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**OCEAN FLOOR RESOURCES:  
THE WIDER EFFECTS OF FISHERIES  
MANAGEMENT**

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## 1. INTRODUCTION

### ABSTRACT

42 fishstocks come within New Zealand's Quota Management System. The nature of the right in the harvest of the 42 commercially targeted species is vested in the fishing industry in the form of an entrenched property right. Industry commonly harvests fishstock using methods which have destructive and irreversible effects on the marine environment.

Approximately 8,000 marine species have been described so far in New Zealand waters. Non-commercial fishery stakeholders in the marine environment have an interest in the entirety of our marine biodiversity. The nature of their rights and interests is undefined. Their interests are rendered secondary to those of the commercial fishing industry.

This arrangement is unsatisfactory. Definitional problems relating to non-commercial fishing interests ought not to be used as an excuse to ignore those interests. Steps need to be taken urgently to address this imbalance of rights. Given the difficulties in defining rights to non-commercial fishing interests, an alternative is to work towards better definition and enforcement of duties owed by industry to other stakeholders in the marine environment.

The text of this paper (excluding contents page, footnotes, and appendices) comprises approximately 13,210 words.

## I INTRODUCTION

The ocean is home to an enormous amount of resources. New Zealand's exclusive economic zone is the fourth largest in the world. New Zealanders value the ocean and the resources within it for many reasons. These include direct use values such as maritime transport; oil, petroleum and mineral extraction; recreational swimming, diving and fishing; scientific uses including pharmacology and biotechnology; Maori customary usage; aquaculture and of course, commercial fishing. Indirect use value such as climate regulation and habitat are also recognised. Further, there are non-use values such as those of future generations, conservationists, as yet unknown scientific values and intrinsic value.<sup>1</sup> For all of these reasons there is a growing awareness of the need to conserve our marine environment.

Needless to say conflicts arise between differing resource values and resource management regimes with respect to New Zealand's seas.

The commercial fisheries user group operates within a quota management system (QMS) which confers on each fisher a "property right" in the harvest of commercially viable species. This regime is designed to provide for sustainable management of the fisheries resource specifically.

This paper will explore the nature of the commercial fishers' "property right" in their harvest and how it interacts with the rights and interests of other user and non-user stakeholders in the marine environment. The importance of this comparison is that the exercise of the commercial fishers' property right impacts on the marine environment and the other stakeholders in it.

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<sup>1</sup> For a detailed chart of the value of the marine environment, see appendix 1.



Forty-two species of fish are subject to the QMS. These species form a very small part of the biodiversity of the marine environment as a whole. Other stakeholders in the marine environment are concerned with marine ecosystems in their entirety, including *all* marine flora and fauna, fish habitat, wildlife, biodiversity and genetic diversity.

Legal obligations to protect the marine environment exist at international and domestic levels. This paper examines how New Zealand's legislative regime does or does not give effect to the principles contained in these legal instruments. It concludes that although the relevant international obligations are addressed in the wording of the legislative regime, the "property rights" rationale underpinning it appears to be inconsistent with according comprehensive practical effect to these obligations. In particular the single-species focus of the property right fails to provide the intended incentive to conserve non-target components of the marine environment. This problem is exacerbated by a lack of political will to implement the relevant sustainability provisions coupled with the weakness of rights held by non-commercial fishery stakeholders.

Part II of this paper outlines the factual background concerning fishing rights and marine ecosystems and their resources. Parts III and IV respectively look at the international and domestic legal frameworks relevant to the marine environment. Part V looks at the implementation of these frameworks. Parts VI and VII explore the imbalance of rights under which various stakeholders in our marine environment operate.

## II FACTUAL BACKGROUND

### A Historic Development of Fishing Rights

At common law there exists a "public right of fishing" which, with regard to tidal waters, dates back to the Magna Carta.<sup>2</sup> The effect of such a right is to encourage competition for a finite stock. This can be seen through the metaphor of the "tragedy of the commons"<sup>3</sup> which describes the inevitable destruction of a limited resource where an expanding population has unlimited access to it and its use. The day-to-day race for stock means no time is reserved for husbandry or stock improvement and profit re-investment is limited to better harvest equipment which becomes over-capitalised for diminishing returns.

The primary legal solutions to the commons scenario are:<sup>4</sup>

- (a) privatisation of common resources and / or
- (b) regulation of the resource by an external or collective authority.

It has been argued that traditional and community-based management systems may also be a solution.<sup>5</sup>

When there is competition for a common stock, the choice of regulation is critical. Fisheries legislation has only occurred in the latter half of this century in most countries, and only within the last few decades in the international arena.

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<sup>2</sup> C McCamish "Fisheries Management Act 1991: Are ITQs Property?" (1994) 22 FLR 375, 377.

<sup>3</sup> G Hardin "The Tragedy of the Commons" (1968) 162 Science 1243.

<sup>4</sup> G Hardin "The Tragedy of the Unmanaged Commons" (1994) 9 *Trends in Ecology & Evolution* 199.

<sup>5</sup> B Pardy *Environmental Law A Guide To Concepts* (Butterworths Canada 1996) 286.



## *B New Zealand's Changing Regime*

Inshore fisheries were about to reach their limit in the late 1970s when New Zealand established an Exclusive Economic Zone (EEZ) giving it exclusive control of the marine resources within 200 nautical miles of the coastline. Governments tried to protect stocks by restricting fishing gear, closing fishing areas, shortening fishing seasons, prescribing fishing technology and methods, allocating catches and resolving conflicts.<sup>6</sup>

Fishing fleets expanded beyond the capacity needed to harvest the available catch. Stocks were depleting, fishermen's income declined and conflicts among fishing groups intensified. The weaknesses of the regulatory approach to managing fisheries became increasingly evident.

The Fisheries Amendment Act 1986 amended the Fisheries Act 1983 (the 1983 Act) and brought in the revolutionary Quota Management System (QMS) which moved fisheries management towards resource management through private property rights. The coastal fishing fleet was reduced by 40 per cent while investment by larger companies saw the deep-water fishery expand immensely. There is now a marked concentration of quota within the big companies.<sup>7</sup>

The EEZ has been divided into 10 Quota Management Areas (QMAs). Each year fishery scientists analyse catch and trawler survey data to assess whether each stock is above or below its Maximum Sustainable Yield (MSY) level. The MSY is the maximum tonnage that can be taken from a stock while still leaving a constant population of breeding individuals. From this information and consultation with interest groups, the Minister of Fisheries sets the annual Total Allowable Catch (TAC).

<sup>6</sup> P Pearse *Building on Progress, Fisheries Policy Development in New Zealand* (Report prepared for the Minister of Fisheries, July 1991) 5 [Pearse].

<sup>7</sup> 60 per cent of quota is owned by the three largest companies, Sealord, Sanford and Amaltal. See Ministry for the Environment *The State of New Zealand's Environment* (1997) 9.96 [*The State of New Zealand's Environment*].



The objective in setting TACs is to hold stocks to their MSY level. The TAC specifies the total amount that may be taken from a stock by the combined efforts of commercial, recreational and Maori customary fishers. The recreational and Maori customary fishing component is estimated while the main portion of the TAC consists of the Total Allowable Commercial Catch (TACC). This is divided among commercial fishers in the form of Individual Transferable Quota (ITQ).

