier issues. The requirement for industry is to independently evaluate and evidence changes made in respect of environmental instruments.

Action:

a) Having recognised that international environmental instruments are here to stay, (and may also be the precursor to national legislation) *changes made by industry, must be seen to have been made*.

b) The industry must also be aware that there are probably a considerable number of small scale fisheries practices (e.g. bycatch in small estuaries) that require fishing industry action and a policy position. Now that major threats are being addressed, a concerted effort should be made to go through industry and identify where more action needs to be taken.

2. The industry response to the environmental effects of fishing

The industry response to the environmental effects of fishing has been in promoting technical adaptations and encouraging policy resolutions. Policy responses, such as a Code of Conduct for the Seafood Industry are discussed in the next section. Technical issues are discussed below.

Many of the environmental threats to fish species come through the production process; the way we produce fish. Effects of fishing on the environment can be divided into trawling and non-trawling categories. For both trawling and non-trawling methods bycatch (fish, other species

including birds) and damage to the seabed tend to receive the greatest publicity. The implementation of devices that reduce bycatch and environmental damage in Australian fisheries is a central issue in the management of the marine environment. Research and development has progressed in this area since the first report.

Progress with environmentally friendly fishing

There have been several research projects between fisheries agencies and the fishing industry which have the intention of directly addressing environmentally friendly fishing.

Australian research until 1995 by Queensland Department of Primary Industries (QDPI) and Northern Territory Department of Primary Industry and Fisheries (NTDPIF), suggested that with “AusTED” fewer larger rays and turtles were caught in the Northern Prawn Fishery (NPF) (Mounsey et al., 1995; Robins-Troeger et al., 1995; Brewer and Rawlinson, 1995; Rawlinson and Brewer, 1995) and that prawn catch rates are not significantly lower (Robins-Troeger et al., 1995). The US experience suggested that similar results were subsequently overturned when industry commenced using the proposed equipment (Durrenger, 1990; Dyer and Moberg, 1992; Moberg and Dyer, 1993).

Research has continued via FRDC funded projects involving the Australian Maritime College (AMC), QDPI and NTDPIF examining bycatch in the NPF and semi-pelagic nets for snapper. The designs and descriptions of Bycatch Reduction Devices (BRDs) have been published in Eayrs et al. (1997) and Day, (1998) and show significant advances from earlier research.

Subsequently, QDPI, AMC and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), have had a bycatch extension project for the NPF and Queensland East Coast. Part of the project has been to get fishers to test BRDs under commercial conditions in the Northern Prawn Fishery (NPF). Preliminary results are reported in Day (1998) and Campbell, (1998). Other research seeks to alter fishing practices and reduce incidental catch. The operation of the semi-pelagic trawl off the seabed has been found to reduce bycatch significantly without serious reductions in target species catch rates (Brewer and Eayrs, 1994). More research is required to find such outcomes in other fisheries.

One of the key issues for industry is the economic effects of these bycatch reduction devices. The effects of BRDs on industry costs has been examined by Hendrickson and Griffin (1993) in the US Gulf of Mexico fishery. The implementation of BRDs raise the cost of taking catch. Crowley, (1994) reports 7%-10% shrimp loss in catches due to the use of TEDs. Hendrickson and Griffin (1993) found that BRDs were more effective at reducing bycatch and less costly to shrimpers than area closure policies. Closure policies were generally twice as costly for the fishing industry than policies which had BRDs installed (Hendrickson and Griffin, 1993). The testing of BRDs has given a mixture of results for prawn loss and the overall picture must account for reductions in catch damage and in the inconvenience of sorting incidental catch.

In the non-trawling sector the major initiatives have been in the reduction of seabird bycatch, particularly of Albatross in the Southern Ocean. This has included the amendment of setting arrangements, the use of tori poles and setting lines at night to minimise bird interactions.

The US industry response to the bycatch issue

The US experience has led to several strategic responses to the bycatch problem being proposed. Warren (1994b) notes seven winning bycatch strategies.

Seven winning bycatch strategies-National Fisherman (adapted from Warren, 1994b)

- 1. Limit bycatch:** put a quota on the bycatch species. This has been the major tool in the dolphin/tuna interactions in the eastern tropical Pacific (Warren, 1994a). This enables the industry to give improved statistics on reduced mortalities but leads to 100 % observer coverage with associated costs.
- 2. Reward good guys:** it is suggested a portion of quota is set aside for those vessels which exhibit lowest bycatch rates.
- 3. Divvy up the catch:** a quota may reduce the bycatch of all non-target species.
- 4. Tinker with gear or fishing strategies:** some of the best technical solutions come from fishermen and their improvisations.
- 5. Tweak regulations:** often the bycatch is related to old rules which lead to good fish being thrown overboard or going into areas where substantial bycatch is inevitable.
- 6. Pass a law:** fishers have often needed laws to enable the problems caused by rogue skippers and jurisdictional leaks that are common in fisheries management arrangements.
- 7. Call an expert:** expert help can assist in reducing bycatch problems. Often this can lead to cleaner operational practices as in the case of TEDs sifting catch.

The US industry have come to several other realisations.

" To survive these onslaughts, fishermen must demonstrate that hauling food out of the sea can be- and will remain - a clean , sustainable living." (Warren, 1994c).

*"Every strategy for dealing with bycatch relies on fishermen to change the way they work. Those who have taken up this challenge pursue three pathways: **Research, policy reform and political bridge-building.**"* (Warren, 1994c).

Research involves joint work between fishers and gear technologists/scientists. This is currently happening in Australia as previously described. **Policy reforms** are seeking to make individual boats responsible for the minimisation and return of bycatch species and the development of bycatch policies. The **bridge-building** is incorporating other traditional adversaries, such as green groups and sports fishers, into the management advisory committee process.