The QMS has been hailed an economic success, but was criticised for failing to provide for ecological considerations. An attempted answer to this criticism came with the passage of the Fisheries Act 1996 (the 1996 Act) which addresses the issues of sustainability of the target resource as well as other elements and species equally important to the ecosystem's survival.<sup>8</sup>

### *C The Ecosystem of the Seafloor*

#### *1 The state of New Zealand's marine ecosystems*

The diversity of New Zealand's marine species is very high, partly due to our geological history, and because our islands straddle major ocean currents which bring a wide variety of larvae from sub-tropical and polar sources. Approximately 8,000 marine species have been described so far in New Zealand waters, including 61 species of seabirds, 41 marine mammals, 964 fish (of which 108 are endemic), 2,000 molluscs (snails, shellfish and squid), 350 sponges, 400 echinoderms (various types of starfish), 900 species of seaweeds, and 700 species of micro-algae.<sup>9</sup>

<sup>8</sup> See Fisheries Act 1996 parts II and III brought into force by Fisheries Act Commencement Order (No 2) 1996 SR 1996/255.

<sup>9</sup> *Sustainable Use: Commercial Fisheries* (draft only) last changes made 17 December 1997, background paper to the Biodiversity Strategy 2 [*Sustainable Use*].



Tall mountains called seamounts found in the deeper waters of our EEZ have rich ecosystems and many harbour their own unique endemic species including black corals and horny corals.<sup>10</sup> The seamounts are places of shelter or sustenance for a wide range of marine flora and fauna. They attract large congregations of fish which, in turn, attract other species to the surrounding waters, such as sperm whales and sea birds.<sup>11</sup>

The biodiversity of New Zealand's seamounts and indeed other regional marine habitats is only just beginning to be understood. Oceanographers have sampled a total of 1.4 - 2 square kilometres of New Zealand's four million square kilometre EEZ. MAF research ships have sampled a further 5,600 kilometres, but not all species were recorded in the trawls.<sup>12</sup> The National Institute for Water and Atmospheric Research (NIWA) is undertaking a Marine Biodiversity and Systematics Programme. The objective of the programme is to use all the data available on species' presence/absences to ascertain the make-up of benthic assemblages<sup>13</sup> and their characterising species, and then map their distributions.<sup>14</sup> Because the task incorporates the entire EEZ, the project is a very long term one, though NIWA hopes to have the first benthic map in draft form a year from now.

## 2 *An ecosystem service*

### (a) Habitat

Benthos is essential habitat for fish and an abundance of other marine flora and fauna species. It provides nurseries, feeding and spawning

<sup>10</sup> *The State of New Zealand's Environment*, above n 7, 7.30.

<sup>11</sup> *The State of New Zealand's Environment*, above n 7, 7.30.

<sup>12</sup> *Sustainable Use*, above n 9, 22.

<sup>13</sup> Benthos is the flora and fauna found at the bottom of a sea or lake, *The Concise Oxford Dictionary of Current English*, 8th ed (Clarendon Press 1990).

<sup>14</sup> E-mail from Dennis Gordon, Marine Biodiversity & Systematics, NIWA, 4 August 1999.



grounds.<sup>15</sup> Reef health generally, including that of the oyster, is elevated by secondary metabolites continually released by the sponges and bryozoans to deter predation, overgrowth and infection.<sup>16</sup> Put simply, an oyster population in an original functioning ecosystem will suffer lower mortalities during outbreaks of disease and infection than an oyster population which has developed on the seafloor where its original habitat has been destroyed following a number of dredging seasons. This is commonly termed the "insurance value" of a healthy eco-system.

Ecosystems in their unaltered form serve as indicators of environmental health which help to fully understand the effects of human activities on the environment at all levels from global warming, to pollution, to impacts of fishing.<sup>17</sup>

#### (b) Biodiversity

It is increasingly recognised that biodiversity must be maintained as far as possible. One Gulf of Maine species appears to have completely vanished in waters raked by scallop dredges - a marine worm whose unusually large nerve axon once made it a valuable subject for neurological research. An endemic sponge was recently discovered off the Kaikoura coast which was found to produce a cancer fighting substance.<sup>18</sup> There are numerous species of benthos unknown as yet to scientists, which are being lost as biodiversity diminishes. This has enormous ramifications not only as far as the stability of the ecosystem

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<sup>15</sup> See Chris Battershill, Dennis Gordon and Edward Abraham "Benthos: A Datalogger of Marine Environmental Health" [Battershill] in *SeaViews: Marine Ecosystem Management Obligations and Opportunities, Proceedings of the conference held in Wellington, 11-14th of February 1998* (eds Catherine Wallace, Barry Weeber and Sam Buchanan, ECO 1998) 78 [SeaViews].

<sup>16</sup> Battershill, above n 15, 81

<sup>17</sup> An Australian study has noted that the seaweed canopy reduces damage to corals by decreasing exposure to high temperatures and high UV light intensities, see AIMS *Sargassum Canopy Decreases Coral Bleaching on Inshore Reefs* <<http://www.aims.gov.au/pages/research/seaweed/seaweed%2Dcanopy01.html>> (last accessed 26 July 1999).

<sup>18</sup> *The State of New Zealand's Environment*, above n 7, 9.33.



goes, but as an opportunity cost for a resource lost given the increasing importance of maintaining biodiversity for the purpose of bioprospecting.

### 3 *Scientific / medicinal / food value*

Many claims have been made for the effectiveness of seaweed on human health. It has been suggested, amongst other things, that seaweeds have curative powers for tuberculosis, arthritis, colds and influenza and worm infestations.<sup>19</sup>

Varieties of algae are used in the textile industry, in a range of food products, cosmetics and laboratory applications and in agriculture and horticulture.<sup>20</sup> Artificial substitutes for seaweed gums lack many of the same properties of the real product.<sup>21</sup>

Seaweed as a staple item of diet has been used in Japan and China for centuries where seaweed consumption reached an average of 3.5kg per household in 1973.<sup>22</sup> Use of seaweed as a food source is now more widespread and is being marketed as a health food in many Western countries.<sup>23</sup> About seven million tonnes of seaweed (wet weight) were produced world-wide in 1993 of which some 65 per cent was food-grade.<sup>24</sup>

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<sup>19</sup> J R Stein and C A Borden "Causative and beneficial algae in human disease conditions: a review" *Phycologia* 23 (1984) 485.

<sup>20</sup> For instance "Seagro" is a brown algae based fertiliser which is manufactured in New Zealand.

<sup>21</sup> Michael D Guiry (1997) *Liquid Seaweed Extracts* <<http://seaweed.ucg.ie/SeaweedUsesGeneral/Extracts.html>> (last accessed 26 July 1999).

<sup>22</sup> Michael D Guiry (1997) *Human Food* <<http://seaweed.ucg.ie/SeaweedUsesGeneral/HumanFood.html>> (last accessed 26 July 1999).

<sup>23</sup> *Maine Coast Sea Vegetables* <<http://www.seaveg.com>> (last accessed 26 July 1999).

<sup>24</sup> Michael D Guiry (1997) *The Irish Seaweed Industry* <<http://seaweed.ucg.ie/SeaweedUsesIreland/IrishSeaweedInd.html>> (last accessed 26 July 1999).

## *D The Threats to Seafloor Ecosystems*

### *1 Land based and marine pollution and development*

The decline of brown algae and sea grass on New Zealand's coast has been attributed to sedimentation caused by coastal developments such as harbour and marina construction, channel dredging and stormwater runoff.<sup>25</sup> This paper acknowledges the scale of the threat that these activities pose to benthos, but focuses on the threat of commercial fishing methods and the management thereof.

### *2 Commercial fishing methods*

#### *(a) Sediment resuspension*

With trawling and dredging, an enormous amount of sediment gets re-suspended into the water column, where it causes problems for marine animals that hunt with sight, photosynthesizing organisms that need light and filter-feeding creatures such as mussels, clams and oysters. When the sediments do settle, they cover many organisms.<sup>26</sup> A 1992 New Zealand study of seabed trawling revealed that turbidity was killing scallop larvae, eliminating slow-growing deep-water coral, and destroying bryozoan beds that served as fish nurseries.<sup>27</sup>

#### *(b) Physical impact*

Disturbance comes about primarily because of the towing of heavy gear by boats or ships along the seabed to catch shrimp, fish and scallops. Dredging and bottom trawling reduces the species on the sea floor by

<sup>25</sup> *The State of New Zealand's Environment*, above n 7, 7.30.

<sup>26</sup> Dick Russell, *Hitting Bottom - Destroying the Seafloor* <<http://www.igc.apc.org/nrdc/nrdc/eamicus/97win/hil.html>> (last accessed 26 July 1999) [Russell].

<sup>27</sup> JB Jones "Environmental Impact of Trawling the Seabed: a review" (1992) 26 *New Zealand Journal of Marine Freshwater Research* 59 [Jones].



physically disturbing the bottom. Once destroyed, coral formations appear to need 200-400 years to fully recover.<sup>28</sup> Recovery of non-coral sea floor communities may take decades once trawling has stopped.<sup>29</sup>

The effects of these methods have been compared to a practice called chaining, in which a drag chain is stretched between two bulldozers to clear unwanted vegetation as quickly as possible. Trawlers scrape nearly six million square miles per year, the equivalent of half the world's continental shelves.<sup>30</sup> This area is up to 150 times larger than the area of the world's clearcut forest.

In the mid-1980s many vessel owners began installing "rockhoppers", equipment much like automobile tires which allow nets to move right over any obstructions.<sup>31</sup> These all-terrain-vehicles have enabled vessels to trawl, at significantly higher speeds, places where the bottom habitat had remained pristine because the area was too rocky, deep or remote for older equipment to access. Scallop dredges also dig down into the bottom, scraping gravel and sea life attached to it into their chain bags.

Researchers estimate that prawn trawlers in Australia discard 3000 tonnes of material, mostly crustaceans and echinoderms, for each 500 tonnes of prawns.<sup>32</sup> There is evidence that when orange roughy trawling began over the sea mounts, the trawls brought up considerable amounts of benthic life, but that this has subsequently declined.<sup>33</sup> In Golden Bay, the survival rate of scallops was over 20 per cent over nine months in an area closed to trawling, but was only 0.8 per cent for an adjacent site open to trawling.<sup>34</sup>

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<sup>28</sup> *The State of New Zealand's Environment*, above n 7, 7.30.

<sup>29</sup> Jones, above n 27, 59. See also appendix 2.

<sup>30</sup> Research by Dr Les Watling, Professor of Oceanography at the University of Maine published in December issue of *Conservation Biology*, <[http://www.skali.com.my/journey/ewt/057/ewt19990126\\_01.html](http://www.skali.com.my/journey/ewt/057/ewt19990126_01.html)> (last accessed 26 July 1999).

<sup>31</sup> Russell, above n 26.

<sup>32</sup> *Sustainable Use*, above n 9, 17.

<sup>33</sup> Jones, above n 27 cited in *Sustainable Use* above n 9 18.

<sup>34</sup> *Sustainable Use* above n 9, 17.



It would be good to develop low impact bottom trawls and to define critical habitat in which it might not be appropriate to use mobile gear.<sup>35</sup> Further, gillnet gear which is set and not dragged, is able to target fish by size and to be selective for certain species is considered habitat friendly compared to towed gear.<sup>36</sup> The use of circle hooks, which has now decreased to the point where only small coastal vessels use them, has little direct impact on habitat.

However New Zealand fishers are not generally regulated by such input controls. The main legal instruments with regard to input controls and gear restrictions are regulations made under section 89 of the Fisheries Act 1983.<sup>37</sup>

#### (c) Overfishing

The direct effect of overfishing is the collapse of the target stock. The ecosystem ramifications are far wider. Over exploitation can cause genetic changes in the exploited populations and alters ecological relationships with the species' predators, symbionts, competitors and prey.<sup>38</sup>

A recent study by an Auckland University marine scientist, Dr Russell Babcock, has found that the effects of fishing can destroy kelp beds.<sup>39</sup> The study found that overfishing of snapper left kelp-grazing urchins with few natural predators. An explosion of kina meant kelp forests were rapidly destroyed. The study noted that since the Leigh reserve was established in 1978, the increase in kelp and algal growth had led to the

<sup>35</sup> Ronald Smolowitz *Bottom Tending Gear Used in New England* <<http://www.fishingnj.org/artsmolowitz.htm>> (last accessed 26 July 1999) [Smolowitz].

<sup>36</sup> Smolowitz, above n 35.

<sup>37</sup> See below part IV.

<sup>38</sup> Food and Agriculture Organisation *Special: Biodiversity for Food and Agriculture* <<http://www.fao.org/sd/epdirect/epre0044.htm>> (last accessed 8 August 1999).

<sup>39</sup> "Fishing destroys kelp beds, study finds" *The Dominion*, Wellington, 17 June 1999 20 ["Fishing destroys kelp beds"].



increase of other reef fish and inhabitants by 58 per cent. The study concludes that fishing has decreased the productivity of reefs on the east coast by between 40 and 50 per cent.<sup>40</sup>

(d) Dumping

Dumping of processed waste or bycatch can potentially deplete oxygen levels on the seabed, but there are no studies on this impact in New Zealand.<sup>41</sup>

### III THE INTERNATIONAL FRAMEWORK FOR MARINE ECOSYSTEMS

#### A Overview

Numerous treaties, conventions, multilateral and bilateral agreements which are relevant to the marine environment exist within the broad categories of pollution, transportation and fisheries.<sup>42</sup> Some of these are binding and some are not.<sup>43</sup> International customary law largely consists of non-binding bilateral and multilateral treaties and conventions and the practice of states in the international community.<sup>44</sup>

<sup>40</sup> "Fishing destroys kelp beds" above n 39.

<sup>41</sup> *Sustainable Use*, above n 9, 17.

<sup>42</sup> This section draws on the work of Wallace "Marine Management and the Quota Management System: Reform required" 62 [Wallace] and Barry Weeber "Ecosystem Management Principles: New Zealand's Marine Legal Framework" 148 [Weeber] in *Seaviews* above n 15.

<sup>43</sup> See (31 July 1996) 557 NZPD 14022 and text accompanying below n 83 where various conventions, though not enacted, were cited in Parliament as being part of the foundations of the 1996 Act's sustainability provisions.

<sup>44</sup> It is acknowledged that the preliminary issues of what constitutes customary international law and what effect it has are in themselves contentious.