Australian developments

The US experience also shows that in the face of legislation being imposed and pressure from green lobby groups and recreationalists for cleaner fishing, the industry must forge an industry consensus on how to deal with bycatch. This is gradually happening in Australia. It is hoped to finalise the *Commonwealth Bycatch Policy* which should be in place in 1999.

The fishing industry should identify the fisheries which are most at risk from bycatch issues and plan to address these problems. There should be a base line evaluation of the bycatch problem and enable future gains by industry to be measured for evidence of improvement in bycatch. This is important strategic information for industry as it shows how industry have addressed the issue.

We are now seeing a range of Australian prawn fisheries responding to the need to have more publicly acceptable environmentally friendly fishing gear. Modified prawn nets have been adopted in the Gulf of St. Vincent (FRDC News, April 1998) and will be implemented in daytime trawling operations in the majority of Queensland prawn trawling operations and to a

fuller extent in the next three years (Professional Fisherman, August, 1998). The Northern Prawn Fishery will be implementing TEDs as mandatory as of the start of the year 2000 season (AFMA News, April, 1998).

Under national legislation, such as *The Endangered Species Protection Act, (Cwth) 1992*, the industry has found itself facing the listing of trawling as a *Key Threatening Process* to endangered species and marine habitat. There has also been the need to develop *Threat Abatement Plans (TAP)* at the fishery level to decrease the environmental impacts of fishing processes on Albatross populations (AFMA News, September, 1998). This is an area where national legislation is more directly impacting than international initiatives.

The handling of bycatch species has been addressed in different states of Australia. Recently a *Protected Species Handling Manual* has been developed in New South Wales by *Ocean Watch*.

Action:

- a) In the first report we suggested that the "The fishing industry should consider the development of a *five year national industry strategy to address the environmental effects of fishing*". The strategic response needs to be clearer than just a national policy document. It must lead to more bycatch reduction and address smaller fishery needs which can get overlooked in the larger fishery discussions.
- b) In the first report we recommended "Specific fisheries should develop a *response strategy to environmental effects of fishing issues*". This has happened in several fisheries where Threat Abatement Plans have been required of industry. It is preferable that all fisheries develop a response strategy which has action to reduce the environmental impacts of fishing. Substantial industry cooperation is required to be proactive in this area.
- c) The industry requires *further research and development of non-trawling technological devices* to address problems with fishing gears. These would minimise and potentially exclude the capture of incidental species; for example Albatross bycatch in the Southern Ocean. Minimising the seabed contact of fishing gear in key habitat areas will likely become a major issue in the next few years.

3. Codes of Conduct and Responsible fishing

The response of the global fishing industry to international environmental instruments has been the development of the FAO Code of Conduct for Responsible Fishing. Responsible fishing is more than just fishing with a bycatch reduction device. The code includes sections on: fisheries management; fisheries operations; post harvest practices and trade; aquaculture development; integrated coastal area management and fisheries research as previously outlined. The Code of Conduct for Responsible Fishing may be a defence under an embargo as reasonable time must be given to industry to conform with any trade sanctions. However this is not a binding international instrument.

The FAO (1996a) have subsequently published technical papers indicating how the code should be implemented. This is available on the internet (www.fao.org). The OECD are currently undertaking a study on "The Economic Impact of the Transition to Responsible Fisheries", which is targeted for completion by the end of 1999. The study has four components: (1) evaluation of the potential gains and costs of the transition to responsible fisheries; (2) analysis of the impact of government financial transfers on the sustainability of fish resources; (3)

assessment of the implications of responsible post-harvesting practices for fisheries; and (4) analysis of the social implications of responsible fisheries (OECD, 1998).

The Australian Seafood Industry Council has developed "*A Code of Conduct for a Responsible Seafood Industry*" (CCRSI) and also "*A Code of Conduct for Aquaculture*". This was recommended by the first edition of this publication and the code is "*based on the FAO Code of Conduct for Responsible fisheries and tailored for conditions relevant to the Australian seafood industry*" (ASIC, 1998a&b). However the question which follows the development of codes of conduct is whether these standards are being kept? Accountability follows responsibility.

The industry strategy has been to guide individual fisheries to practical implementation of the FAO code through the development of the Australian Seafood Industry Code. This leaves the fishery with flexibility to implement the code in the most applicable way. The South East Fishery adopted some of the FAO Code of Conduct features for trawling conduct and have included these in their fishery management plan.

Aligned with the development of the Australian CCRSI is the development of National Industry Training Packages for the Seafood industry. This has practical training for aquaculture and fishing operatives, including compliance and quality training which reinforce the Code of Conduct (STA, 1998).

Action:

- (a) The newly developed CCRSI is a voluntary code. The code must now be adopted by specific fisheries. This is needed to see if the code is effective and how it may be altered if deficient.
- (b) Responsible fishing has been the thrust of the last five years. *Accountable fishing* may be next development. The industry must continue the development of measures and strategies to show that their fishing is responsible in practice.
- (c) The aquaculture industry should appraise its Code of Conduct for Aquaculture in Australia in a similar way to the fishing industry though SPS issues may be more important for the Aquaculture sector.

4. Area closures and resource access rights

International instruments endorse area closures as a management tool. Area closures have long been used by fisheries managers to regulate over exploitation, to reduce fishing pressure, animal interactions and reduce the incidental capture of vulnerable species. However some closures are now being put in place on the grounds of the intrinsic worth of the habitat and the need to protect it. By implication the protection of the marine habitat values may mean that some types of fishing activity are excluded from these areas. This creates the "use" versus "non-use" philosophical clash that makes this area a source of industry and community debate.

In Australian fisheries area closures as part of management arrangements have been commonplace, though they have often been presented to fisheries as being for the good of the fishery e.g. juvenile or nursery areas. Marine Protected Areas (MPAs) can have different levels of fishing involvement happening within defined zones and seasons. Alternatively the protection of marine habitat is increasingly being proposed for intrinsic reasons. These preclude fishing and do not espouse any fishery benefits in that they are not seen by proponents as being reseeded areas.