**Table 1: International Obligations - Indicative of Customary International Law**

AGREEMENT	INDICATION OF RELEVANCE TO NZ
<i>Rio Declaration 1992 and Agenda 21 (especially chapter 17)</i>	Principles relied on by NZ at the ICJ in Nuclear tests case <sup>45</sup>
<i>FAO International Code of Conduct for Responsible Fisheries 1995</i>	Internationally accepted standard relevant to the implementation of UNCLOS <sup>46</sup>
<i>World Conservation Union statutes and regulations</i>	New Zealand is a member and is represented by DoC

**Table 2: International Obligations - Binding Domestically**

AGREEMENT	SIGNED	RATIFIED	DOMESTIC LAW	LEAD AGENCY
<i>Convention on the Conservation of Antarctic Marine Living Resources, 1980 (CCAMLR)</i>	Yes	Yes	Antarctic Marine Living Resources Act 1981	MFAT/ MFish
<i>Convention on the Conservation of Southern Bluefin Tuna, 1993</i>	Yes	Yes	Fisheries Act 1996	MFish
<i>Convention for the Prohibition of Fishing with Long Driftnets in the South Pacific, 1989 (Driftnet Convention)</i>	Yes	Yes	Drift Net Prohibition Act 1991	MFish
<i>International Convention for the Regulation of Whaling, 1946</i>	Yes	Yes	Marine Mammals Protection Act 1978	DoC/ MFAT
<i>Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 and Protocol 1996</i>	Yes	Yes	Maritime Transport Act 1994 Part XXI	MFAT
<i>International Convention for the Prevention of Pollution from Ships 1973 and Protocol 1978</i>	Yes	Yes	Maritime Transport Act 1994	MFE/ MSA
<i>Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, 1982</i>	Yes	Yes	Partial - Maritime Transport Act 1994	MFAT/ DoC
<i>UN Convention on the Law of the Sea, 1982 (UNCLOS)</i>	Yes	Yes	Partial - UNCLOS Act 1996	MFAT/ MFish/ MoC
<i>Convention on Biological Diversity, 1992 (CBD)</i>	Yes	Yes	Foundation of NZ Biological Diversity Strategy 1998	DoC/ MFAT
<i>Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972</i>	Yes	Yes		DoC
<i>Agreement for the Implementation of the Provisions of the UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995</i>	Yes	Yes	Fisheries Act 1996 Amendment 1999 (No 2) 99/103. <sup>47</sup>	

<sup>45</sup> See *New Zealand v France* (1995) General List No 97 Request for an examination of the situation, 21 August 1995, published in *New Zealand at the International Court of Justice - French Nuclear Testing in the Pacific* (Ministry of Foreign Affairs and Trade, 1996) [*New Zealand v France*].

<sup>46</sup> Not formally implemented in New Zealand, but given Ministerial Support "FAO Fisheries Ministerial Meeting" *New Zealand Executive Government Speech Archive* (10 March 1999) <[http://www.executive.govt.nz/minister/luxton/jls10399\\_1.htm](http://www.executive.govt.nz/minister/luxton/jls10399_1.htm)> (last accessed 9 April 1999).

<sup>47</sup> Assented to 8 September 1999 following much protest from industry, see Report of the Primary Production Committee, Fisheries Amendment Bill 1999 (No 3) No 304-2A, iii.



The obligations within these documents broadly comprise the duty to protect the marine environment; enlarge the scope of protected areas; apply the precautionary principle; require environmental impact assessments and generally to take an integrated ecosystem approach to fisheries.<sup>48</sup> The following analysis briefly outlines each duty, and introduces how New Zealand does or does not comply with the obligations.

### *1 Duty to protect the marine environment*

Article 192 of the United Nations Convention on the Law of the Sea 1982 (UNCLOS) establishes the unqualified obligation to preserve and protect the entire marine environment.

Agenda 21 expands on this by providing that States should identify valuable marine ecosystems and habitat and provide necessary limitations on "use" in those areas.<sup>49</sup> This seems to impose an obligation to carry out research on marine ecosystems so as to establish how "use" ought to be limited in order to preserve that environment.

New Zealand has been active in the international arena in according weight to this provision. It relied heavily on the duty in argument against France on the nuclear tests issue<sup>50</sup> and played an instrumental role in the Driftnet Convention.

Domestically, the story is different. The same "guardian of the marine environment" which prohibited driftnetting in the South Pacific ignores the consequences in its own EEZ of trawl nets which destroy living species and habitat on the ocean's floor.

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<sup>48</sup> For a review of how these principles are operating in the international arena, see United Nations Oceans and Law of the Sea, Report of the Secretary-General 53rd session A/53/456.

<sup>49</sup> Agenda 21 ch 17.86, appendix 3.

<sup>50</sup> *New Zealand v France*, above n 46.



## 2 *Duty to enlarge the scope of protected areas*

UNCLOS,<sup>51</sup> the Convention on Biological Diversity 1992 (CBD),<sup>52</sup> the Convention on the Conservation of Antarctic Marine Living Resources 1980 (CCAMLR)<sup>53</sup> and Agenda 21<sup>54</sup> all require States to take measures necessary to protect and preserve rare and fragile ecosystems as well as the habitat of depleted, threatened, or endangered species and other forms of marine life.

Apart from the protected areas in the territorial sea, New Zealand mostly ignores this obligation. A requirement to take measures necessary to protect such areas assumably incorporates a requirement to ascertain their existence. It cannot be legitimate to allow the destruction of habitat and ecosystems purely because so little was known about them, and so escape the obligations imposed by the provision.

## 3 *Duty to apply the precautionary principle*

Where there are threats of serious or irreversible damage, scientific uncertainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.<sup>55</sup>

New Zealand recognises the precautionary principle in the context of domestic law,<sup>56</sup> and cites it as a principle of international environmental

<sup>51</sup> Article 194(5).

<sup>52</sup> Article 8.

<sup>53</sup> Article IX(2)(g).

<sup>54</sup> Chapter 17.7.

<sup>55</sup> See Rio Declaration 1992 principle 15; CCAMLR's "no data, no fish" approach cited in Weeber, above n 42, 162; United Nations Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995 Article 6.2 and 6.3 reproduced in appendix 3; and the FAO Precautionary Approach to Fisheries reproduced in appendix 3.

<sup>56</sup> *McIntyre v Christchurch City Council* [1996] NZRMA 289; *Greenpeace New Zealand Inc v Minister of Fisheries* (27 November 1995) unreported, High Court, Wellington Registry, CP 492/93. See also the statutory embodiment of the principle in the Fisheries Act 1996, s 10(d).



law in its submissions in the *Nuclear Tests Case*.<sup>57</sup> In practice, as discussed in part IV, it is not applied domestically with respect to fishing impacts on the marine environment. One possible explanation is that its application in the domestic arena would bring the Government under the wrath of the fishing industry.

#### 4 *Duty to prepare an environmental impact assessment*

Where an activity is likely to cause significant damage to the environment various treaties impose an obligation to conduct a prior environmental impact assessment.<sup>58</sup> New Zealand is of the opinion the obligation has gained the status of customary international law due to its widespread recognition,<sup>59</sup> and requires environmental impact assessment for certain terrestrial activities. It is inconsistent to not require such measures for fishing activities also.

#### 5 *Duty to take an integrated ecosystem approach to fisheries*

The CCAMLR manages the fisheries south of the Antarctic Convergence on the basis of the "ecosystem as a whole".<sup>60</sup> This is reflected in the

<sup>57</sup> *New Zealand v France*, above n 46, 68.

<sup>58</sup> Agreement for the Implementation of the Provisions of the UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, 1995 Article 6.3(d) (reproduced in appendix 3); 1986 Convention for the Protection of the Natural Resources and Environment of the South Pacific Region, 26 ILM 38; UNCLOS, arts 205 and 206; the ASEAN Agreement on the Conservation of Nature and Natural Resources (9 July 1985) arts 14(1) and 20(3)(a); 1985 European Community Environment Assessment Directive (85/337/EEC 27 June 1985) arts 2 and 4; Convention on Environmental Impact Assessment in a Transboundary Context, art 2 (Finland, 25 February 1991) 30 ILM 802; Protocol on Environmental Protection to the Antarctic Treaty, art 8 (Madrid, 4 October 1991) 30 ILM 1461; Convention on Biological Diversity, art 14 (5 June 1992) 31 ILM 822.

<sup>59</sup> *New Zealand v France*, above n 46, 346 submissions of New Zealand per Judge *Ad Hoc* Sir Geoffrey Palmer.