Since 1995 Environment Australia has developed the Interim Marine and Coastal Regionlisation for Australia (IMCRA). Under this there is a National Representative System of Marine Protected Areas (NRSMPA) which has been endorsed by Australian States through the Intergovernmental Agreements on Environment. The primary goal of the NRSMPA is:

To provide for the protection, conservation, wise use, understanding and enjoyment of marine heritage in perpetuity through the creation of a national representative system of marine protected areas and through management in accordance with the principles of the World Conservation Strategy and the National Strategy for Ecologically Sustainable Development of human activities that use or affect the marine environment (Environment Australia, 1998).

Under IMCRA the ocean floor and habitat characteristics of the Australian EEZ will be mapped into bio-regions and recognise significant areas for biodiversity and inherent ecological merit. The intention of NRSMPA is to select "candidate areas" to be set aside, eventually coming under management and protected area status. The objective is to have a certain percentage of offshore Australia under this policy. This is viewed with suspicion in the fishing industry due to the uncertainty in the selection of areas. The IUCN have indicated that 10% would be an acceptable level internationally as a guideline only. Larger percentages may be required for the concept to be effective. The National Ocean's Policy (NOP, 1999) gives some indication of how more integrated marine management may be achieved.

The area closure debate has implications for vessel access and examination of fishery access rights. The industry may wish to try and move towards obtaining fuller and more distinct access rights and resource security in the face of potential exclusions and limitations on access. This gives some control to the fishers to reduce environmental damage and to manage their fishing in disputed areas. Should moratoria be considered, access rights may require compensation. Poor quality access rights may not lead to an obligation to compensate displaced fishers. This should be of concern to industry. However in several cases to date which have involved the displacement of fishers, compensation was paid without falling back to an absolute rights basis (e.g. Pummicestone Passage, Queensland and Port Phillip Bay, Victoria). Compensation is given for a range of reasons such as innate fairness, community sentiment, political decisions and expedience!

Green groups are in favour of displaced fishers being compensated, though it is the government who are holders of the public purse who remain to be convinced. Economists suggest that compensation encourages potential recipients to become victims and may have little economic or environmental restructuring merit where the fishery is not prepared to help itself? In many cases we may actually be buying out latent effort. It is unlikely there will large amounts of public funds to compensate large numbers of fishers to improve the marine environment. This is an issue for all parties in the marine environment debate.

To date the enhancement of access right characteristics in fisheries management through licensing and more advanced adjustment regimes (tradeable input rights, individual transferable quota regimes etc) has aimed to generate economic efficiency through restructuring. However it may be that enhancing resource security among fishers may also lead to better environmental outcomes. In essence it is trying to produce more responsible fishing through augmented rights. The National Ocean Policy (NOP, 1999) accepts that economic instruments will be incorporated where they can assist management for ecologically sustainable fisheries.

The Non Government Organisation (NGO) literature has a variety of views on access/property rights in fisheries management. In all sectors the connotations of "property rights" confuses the debate. Greenpeace International resist greater property rights in marine fisheries, seeing it as

"ownership" and thus open to overuse by corporate right holders. This opinion comes from their experiences with subsidised global fleets subject to little management or access rights and is vastly different from the Australian scene. Several NGOs in Australia, recognise the benefits of quantitative restrictions in controlling over-exploitation of fish stocks, though this is an issue where the green movement has to decide to get into the process, rather than shelter in the lee of "non-use" philosophies.

Unfortunately many fisheries biologists and resource managers in conservation agencies see the total cessation of fishing activity, usually through Marine Protected Areas as their preferred instrument for zonal management. This is preservation, rather than conservative exploitation and such moratoria are often irreversible. They may or may not be valuable to the long term sustainability of the fishing industry? There are some good biological reasons for having closures if they are located in the right place. How is this to be determined? Among several fisheries experts contacted during the report preparation, it is considered that "the jury is still out" on the concept of closing marine areas and their benefits for fish stocks. If protected areas are placed beside fisheries with overcapacity problems they may not be as effective as hoped. Increasing area closures will exacerbate many existing tensions in fisheries management.

The seafood industry have developed a strategy for marine protected areas and their declaration (ASIC, 1998c). This has nine statements regarding the implementation, justification, flexibility, and socio-economic impacts of having MPAs and the process whereby they are declared.

Action:

- (a) The seafood industry should continue to promote Responsible Fishing as an alternative to complete moratoria and *make the Code of Conduct for a Responsible Seafood Industry (CCRSI) an operational system.*
- (b) The seafood industry recognise it is necessary in a long term view to preserve areas, but have concerns on the determination and process used in implementing these area proposals. All parties must work to reduce uncertainty and mis-understandings in this area.
- (c) Industry and government should develop "marine reserves" as areas of specified use, rather than complete prohibition of activity. Limited use for some responsible fishers, is better than no use at all!
- (d) Government need to determine the structural assistance available for vessels which are removed from prime fishing areas due to MPAs.

5. Selling environmental integrity?

The achievement of sustainable fisheries and environmental integrity is clearly in the long term interests of the industry. However there may be shorter term benefits arising from the image of a clean green marine environment.

At the global level there has been concern over sustainable seafood supply (Kyoto Conference). Unilever and World Wide Fund have moved to maintain sustainably produced fish via the establishment of the Marine Stewardship Council. There will be sustainable financial returns to all parties in maintaining sustainable seafood supply. This is the major force behind developing eco-labelling.

Grading environments

We have seen the ecological desire to grade environments under the IMCRA initiative. Out of the bio-diversity concepts there is an increasing realisation that fishing production processes are conducted within many differing marine environments. Management plans will increasingly need to incorporate indices of environmental integrity and these may also be an index of the environmental performance of industry. Already minimisation of bycatch, species preservation, habitat diversity are being used as performance indicators for industry's interface with the environment.