<sup>60</sup> See especially Article II 33 reproduced in appendix 3 which expressly addresses the direct and indirect impact of harvesting.



empowering New Zealand legislation which accords broad protection to any "marine organism".<sup>61</sup>

Many of our colleagues in the international community have taken the holistic approach to marine management which New Zealand has not. This indicates those countries' recognition of the importance of their international obligations. It also illustrates the practice of states in the area which is a key component in developing international customary law.

(a) Australia

The Australian government has commissioned an in-depth study of ocean use and management. It prescribes principles for ecologically sustainable ocean use which include planning and management for ocean ecosystem health and multiple use.<sup>62</sup> This approach recognises that the understanding of ecosystem implications of decisions will often require information beyond that needed to manage individual resource sectors. The policy advocates the application of the precautionary principle and incorporates the concepts of duty of care and stewardship.

Accordingly, the Australian government funds in-depth research into fisheries habitat, which includes the effects of harvesting on ecosystems and biodiversity.<sup>63</sup>

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<sup>61</sup> Antarctic Marine Living Resources Act 1981 s 4.

<sup>62</sup> *Australia's Ocean Policy, Caring - Using - Understanding* <[http://www.environment.gov.au/marine/ocopoly/ocean\\_policy/public/chapter2.html](http://www.environment.gov.au/marine/ocopoly/ocean_policy/public/chapter2.html)> (last accessed 15 August 1999).

<sup>63</sup> *Mike Cappo A Review and Synthesis of Australian Fisheries Habitat Research* <<http://www.aims.gov.au/pages/research/fep/afhr/afhr%2D01.html>> (last accessed 26 July 1999).



(b)Canada

Canada has taken an integrated ocean management approach with the passage of its Oceans Act 1996.<sup>64</sup> The sustainability provisions apply to the ocean as a whole, in comparison to the sustainability provisions in our Fisheries Act 1996 which are centered around fisheries management. This means, in Canada, sustainability of all marine ecosystems is considered to be of equal importance to the sustainability of commercial fisheries, as opposed to being a subsidiary consideration. Part II of the Oceans Act prescribes the Oceans Management Strategy (OMS). The precautionary approach applies;<sup>65</sup> the establishment of marine protected areas including in the EEZ is provided for;<sup>66</sup> and environmental impact assessments may be required.<sup>67</sup>

This holistic approach brings ocean management under the jurisdiction of statutory bodies which have been primarily established for environmental and ecological purposes. This is in contrast with New Zealand's policy of managing the ocean's resources through the commercial fisheries regime.

*6 Duty to consider the needs of future generations*

This duty is implicit in most of the conventions and principles already discussed.<sup>68</sup> It is provided for as a founding purpose of the 1996 Act, though the weight accorded to this provision in law is questionable.<sup>69</sup>

<sup>64</sup> 45 Elizabeth II, 1996; Assented to 18th December 1996.

<sup>65</sup> Oceans Act 1996 (Canada) s 30.

<sup>66</sup> Oceans Act 1996 (Canada) s 35.

<sup>67</sup> The Oceans Act amends s 2(1) of the Canadian Environmental Assessment Act and s 52 of the Canadian Environmental Protection Act by inserting in the definition of "federal lands" the internal waters, the territorial sea, the continental shelf and the EEZ of Canada.

<sup>68</sup> See especially the relevant part of the FAO voluntary code reproduced in appendix 3.

<sup>69</sup> Fisheries Act 1996 s 8, and see discussion below part IV.



### *B Concepts v Practice?*

International law on ocean management clearly requires a principled starting point of ecosystem management rather than the exploitation of commercially viable fish. Nonetheless, these principles will be ineffective in the absence of a workable fisheries management regime.<sup>70</sup> New Zealand's QMS is considered to achieve something real with respect to sustaining commercial fishstocks. However this should not enable New Zealand to use the purported success of its fisheries management regime as an excuse to ignore international obligations with respect to the wider marine environment.

## *IV THE LEGAL FRAMEWORK FOR THE MARINE ENVIRONMENT IN NEW ZEALAND*

No single Act or institution has an overall umbrella function with respect to the entire marine environment on a practical basis.<sup>71</sup>

### *A Inside the Territorial Zone Only*

#### *1 Resource Management Act 1991*

This Act contains the control of coastal management, but does not include fisheries management.<sup>72</sup> However under section 11 of the Fisheries Act 1996, the Minister of Fisheries, in setting or varying sustainability measures, shall have regard to any regional policy statement, regional plan, or proposed regional plan under the RMA.

Further, its provisions are worth referring to by way of comparison.

Section 12(e) provides that no person may:

<sup>70</sup> For instance a fundamental flaw of the CCAMLR is that it lacks an enforcement regime resulting in a huge illegal catch of Patagonian toothfish with by-catch of over 100,000 albatrosses and petrels. See Weeber, above n 42, 162.

<sup>71</sup> For a more in-depth analysis of non-fisheries legislation applicable to the marine environment, see Wallace, above n 42, 62 and Weeber, above n 42, 148.



[D]estroy, damage, or disturb any foreshore or seabed (other than for the purpose of lawfully harvesting any plant or animal) in a manner that has or is likely to have an adverse effect on plants and animals or their habitat.

Whether rules in regional plans can manage the adverse effects of fisheries activities has still to be tested in court.<sup>73</sup> If this provision were to apply to fisheries, it would clearly require an environmental impact assessment for fishing methods likely to do damage to the seabed. Section 17(1) of the RMA provides that "*every person* has a duty to avoid, remedy, or mitigate any adverse effect on the environment" (emphasis added). This is in stark contrast to the sustainability provisions in the Fisheries Act 1996 which apply only to decision makers administering the fisheries regime, but not directly to the fishers carrying out activities under the regime.

## 2 *Marine Reserves Act 1971*

Fishing is generally excluded from all marine reserves, although the Act does allow recreational fishing.<sup>74</sup> The main purpose of the Act is to preserve areas for the scientific study of marine life. Marine reserves benefit fisheries by providing insurance against stock collapse and protection of critical habitats.

14 marine reserves now cover around four per cent of the territorial sea.<sup>75</sup> There are applications or investigations underway in respect of a further 24 areas.

However sanctuaries on such a small scale are inappropriate for mobile species and run the risk of creating isolated "island communities" that

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<sup>72</sup> Fisheries management is excluded from application of the RMA by of the Fisheries Act 1996 s 6.

<sup>73</sup> Weeber, above n 42, 150.

<sup>74</sup> Marine Reserves Act 1971 s 3(3).

<sup>75</sup> This is compared with land where approximately 30 per cent of the area is protected in some form of reserve. See Kathy Walls "Developing a Network of Marine Reserves for New Zealand" in *Seaviews*, above n 15, 191, 192.



become genetically weakened and less resilient to natural shocks.<sup>76</sup> There is therefore also a need for some restraint on activities in the open sea, such as trawl damage, so as to leave the intervening areas more conducive to species movement between sanctuaries.