This is opening the area of eco-auditing (or eco-accreditation). It is probable that these indicators will be difficult to estimate and could be a costly process for all parties. The concept has been used in the State of the Marine Environment Report (SOMER, 1995) in which the marine environment was given a grading (A, B, C etc) as in a school report, but on a rather more subjective basis.

Environmental Management Standards.

International moves towards grading of environmental performance and management are seen in the environmental implications of the ISO 14000 series of Environmental Management Standards. Coates (1998), reviews this and summarises standards in the following areas:

- "steps for the managers to follow as they implement and maintain environmental monitoring of their production processes, and require that up to date manuals of their action steps be kept.
- the steps necessary to develop a program to audit an organization's environmental management program.
- how to develop a labelling program, and what constitutes the different types of labels and their characteristics.
- how to select appropriate environmental indicators and how to evaluate environmental performance.
- Inventory analysis is a cradle to grave (*catch to consumer?*) analysis of the environmental impact of specific production processes or sub-processes.
- Impact analysis includes the environmental impact beyond the production processes so that the full environmental impact of different products serving the same need can truly be compared. This may include eco-system impacts such as diminishing salmon population or loss of migrating fowl habitat, and health and safety impacts such as increased incidence of asthma or loss of quality drinking water" Coates, (1998).

As yet, the ISO 14000 series has not been applied to fisheries issues, but may be in due course.

Eco-labelling

Eco-labelling schemes are being developed as a way to assure customers of the environmentally safe production of fishery products. It may also be a pathway to sustainable fish production (Wessels, 1997). Eco-labelling is increasing in significance and is an issue for the domestic fishing industry and seafood importers to consider.

The most publicised fisheries eco-labelling scheme to date has been the formation of the Marine Stewardship Council (MSC) by Unilever and the World Wide Fund. The Council is an independent body which is to accredit fisheries which are sustainably managed. Accreditation gives the right for the MSC logo to be used on product sourced from that fishery. The goal of the MSC is to provide a market based incentive for fisheries products to come from sustainably managed fisheries. This will assist to achieve sustainable production in countries where

government management of fisheries has been poor. The MSC standards have been developed (see net site www.msc.org) and Unilever have indicated their pledge to buy only from accredited MSC fisheries by the year 2005.

One of the first eco-labelling experiments was with "dolphin friendly" labelling on canned tuna (Wallstrom and Wessels, 1994). In the case of the dolphin friendly logo the effect of publicity was difficult to measure. It is believed that video footage of the dolphin kills had a negative affect on demand, though other variables indicated that the more general publicity on the "tuna disputes", the greater the demand for canned tuna (Wallstrom and Wessels, 1994). However over time the effect of general publicity was believed to be cumulative and negative on consumption. It is suggested that the mixed results indicate that the dolphin issues is not perceived as a quality issue to consumers in the same way as chemical residues in food. These are preliminary results which may apply to the US market only.

According to Wessels (1997), the success of a label is:

"1) education - A public information campaign can significantly increase the likelihood of success; 2) program affiliation – government sponsorship and involvement can improve the program's economic stability, legal protection and credibility; 3) manufacturer self-interest – companies are motivated to join labeling programs to avoid financial and public relations risks as well as to increase sales; and, 4) consumer self interest - labeling programs are only effective if the issues they represent are important to individual consumers".

Eco-labelling schemes are either industry generated, government mandated or self declarations (Wessels, 1998). In the environmental area a third party is required to verify environmental performance, so self labelling is not appropriate. The government in the US has been verifying the dolphin friendly regime. Wessels predicts that eco-labelling in the US will eventually be government regulated - "like truth in advertising". Similar predictions are that eco-labelling markets will divide between developed and non-developed countries (Wessels, 1998). Confusion may arise if unsustainably produced product from poor countries, is substituted into cleaner rich country eco-labelled product, leaving discerning consumers cynical over regulation.

Should the Australian industry move to eco-labelling?

The Australian fish catch is limited and adding value is essential. Marketing our clean seas image and our sustainable management practices may have significant economic benefits. However it depends on the cost of certification and how it will increase returns, usually through increased market share and better corporate image to consumers (Wessels, 1998). The lack of large corporations in the fishing industry means this may be more of an issue for the corporate processors rather than the fisher in small business.

In the first report we quoted from the US literature that the next eco-marketing concept will be "turtle safe" shrimp (D.K., 1994). This has not been as strong an issue as predicted, but may be just developing. If our prawns are turtle safe, perhaps they should be eco-labelled as such?

The Australian fishing industry have observed the development of the Marine Stewardship Council (MSC) certification standards, which are currently achievable by many Australian fisheries with little alterations to management practices. It is unlikely that industry in Australia will run to join the MSC. Feedback from the International Coalition of Fishing Associations (ICFA) suggests limited support from fishing industries world wide for the MSC. Incentives for Australian industry to join the MSC may be greatest in fisheries where fishers require "green paint" to cover environmentally sensitive fishing operations. In the longer term the industry will watch and appraise whether eco-labelling is here to stay or not. The MSC scheme may fit best

where governments are not managing fisheries well, nor in conjunction with industry. This is not the case in Australia.

Action:

(a) The industry should consider the implications of the Environmental Management Standards ISO 14,000 /eco-accreditation or eco-auditing of fisheries as part of fisheries management. Currently, it is not clear what these concepts mean in practice for fisheries management. More information is required on the costs of these policies. There may be long term benefits in terms of market advantage in having such systems in place.

(b) Industry should observe and investigate eco-labelling more fully. This may lead to national guidelines being required. Eco-labelling in fisheries will also have compliance needs in the seafood trade arena. Who will control the eco-labelling of seafood products?

6. Can industry control their own?

Compliance and education of fishers is a major issue in the responsible fishing debate. From the US scene it is apparent that there will be members of industry who will not be prepared to fish responsibly; for example the US National Marine Fisheries Service calculate that after almost ten years of TED Codes of Practice and legislation being in force, there are still 4% of shrimpers in violation of good TED practices (D. K., 1994).

In the US case the leadership of the fishing industry loses credibility with turtle strandings on the opening of the shrimping season. These operators give the industry a bad name and give the green movement legitimate grievance which they use for publicity and fundraising purposes. In response to the strandings green groups in the US offer a \$1,000 bounty payment to obtain evidence leading to the arrest and conviction of fishers who violate the Endangered Species status of the Ridley turtle. National Marine Fisheries Service (NMFS) also offer \$10,000 reward for members of industry in violation of the TED regulations. The Australian industry should try and avoid these scenarios.

Action:

1) The Australian industry should consider having a strategy to identify, control and preferably educate non-complying members. This may involve adhering to the Code of Conduct for a Responsible Seafood Industry at a fishery level with demerit points for mis-behaviour and "black listing" provisions for non-complying members. The attitudes and practices of a few offending industry members will be publicised as being "typical" and detract from costly publicity initiatives or perceptions re the commitment of the industry to abide by the CCRSI.

7. Education within the industry.

Education of the Australian fisher and the fishing industry to the threats that are facing the industry internationally is essential. A "paternalistic" or "glossy" approach may not be effective within the industry. The generation of a responsible fishing mind set in industry is essential. Commercial opportunities for the industry from having clean seas and fisheries products must be a significant asset to the industry and give considerable comparative advantage in the long term.

The industry must strive to maintain the integrity of the marine environment and pursue strategies to get land based users to reduce pollution, land run off and chemical residues particularly in bays, estuaries and the inshore areas where a significant part of Australian fishing activity is based. Ocean Watch in NSW has been active in this area.

Recent National Heritage Trust funding of the Ocean Watch/ASIC/Marine and Coastal Community Network application to establish a network of officers to promote environmentally sound fishing practices in different states of Australia, is an example of how change can be promoted to industry.

Training initiatives have been developed through the Australian Seafood Industry Council to develop key nationally accredited competencies, while assisting to develop attitudes of professionalism, recognition of quality issues and good practice within the industry (See STA, 1998).

The Australian Maritime College's national FRDC project, "Training for Fisheries Managers" has been able to present environmental issues and the need for change to over 200 Management Advisory Committee representatives in the 1994-1998 period.

Action:

Education within the industry could consider the following:

- a) The industry should develop materials on Australia's clean fishing environment and emphasise the opportunities for the domestic fishing industry in keeping the marine environment clean and our fishing responsible.
- b) Industry bodies like Ocean Watch could be encouraged by industry in other states in order to promote greater environmental integrity and information in environmental debates. We are concerned that this trend has not increased in the last few years until recent funding initiatives.
- c) Given the increasing international scope of these issues and the isolation of the Australian industry from US markets and industry, it is sensible to develop communication and strategic alliances with the more highly researched US fishing industry. This could involve exchange of information and industry representatives to develop industry policy.
- d) A strategic approach needs to be taken to keep informing industry representatives of environmental issues through Management Advisory Committees, short course training initiatives, contact with extension officers and through fishing industry publicity and magazines.

8. Industry infrastructure and environmental obligations

The history of fisheries management has led to the fishing industry being subject to regulation by government. Only recently has the government recognised the role of the fishing industry in achieving management objectives, though this recognition is not fully reflected in current fisheries legislation.

The increasing role of industry in management has led to the industry contributing to the costs of management and research. The industry is under represented at the national level with the ASIC having a limited budget. It is unlikely that industry can provide the entire resources required to cope with the increasing demands on it from international environmental instruments. Many of these demands arise out of Australia's participation in the international forum. The responsibilities must be seen first and foremost as a national obligation which must be discharged by the fishing industry with the support of the government. Under current funding arrangements for national fishing industry representative bodies, it is unlikely that the industry alone can meet these national obligations.

Action:

(a) The funding of the adjustments required to comply with international environmental instruments requires both the attention of industry and government. It is clearly in the interest of both parties to ensure that resources are provided to achieve the objectives of the international environmental instruments.

(b) The historical approach to change in industry has been through employment of government officers to induce industry compliance. Notwithstanding this, the most effective compliance with international environmental instruments under discussion will require an industry oriented approach, particularly through extension, education and applied research. Moves in this direction need to be evaluated and enhanced.

(c) Increasingly the industry will have to bear some of the costs associated in the compliance with international environmental requirements. The industry must examine this debate.

External issues for the fishing industry.

1. Who speaks for Australia's fisheries and marine environment?

Currently there are a significant number of arms of government involved in the generation of environmental policies and negotiations of international environmental instruments. Since the first report Environment Australia has been formed and has a Portfolio Marine Group dealing a range of marine environmental issues.

The traditional government - industry approach is prone to poor communication and coordination between agencies and the fishing industry. The communication between agencies has improved in the last few years and publications such as *AFMA News* enable environmental concerns to be aired within industry. However there is a perception that communication is just media and information leaflets. There are cultural, educational, historical and geographical gaps to be spanned when communicating with the ordinary fisher. We must not go back to the days where arms of government believe that environmentally sustainable outcomes can be achieved without real communication with the fishing industry.

The current review of the Commonwealth Environmental Legislation (COA, 1998) may enable government to interface more between departments. The development of the National Oceans Policy (NOP,1999) was also initiated with a cross government perspective and in communication with different marine industries.

Action:

- 1) There is a constant need to address the communication between agencies and industry through a more transparent consultative process. The fishing industry would need to take a more active role in the negotiation and implementation of international instruments. Potentially, agencies such as Environment Australia, Agriculture, Fisheries and Forestry-Australia -(Fisheries Branch), Department of Foreign Affairs and Trade, Australian Fisheries Management Authority, which represent Australia at different international fora, need more timely communication with each other and the fishing industry.
- 2) Very little research has been undertaken on the anthropology and sociology of Australian fishers. Such a study could identify the most appropriate form of communication for fishers in order to realise real change and better environmental outcomes.