An environmental charter suggests that 5 per cent of New Zealand's marine floor to the outer limits of the EEZ should be classified as no-take marine reserves or marine protected areas by 2002, extending to 20 per cent by 2010.<sup>77</sup>

## **B Inside the Territorial Zone and the EEZ**

### **1 Specific species management and protection**

Marine mammals are absolutely protected by the Marine Mammals Protection Act 1978 and mechanisms exist for research into and monitoring of marine mammal bycatch.<sup>78</sup>

The Wildlife Act 1954 covers all birds, turtles and, since 1996, black and red coral and spotted black grouper.<sup>79</sup> The Wildlife Act is a useful legal mechanism for protecting areas such as seamounts which contain coral. However, practically, coral and other invertebrate bycatch is not monitored. The Wildlife Act accords no protection to marine ecosystems in the EEZ and territorial sea which do not contain any of the named species. It is unlikely that any such extension of the Act will be made

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<sup>76</sup> Mary Clarke and Peter Clough *New Zealand's Fisheries Co-Management and Property Rights* Report to the NZ Seafood Industry Council Ltd, Working Paper 98/16 (May 1998, NZIER, Wellington) 30 [Clarke]. See also *The State of New Zealand's Environment*, above n 7, 9.36 which cites fragmentation of ecosystems as a factor making extinction inevitable for many terrestrial species.

<sup>77</sup> *Vote for the Environment Charter August 1999*, environmental charter prepared for the 1999 General Election, supported by Environment and Conservation Organisations of NZ (ECO); Federated Mountain Clubs of NZ; Greenpeace; Royal Forest & Bird Protection Society of NZ, 22.

<sup>78</sup> Conservation Act 1987 ss 3C-3E.

<sup>79</sup> Wildlife Act 1954 schedule 7A.



without a marked increase in knowledge as to the diversity of benthic species and their resource or intrinsic value.

Under the Conservation Act 1987 conservation strategies for marine mammals and wildlife can extend throughout the EEZ.<sup>80</sup> Under section 11 of the Fisheries Act 1996 the Minister is to have regard to any management strategy or plan under this Act in varying or setting sustainability measures.

## 2 *Environmental management and protection*

The Minister of Conservation has ownership functions and responsibilities for foreshore and seabed. The exercise of these functions and responsibilities does not appear to go beyond coastal management, marine reserves in the territorial sea and protection for bycatch of mammals and seabirds.

The Maritime Transport Act 1994 aims to protect the marine environment, but its scope does not apply to actual fishing practices.<sup>81</sup>

Under the Environment Act 1986 the Ministry for the Environment and the Parliamentary Commissioner for the Environment have advisory roles with respect to all aspects of environmental administration, including the application, operation and effectiveness of the Fisheries Act 1983.<sup>82</sup>

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<sup>80</sup> Conservation Act 1987 ss17B, 17C, 17D and 17E.

<sup>81</sup> The Maritime Transport Act addresses harmful substances (part XIX); hazardous ships, structures and offshore installations (part XX); and dumping, incineration and storing of wastes (part XXI).

<sup>82</sup> Environment Act 1986 ss 16; 31(a), (c)(i) and Schedule. See Office of the Parliamentary Commissioner for the Environment and the Audit Office *Marine Fisheries Management - a Joint Report of the Controller and Auditor-General and the Parliamentary Commissioner for the Environment* (Wellington, 1990); and "Current Project - marine overview investigation" (1999) 3 BRMB 19.



### 3 Fisheries Acts 1983 and 1996

These Acts are administered by the Ministry of Fisheries. The 1996 Act provides for environmental standards in the management of fisheries.

Section 5 requires decision-makers to act in a manner consistent with New Zealand's international obligations relating to fishing.<sup>83</sup>

The Bill incorporates advances in international law, including those established in the United Nations Convention on the Law of the Sea agreement relating to the conservation and management of straddling fish stocks and highly migratory fish stocks;... the Convention on Biological Diversity; the Rio declaration on environment and development; and the code of conduct for responsible fisheries.

The purpose of the 1996 Act is set out in section 8:

To provide for the utilisation of fisheries resources while ensuring sustainability.

'Ensuring sustainability' means:

- (a) Maintaining the potential of fisheries resources to meet the reasonably foreseeable needs of future generations; and
- (b) Avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment.

The requirement to *ensure* sustainability is stronger than the RMA's statutory purpose - to *promote* the sustainable management of natural and physical resources. This fact suggests that the "utilisation" of fisheries resources is subservient to the environmental bottom lines set out in sections 8(a) and (b) of the 1996 Act. However the Ministry of Fisheries has argued that since the management tools within the Act concern control of resource extraction, so therefore this must be the focus of the purpose of the Act.<sup>84</sup> To date, the Ministry's actions accord with this approach.

<sup>83</sup> (31 July 1996) 557 NZPD 14022.

<sup>84</sup> A divergence of views on the effect of section 8 is enabled by the interpretation of the word "while". For an analysis of "while" in the context of the RMA s 5, see Dr Benjamin Richardson "Sustainability and the Fisheries Act 1996: Protecting the interests of posterity?" (1998) 2 BRMB 125, 126 [Richardson].



There are further problems with the requirement to provide for the "needs of future generations". Issues surround the definitions of "future generations", their "reasonably foreseeable needs, who should champion their rights and to what standard."<sup>85</sup> One academic has commented that the immense difficulties in ascertaining the needs of posterity militates against the suggestion that section 8 creates an enforceable legal obligation.<sup>86</sup> Instead it is essentially a statement of government policy which should promote the concept that principles of sustainability should underpin the approach of government agencies and can be used as a guide to interpretation of the legislation.<sup>87</sup>

The difficulties surrounding issues of posterity should be dealt with and not simply dismissed as ambiguities which deprive section 8 of its entire legal force. After all the section 8 requirement to avoid, remedy, or mitigate any adverse effects of fishing on the aquatic environment cannot be divorced from the requirement to provide for future generations. Section 8 constitutes two environmental bottom lines which are unambiguous, and have been placed, for a reason, within an Act which binds the Crown.<sup>88</sup>

The Act also includes two sections setting out principles which shall be taken into account by "all persons exercising or performing functions, duties, or powers under the Act". Section 9 requires:

- (a) Associated and dependent species should be maintained above a level that ensures their long term viability;
- (b) Biological diversity of the aquatic environment should be maintained;
- (c) Habitat of particular significance for fisheries management should be protected.

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<sup>85</sup> See generally Richardson, above n 84.

<sup>86</sup> Richardson, above n 84, 126.

<sup>87</sup> G Bates "Implementing ESD" (1994) 11 *Environmental and Planning Law Journal* 251, 253.

<sup>88</sup> Fisheries Act 1996 s 7.



Section 10 contains a set of information principles. Paragraph (a) represents New Zealand's first statutory acknowledgment of the precautionary principle:

- (a) Decisions should be based on the best available information;
- (b) Decision makers should consider any uncertainty in the information available in any case;
- (c) Decision makers should be cautious when information is uncertain, unreliable or inadequate;
- (d) The absence of, or any uncertainty in, any information should not be used as a reason for postponing or failing to take any measure to achieve the purpose of this Act.

Decision makers under sections 9 and 10 of the 1996 Act are only required to take the Act's environmental principles *into account*. This obligation is weak compared with the requirement to *recognise and provide for* the matters of national importance set out in section 6 of the RMA. It was considered that:<sup>89</sup>

"Recognise and provide for" placed too strong an obligation on persons exercising functions under the Act, possibly forcing them to undertake vast amounts of research to meet the obligation.

Undue delay caused by inadequate information would arguably have been prevented by the section 2 definition of the "best available information". The ecosystem approach in the 1996 Act does not have the weight it should have in light of New Zealand's international obligations.<sup>90</sup>

The environmental principles in section 9, if decision makers were required to "recognise and provide for" them, would arguably be appropriate criteria to protect the ocean floor. However, as they stand, the principles may simply be disregarded by decision makers following due consideration. Decisions can only be challenged on the grounds that they would fail to sustain the resource in question for future generations;

<sup>89</sup> Primary Production Committee *Fisheries Bill: Commentary* (1996) vii, cited in Marguerite Quin "The Fisheries Act 1996: Context, Purpose, and Principles" (1997) 8 AULR 503, 529 [Quin].