2. Recognising the role of Non-Governmental Organisations.

Non Governmental Organisations (NGOs) are usually independent organisations that are either established by the fishing industry for promoting administration or environmental awareness, or are environmentally conscious groups focusing on local and regional issues or more nationally focused with alignment to international NGOs.

Since the first report there has been a development in the liaison between the fishing industry and environmental NGOs. The main interface for this has been in Management Advisory Committees (MACs) in which NGO representatives contribute to the management advice developed by the MAC. The Australian Seafood Industry Council has 3 meetings a year with the Peak environmental NGO's.

The NGO fishing industry interface has always been interesting. Kronman (1994) seeks to expose green NGOs for inaccuracies in data reporting and distortion of facts in the name of fundraising, quoting Gudmundsson who refers to green organisations as *"urban missionaries of a new-age religion, whose pulpits are the media and political forums - venues where fishermen are either unskilled or have little time to dabble"* Kronman (1994). This trading of blows is dangerous ground for fishers, who by their own admission, have little advantage in the NGO political arena.

The environmental movement is changing and maturing. The political and legal emphasis is now moving towards ethical and morality based arguments (Kent, 1994). The sizable NGO lobby in the United States is becoming aware of the "overfishing problem." In the US, powerful NGO bodies such as the Pew Charitable Trust (\$4.5 billion USD in trust), have led to the formation of groups such as Seaweb (www.seaweb.org). The Seaweb group have been running a campaign against the over fishing of Swordfish on the East Coast of the United States.

Similarly the recreational fisheries lobby in Florida has led to the displacement of commercial net fishing. The industry were not prepared for this allocation issue in environmental guise and got into this situation *"because we stopped negotiating"..." you've got to work with perceptions"* (Sansom, 1996). He also gives a salutary warning: *"If you let your industry get into the position of being perceived as being uncaring and environmentally unconscious, unconcerned and greedy, you're in bad shape - it will kill you"* (Sansom, 1996).

The fishing industry world wide will continue to see strong public sentiment against the over fishing of marine species and associated issues, through the concern of US based NGOs. This will have further ramifications for the fishing industry and governments will also be confronted over their management performance. Neither industry or government can be tardy in addressing overfishing issues. To ignore this could be political and economic catastrophe!

Action:

(a) The fishing industry needs representation on NGO and green fora so as to actively participate in the process of increasing environmental awareness and responsibility within the fishing industry. Since the first report, most Management Advisory Committees have NGOs representation.

(b) The industry needs to avoid unjustified attacks on the green NGOs in fishing magazines and in the press. These are often counter-productive with little benefit to industry. Since the first report this has not improved in one significant Australian fishing periodical. This rhetoric is gratuitous and the resistance "of all things green" merely perpetuates a false image of an immature and irresponsible fishing industry.

(c) The industry should recognise that some of the environmental issues raised by NGOs are in the long-term interests of the industry; for example habitat protection and reduction of land run off and marine pollution. There are more opportunities for joint work with NGOs on these issues (see below).

3. Local Authority initiatives

The fishing industry should seek to inform local authorities of their role and responsibilities for the care, maintenance and prosperity of coastal habitats. The fishing industry is an inshore activity that depends on sound agricultural, industrial, and water catchment management processes. This area has been slow to develop since the first report.

Action:

Local Authorities in Australia should be encouraged to adopt a *National Code of Conduct for Local Authorities*. This should advise them on their responsibility to protect coastal habitat for fishery and environmental reasons. (See the Lisbon Declaration- Advisory Committee on the Protection of the Sea, ACOPS, 1994).

4. Publicity, promotion and education

The Australian fishing and seafood industry should sell its clean environment and compliance with international standards in fisheries management overseas. This should also concentrate on enhancing public perceptions of the fishing industry as a responsible approach to harvesting and management. The most successful promotional material is probably not the national glossy material representing the national industry, but regional material which concentrates more on local issues and which is less corporate.

Sansom (1996) suggests that “*it is important to use local fishermen..... to tell their stories*” as decision makers, politicians and citizens must see that fishers are ordinary people. Independent groups such as Ocean Watch can also assist to inform the debate, as industry is often disbelieved.

The success of the *Clean up Australia Campaign* is worth examining as a method to promote awareness of the coastal zone and the implications of local government policy on fisheries within Australia.

Action:

- 1) The fishing and seafood industries should re-examine the production of suitable publicity, promotional and educational material. For example, this could follow the National Forest Industries media website which is popular with children.

Section D: Summary and Conclusions

In this final section we summarise the effects of international instruments. Conclusions are then drawn.

The effects of international environmental instruments

The implications of international environmental instruments are summarised in this section following the binding and non-binding approach of Section A. We have ranked the implications in order of frequency of appearance in binding and non-binding instruments.

In the binding environmental instruments the following objectives are most frequently mentioned:

- (i) Conservation and optimum utilisation
- (ii) Conservation of Areas as a management tool
- I (iii) Endangered species and catch prohibition
(though only two conventions have formal listing)
- (iv) Rehabilitation/restoration of species/stocks

The following issues occur less frequently in the binding instruments:

- (v) Bycatch issues
- II (vi) Banning of fishing methods
- (vii) Trade issues

Finally, the comparatively new precautionary approach has impacted some of the newer binding instruments:

- III (viii) Precautionary approach

The non-binding instruments have the following issues occurring most frequently:

- (i) Area closures
- (ii) Bycatch/incidental species
- I (iii) Protection of endangered species
- (iv) Restoration of endangered species
- (v) Banning of fishing gear

The following are mentioned less frequently, but are no less important:

- II (vi) Management plans required
- (vii) Precautionary approach

The dominance of threats are also apparent in the Appendix B, Tables A1, A2, and A3. The Tables review the threats and opportunities for the fishing industry by sector (A1), areas (A2), fishing methods (A2) and species groups (A3). The threats vary, but are diverse as previously identified: bycatch, endangered species, area closures, and limitations on fishing methods.