<sup>90</sup> Quin, above n 89, 529.



or that the adverse environmental effects of the activity in question could not be mitigated to an acceptable level.

The section 8 environmental bottom lines could be the foundations from which to argue that fishing methods ought to be assessed for environmental impact on benthic communities. However, the argument has a slim chance of success given the ineffectiveness of section 10(a) and the 1996 Act in general to ascertain the requisite information to prove that these environmental bottom lines are being undermined.

Nevertheless, if a successful argument can be made on these grounds, the statutory mechanism does exist for action to be taken. Section 11 provides that the Minister may set or vary any sustainability measure for one or more stocks or areas.<sup>91</sup> Sustainability measures may relate to the fishing methods used.<sup>92</sup> The Minister may recommend the making of regulations under section 298 of the 1996 Act as he or she considers necessary for the purpose of implementing sustainability measures.<sup>93</sup>

The intended scope of section 11 is found in the Parliamentary debates:<sup>94</sup>

...[T]here are limitations to the pure application of the total allowable commercial catch approach, because the way in which fish are caught often impacts on the marine environment. It will be in the *interests of people other than those with quota in a particular fishery* to ensure that the fishery is using methods that do the minimum damage.

...[A]n outstanding example might be trawling, which damages the seabed environment in certain situations. There are certain stocks that have traditionally been harvested by trawling. I believe that in the fullness of time that method of harvesting will be prohibited. The fish will have to be caught on fish-hooks, or by whatever other methods seem appropriate - certainly by methods that do not damage the marine-floor environment.

<sup>91</sup> Fisheries Act 1996 s 11(1).

<sup>92</sup> Such measures may also relate to the catch limit; the size, sex, or biological state of any stock; the areas from which any stock may be taken; or the fishing season. Fisheries Act 1996 s 11(3)(a)-(e).

<sup>93</sup> Fisheries Act 1996 s 11(4).

<sup>94</sup> Hon Jim Sutton, (31 July 1996) NZPD 14034 (emphasis added).



This speech was concurred with by the then Minister of Fisheries.<sup>95</sup> In order to honour our international obligations, to acknowledge the rights of other stakeholders in the marine environment, and to simply avoid a situation of overfishing through habitat destruction, this unequivocal expression of statutory intent ought to be given effect to.

#### 4 *Commercial Fisheries Regulations*

The regulations currently in force are made under section 89 of the Fisheries Act 1983 and impose various input controls.<sup>96</sup> They have effect out to the EEZ although most of the regulated closures are in inshore waters.

For the most part, the method restrictions apply to relatively small defined areas within each fishery management area such as harbours and estuaries. The only general prohibitions on fishing methods are trawling by vessels over 46 metres in length within the territorial sea<sup>97</sup> and using a hazardous substance to catch or destroy fish.<sup>98</sup>

Section 297 of the 1996 Act empowers the Governor-General to regulate, authorise or prohibit the taking of any fish, aquatic life, or seaweed of any stock or species from any area; for any period; of any specified size; or by any method of fishing.<sup>99</sup> Section 298 of the 1996 Act empowers the Governor-General to make regulations to implement or vary any of the sustainability measures under section 11.<sup>100</sup> More specifically, it confers the ability to regulate so as to avoid, remedy or mitigate the effect of fishing-related mortality on any protected species.<sup>101</sup>

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<sup>95</sup> Hon Doug Kidd, (31 July 1996) NZPD 14036.

<sup>96</sup> Fisheries (Commercial Fishing) Regulations 1986 ss 22 - 53.

<sup>97</sup> Fisheries (Commercial Fishing) Regulations 1986 s 47A.

<sup>98</sup> Fisheries Act 1996 s 234.

<sup>99</sup> See Fisheries Act 1996 s 297(a)(i)-(ix).

<sup>100</sup> Fisheries Act 1996 s 298 (a).

<sup>101</sup> Fisheries Act 1996 s 298 (b) and (c).



This power to make regulations is comprehensive and powerful. However, to date, the power to make regulations has only been invoked in "exceptional circumstances" such as when a commercially valuable species has been in danger of serious overfishing.<sup>102</sup>

### *C Interim Summary - Domestic Protection for the Marine Environment*

Protection of the marine environment is plagued by statutory and institutional fragmentation and ineffectiveness. Inconsistencies are numerous. While it is not permissible to pollute the seabed under the Maritime Transport Act or damage it under the RMA, it is permissible to rip it up by dredging or bottom trawling and thereby cause irreversible damage under the Fisheries Acts. This situation is exacerbated by the Ministry of Fisheries' position that utilisation of fisheries takes precedence over the sustainability provisions.

In reality, all the seafloor outside of marine reserves is unprotected. Moreover, nominally protected species such as the red and black coral are routinely impacted by fishing activities.<sup>103</sup> No one has an accurate knowledge of where such communities occur. This has the effect that fishers target seamounts for orange roughy quite freely, while their methods of fishing "unintentionally" destroy coral thickets in the process. No one is there to see the effects and prosecute.<sup>104</sup>

<sup>102</sup> See *Sanford (South Island) Ltd & Ors v Moyle & Ors* (10 November 1989) unreported, High Court, Wellington Registry, CP 3/89 [*Sanford*] and *New Zealand Fishing Industry Association (inc) & Ors v Minister of Fisheries & Ors* (22 July 1997) unreported, Court of Appeal, 82-97, CA 83-97, CA 96-97, Richardson P, Gault, Keith, Blanchard & Tipping JJ [*NZ Fishing Industry Association*].

<sup>103</sup> E-mail from Dennis Gordon, Marine Biodiversity & Systematics, NIWA, 4 August 1999.

<sup>104</sup> The Ministry of Fisheries observer programme which was mostly concerned with marine mammal and seabird by-catch has reduced significantly with the reduction of joint venture and foreign licensed vessels in our waters. See *The State of New Zealand's Environment*, above n 7, 9.107. This is unfortunate given the opinion that bycatch rates of marine mammals appears to be correlated with observer coverage, see Baird *Nonfish Species and Fisheries Interactions Working Group Report* (94/1) (MAF, Wellington 1994) 7.



Some scientists have argued that all the seafloor ought to be regarded as protected, except for those areas where we can know that fishing or other extractions will have tolerable effects. Ministry of Fisheries sources currently admit that information regarding the impact of fishing methods on fish habitat is limited. They say that "this is a difficult and expensive area of research. Research is currently contracted to improve that information".<sup>105</sup>

Two types of errors have been identified with environmental policy making.<sup>106</sup> A type I error concludes that there is an effect, but actually there is not one. Allowing potentially destructive practices to continue while admitting knowledge is limited represents the Ministry's desire to avoid a type I error. Making this error results in a loss of revenue. The financial implications are easily understood. A type II error concludes there is no effect, when in fact one exists. This error results in a high probability of loss of biodiversity and adverse impact on the marine environment. However the ecological implications can only be predicted from inferential data and are especially difficult to ascertain where impacts are cumulative.

Most of the focus lies in eliminating type I errors as a result of industry lobby. The burden of proving that there is no effect lies with the regulator. This is contrary to the precautionary principle which, in the marine environment context, requires the burden to shift to the fisher to disprove an effect takes place when serious environmental consequences are possible.