Conclusions from the study

This revised study confirms that international environmental instruments affecting fisheries can be divided into two categories: those that are binding and those that are non-binding, but nevertheless have political force. Non Government Organisation initiatives are also having an influence in the international arena, as are developments in the fisheries trade and environment interface.

The binding instruments can be further sub-divided into those that address fisheries directly and others of general application with indirect implications for the fishing industry. The ones in the latter category pose more serious threats to the fishing industry, because they were initially conceived to deal more with terrestrial problems (CITES, Bonn Convention, Biodiversity, and World Heritage) and are open to different interpretation in terms of their application to the marine environment. It is in the interest of the industry to monitor and participate in any domestic policy to implement the non-fishery specific instruments.

Since 1995 several of the instruments have developed from draft status and some have also come into force. The implications of the instruments are still becoming apparent. The implementation of the agreements in the industry and in fisheries management is progressing.

From the overview of the instruments, the standard objectives of "conservation" and "optimum utilisation" of resources found in many binding instruments are now being refined by more specific issues in the second wave of non-binding instruments. The new non-binding instruments tend to be more problem specific e.g. protecting species, restoration, banning of specific gears, minimising bycatch and specific actions in management plans. The major trend in the instruments is the move from general objectives in currently binding agreements to more specific constraints and management methods in subsequent non-binding instruments. This also has requirements for processes of management in trade and fisheries to be transparent and environmentally accountable.

The review shows that the major issues for industry are:

- (i) the interpretation of "*conservation and optimum utilisation*" - terms have been around for some time. Other more specific and measurable objectives are superceding these generic objectives;
- (ii) *conservation of areas* has major implications for vessel access through marine park formation and fishery restructuring to achieve sustainability;
- (iii) *endangered species protection and restoration* has implications for closure of areas, banning of fishing methods, and bycatch legislation;
- (iv) *greater detail is required in the management planning process* for example with reference points, performance indicators and the precautionary approach;
- (v) there is a growing trend in the non-binding instruments towards *a shifting in the burden of proof*. Thus the industry may have to prove that fishing practices are not damaging to the environment rather than government proving that they are;
- (vi) industry developing and *adhering to Codes of Conduct* and being seen to follow international initiatives;

- (vii) *greater evidencing of performance and achievement of objectives in management* for example with reference points and fulfilling the precautionary approach;
- (viii) *a widening of the number of agencies involved in the management of fisheries issues*. The issues are gradually becoming more generic and involve more agencies that previously, for example the Coastal Zone and Marine Protected Areas.

All of the above can be classified as changes for industry. However the long term benefits should flow to the industry from greater sustainable harvests.

The tightening of environmental constraints in fisheries management will be gradual, though the diversity of issues make the time for implementation of policies uncertain. The political and moral power of the non-binding instruments are unpredictable. Many non-binding instruments may become binding given time. Elements of non-binding instruments, such as the precautionary principle and endangered species provisions have already been included in national legislation in Australia (for example the precautionary principle in NSW fisheries legislation, amended AFMA legislation 1997, and endangered species declaration under the national *Endangered Species Act, 1992*).

Trade instruments are less likely to be used as sanctions by other countries to enforce environmental concerns such as bycatch, fishing method or endangered species. The trade threat can be minimised by addressing these issues through fisheries management and implementation of bycatch strategies.

Trade sanctions in the form of Sanitary and Phyto-Sanitary (SPS) regulations and food residue legislation could affect nearly all species in the form of non-tariff barriers. Eco-labelling and HACCP requirements could also have ramifications for the seafood industry. The industry must also be aware of the latent conflict between the WTO and the protection of the marine environment under international environmental instruments and how this area is changing due to important test cases.

If there are any short term benefits or opportunities apparent they will be from conforming to environmental instruments and trying to obtain any gain available from consumers. This may require an in depth study of the *niche* markets available for high quality “environmentally friendly” product.

It is recognised that there will be long term benefits in keeping a clean environment, but higher short term returns may be forthcoming from conforming to the eco-labelling preferences of discriminating consumers, probably in foreign markets. The jury is still out on this issue. Other opportunities for industry may be in getting local authorities to adopt standards in limiting pollution of the coastal area. This will protect the fisher's most fundamental long term asset - the marine environment.

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Appendix A: Abbreviations

ACOPS	Advisory Committee on the Protection of the Sea
AEZ	Australian Exclusive Economic Zone
AFMA	Australian Fisheries Management Authority
AFFA	Agriculture, Fisheries and Forestry –Australia (formerly DPIE -F)
AFZ	Australian Fishing Zone
AMC	Australian Maritime College
AOP	Australia’s Ocean Policy
APEC	Asia-Pacific Economic Cooperation
APPA	Australian Prawn Promotion Association
AQIS	Australian Quarantine Inspection Service
ASIC	Australian Seafood Industry Council
BRDs	Bycatch Reduction Devices
CITES	Convention on International Trade in Endangered Species.
CSIRO	Commonwealth Scientific Industrial Research Organisation
Cwth	Commonwealth (of Australia)
DFAT	Department of Foreign Affairs and Trade
DPIE(F)	Department of Primary Industry and Energy (Fisheries Branch)
EA	Environment Australia
EU	European Union
EEZ	Exclusive Economic Zone
ESD	Ecologically Sustainable Development
FAO	Food and Agricultural Organisation (of the United Nations)
GATT	The General Agreement on Tariffs and Trade
GAB	The Great Australian Bight
HMS	Highly Migratory Species
ICFA	International Coalition of Fisheries Associations
IMCAM	Integrated Marine and Coastal Area Management
IMCRA	Interim Marine and Coastal Regionalisation for Australia
IUCN	International Union for the Conservation of Nature
LOSC	Law of the Sea Convention, 1982
MAI	Multilateral Agreement on Investment
MCP	Marine and Coastal Program
MEA	Multilateral Environmental Agreements
MFN	Most Favoured Nation
MPA	Marine Protected Area (MEPA – E = Environmentally)
NAFTA	North American Free Trade Agreement.
NGOs	Non Government Organisations
NMFS	National Marine Fisheries Service
NOP	National Oceans Policy
NRSMPA	National Representative System of Marine Protected Areas
MSC	Marine Stewardship Council
NTBs	Non-Tariff Barriers
NTDPIF	Northern Territory Department of Primary Industry and Fisheries
OECD	Organisation of Economic Cooperation and Development.
PP	The Precautionary Principle
PPMs	Processes and Production Methods
QCFO	Queensland Commercial Fisherman's Organisation
QDPI	Queensland Department of Primary Industry
SBT	Southern Bluefin Tuna.

SBSTTA	Subsidiary Body on Scientific, Technical and Technological Advice
SPS	Sanitary and Phyto-Sanitary
SS	Straddling Stocks
SSC	Species Survival Commission (IUCN)
TAC	Total Allowable Catch
TAP	Threat Abatement Plan
TBT	Technical Barriers to Trade
TED	Turtle Excluding Devices (US) or Trawling Efficiency Devices (AUS)
UNCED	United Nations Convention on Environment and Development
UNCLOS	United Nations Conference on the Law of the Sea
US	United States (of America)
WHA	World Heritage Area
WTO	World Trade Organisation

Appendix B- Table 1: An opportunity threats analysis by Industry sector.

INDUSTRY SECTOR	THREATS	OPPORTUNITIES
<i>Catching Sector</i>		
Large vessels	Endangered Species / CITES/Precautionary principle SS/HMS bycatch/trade sanctions Code of Conduct for responsible fishing ? World Heritage, Biodiversity Convention Bonn Convention/ CCAMLR south of 60° South	Comply with US TEDs standards for US markets Comply with Code of conduct for responsible fishing ?
Small vessels	Endangered species / CITES/Precautionary principle By catch/ trade sanctions World Heritage/ Biodiversity Convention	RAMSAR (protecting habitat)
Vessels below 10 meters	Precautionary principle, by catch/ trade sanctions World Heritage/ Biodiversity Convention	RAMSAR (protecting habitat)
<i>Markets/ Exporters</i>		
	International trade agreements U.S legislation, tariffs, NTBs and embargoes SPS (sanitary and phyto-sanitary measures) Food and chemical residues , Cost of HACCP compliance	Complying with international environmental initiatives? Eco-labelling of products? Achieving market advantage through HACCP
<i>Processors/Importers</i>		
	SPS, food and chemical residues Price rises of imported white fish if other nations adopt measures TEDS/higher standards? Cost of HACCP compliance	Increasing the quality of imported fish ? Achieving market advantage through HACCP

Appendix B- Table 2: An opportunity threats analysis by area and fishing method.

AREAS	THREATS	OPPORTUNITIES
<i>High seas</i>	Vessels Compliance on the High Seas High seas /HMS/Straddling stocks Code of conduct for responsible fishing CITES (SBT, Billfish species? and Orange Roughy) Unilateral declarations by other countries	
<i>in AEEZ/AFZ</i>	CITES (SBT, Billfish?, Gemfish and Orange Roughy) LOSC, Agenda 21, SS/HMS, Precautionary principle	
<i>Inshore Shelf</i>	Agenda 21, LOSC RAMSAR ? (<6 m deep), Biodiversity Convention Precautionary principle / bycatch issues	Get Australian environmental agreement on coastal pollution, land run off etc Lisbon Declaration equivalent
Estuarine	Agenda 21, World Heritage. RAMSAR? (<6 m deep), Biodiversity Convention Precautionary principle / bycatch issues	Get Australian environmental agreement on coastal pollution, land run off etc Lisbon declaration equivalent
FISHING METHOD	THREATS	OPPORTUNITIES
<i>Trawling Demersal</i>	Agenda 21, "Minimise bycatch" Bycatch eg. Northern Prawn other estuarine shrimp fisheries	Gear modification to reduce sea floor contact Implementing TEDs
Pelagic	Bycatch	Pelagic / semi-pelagic fishing methods may expand due to reduced sea floor contact.
Purse seining	Agenda 21, "Minimise bycatch" Bycatch ie on associated species eg. baitfish	Adopt industry code of practice for multispecies fisheries management
Longlining	Endangered Species Legislation (Albatross) Bonn Convention for migratory animals Agenda 21, "Minimise bycatch"	Develop bycatch devices and threat abatement plans.

Appendix B- Table 3: An opportunity threats analysis by species group.

SPECIES GROUP	THREATS	OPPORTUNITIES
<i>Crustaceans</i>		
Prawns	Bycatch/ fishing method/ Agenda 21/ Code of Conduct Live fish transport and Sanitary and Phyto-Sanitary measures. Trade embargoes from United States (TEDS/BRDs)	Market advantage from complying to environmental regulations eg US TED/BRD regulations.
Rock Lobsters	Live fish transport and Sanitary and Phyto-Sanitary measures.	
<i>Molluscs</i>		
Abalone	Live fish transport and Sanitary and Phyto-Sanitary measures.	
Mussels /oysters	Sanitary and Phyto-Sanitary measures.	
<i>Fish (trawled)</i>		
	Agenda 21, Bycatch Endangering species/ threatening process? Orange roughy , Gemfish and the precautionary principle	
<i>Sharks</i>		
	School shark and Precautionary principle?/ CITES Endangered Species/Biodiversity Convention	
<i>Tunas/pelagics</i>		
	Strad. Stocks/ HMS, Precautionary principle. Bonn Convention for migratory animals Endangered species (fish and birds)/ bycatch	
<i>Clupeids/Sardinella</i>		
	Precautionary principle /HMS associated species (pilchards)	
All Species	Live fish transport and Sanitary and Phyto-Sanitary measures. eg use of comatose chemicals Code of Conduct (restrictions on fish /additives/ adulteration)	Higher prices from live fish transport benefits from conforming to environmental instruments.



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