The failure to give adequate effect to the sustainability provisions amounts to a failure to carry out our international obligations; a failure to give effect to the intention of Parliament in enacting the sustainability

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<sup>105</sup> E-mail from Mark Edwards, Ministry of Fisheries, 3 August 1999.



provisions; and a failure to recognise that the Courts have pronounced that regulation making power can go as far as may be necessary for proper marine conservation purposes, both of ITQ and non ITQ species.<sup>107</sup>

## **V HOW IS THIS FRAMEWORK BEING IMPLEMENTED... OR NOT?**

### **A The Theory**

#### *1 The original idea*

An early review of New Zealand's QMS specifically stated that the responsibility for managing fishing should be assigned to those who hold the rights to fish; and the responsibility for protecting broader public interests in the conservation of resources is the responsibility of Government.<sup>108</sup> The author stated the Government's essential role is to identify the public interests that are affected by fishing, and to protect them by setting out enforceable "conservation prescriptions" within which those who have rights to fish can organise themselves and exercise their rights. "Conservation prescriptions" would be designed following a systematic consultation process to accommodate public participation, and to channel the views and advice of interest groups into the decision making. This approach would have been consistent with the underlying principles of the Resource Management Act 1991. Instead, non-commercial stakeholders in fisheries have to fight to be heard on these issues. The public interest in conservation issues, especially in the EEZ, has been largely ignored.

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<sup>106</sup> P Dayton, S Thrush, M Agardy, R Hofman "Environmental Effects of Marine Fishing" 15 (1995) *Aquatic Conservation: Marine & Freshwater Ecosystems* 205.

<sup>107</sup> See *Sanford and New Zealand Fishing Industry Association*, above n 102.

<sup>108</sup> Pearce, above n 6, 18.



## 2 Fisheries 2010 Strategy

This draft strategy is being developed by the Ministry of Fisheries and various stakeholders including Maori, environmental groups, recreational fishers, the wider public and commercial fishers.<sup>109</sup> It addresses the need to have an ecosystem based fisheries management approach which recognises that New Zealand's fisheries are part of the wider aquatic ecosystem and acknowledges that markets have difficulties with fisheries policy issues.<sup>110</sup>

- Future generations are not traders in the market... Their ability to meet their own needs should not be compromised by decisions made today.
- The links between economic activity and ecosystem damage are often indirect. Cumulative and indirect effects on the life-supporting capacity of ecosystems can occur if appropriate limits are not in place.
- Environmental effects and risks are not evenly spread and unforeseen effects may be irreversible.
- 'Spillover' effects are common.

Nonetheless the Strategy emphasises that government intervention would not necessarily achieve better results citing reasons such as limited information and influence by sectional interests. The government describes its task as being:<sup>111</sup>

[T]o develop rules and institutions that promote good environmental outcomes within the framework of a pluralistic society and market economy. This may require amending the rules governing existing property rights or the creation of new ones. In other instances, it will involve introducing rules and regulations designed to protect environmental values not easily secured by market exchanges.

This passage recognises the scope of the property right given to fishers is too wide and ill-defined with respect to environmental matters. This Ministry's vision includes people with rights to harvest fisheries having responsibility, and being held accountable, for the management of those

<sup>109</sup> Ministry of Fisheries *Changing Course - Sustainable Fisheries In a Healthy Aquatic Ecosystem* <<http://www.fish.govt.nz/strategy.htm>> (last accessed 10 April 1999) [*Changing Course*].

<sup>110</sup> *Changing Course*, above n 109, 5.

<sup>111</sup> *Changing Course*, above n 109, 6.



rights, within environmental limits and standards set by Government. This vision leaves open to the government the option to either regulate, or better define the duties associated with the fishers' property rights.

Problematic areas in fisheries include depletion due to persistent over-fishing, leading to the collapse of a fishery; potential long-term damage to habitat caused by fishing; and high levels of non-compliance with fisheries laws. Despite this, the Strategy goes on to advocate that sustainable fisheries involves "widespread *voluntary compliance* with fisheries laws".<sup>112</sup> This represents a clear contradiction in approach. A property rights regime requires a system of enforcement for it to function properly.<sup>113</sup>

The Strategy, for all that it "embodies a world-wide trend towards eco-system management of natural resources" remains centered around the commercial fishery. It looks at eco-system management as an offspring of fisheries management, as opposed to fisheries management taking place under the wider umbrella of eco-system management. In this sense it is less of an advance towards integrated ocean management and recognition of non-use values than those steps our Australian and Canadian counterparts have made.

## ***B The Practice***

### *1 Devolution to the industry*

While apparently binding themselves to act in a manner consistent with sustainability, decision makers under the Fisheries 2010 Strategy and the Fisheries Act 1996 are simultaneously doing their utmost to remove themselves from the industry.

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<sup>112</sup> *Changing Course*, above n 109, 10.

<sup>113</sup> See text accompanying Hartley, below n 119.



The rationale is that as long as management of fisheries remains with Government, although holders of rights of access and harvest are not prohibited from making investments in resource enhancement, they have no guarantee that management decisions will respect their investments.<sup>114</sup>

The 1996 Fisheries Act Amendment 1999 contains devolution provisions whereby core fisheries services may be put under the control of the industry by regulation.<sup>115</sup> These include functions, duties or powers of the chief executive which are exclusively or primarily associated with the administration of commercial fisheries and includes the keeping of registers.<sup>116</sup> This is consistent with the Government policy of "getting out" of areas that are not essential and of direct benefit to the long-term economic, social and infrastructure development of New Zealand.<sup>117</sup>

## 2 *Lack of enforcement*

The Ministry of Fisheries remains responsible for enforcement under the 1999 Amendment Act, but continually struggles with a lack of resources. It relies on the theory that the incentive to conserve the resource lies in the property rights regime it administers.<sup>118</sup> This reliance is contrary to the key requirement that property rights, and the legal system that underpins them need to be enforced.<sup>119</sup> Enforcement requires coercion, or the threat of coercion. Audit of quota holders and licensed fish receivers is the primary mechanism used to ensure compliance under the

<sup>114</sup> Alison Rieser "Property Rights and Ecosystem Management in U.S. Fisheries: Contracting for the Commons?" 24 *Ecology Law Quarterly* 813, 820 [Rieser].

<sup>115</sup> See Fisheries Act 1996 Amendment 1999 s 65 which inserts new Part 15A.

<sup>116</sup> See Fisheries Act 1996 Amendment 1999 s 65 which inserts new s 296A. The provision is careful not to devolve any functions, duties or powers of the Minister or fisheries officers.

<sup>117</sup> "1998 Aquaculture Conference" *New Zealand Government Speech Archive* Address by John Luxton, Minister of Fisheries (27 August 1998) <<http://www.executive.govt.nz/minister/luxton/s980827.htm>> (last accessed 9 April 1999).

<sup>118</sup> See "Feeble Proposal for Spirits Bay from the Ministry of Fisheries" *Ecolink* July 1999 8 as an example of a Ministry proposal for *voluntary* closure of fishing grounds where the scallop fishery is in danger of collapse, on the grounds that the area is remote and hard to police.



QMS. However a paper-based enforcement system ignores problems of dumping, high grading and the black market and is unlikely to pick up on misreporting where licensed fish receivers are also quota owners.

This theoretical concept is reinforced by opinions at the grassroots of both industry and industry watchdog organisations. Citing the demise of the gem fish industry and the trouble facing the orange roughy fishery, a small commercial fisher has said "The industry is not capable of looking after the fishery".<sup>120</sup> According to observer and analyst Cath Wallace, the fishing industry is "manifestly untrustworthy".<sup>121</sup>

The fact that it is questionable whether the property rights based incentive is sufficient to conserve commercial stocks is indicative that the same incentive is insufficient to protect the habitat of the target species and the marine environment.

### 3 Research

The recent passage of the Fisheries Act 1996 Amendment enables commercial fishers to either commission research, or do it themselves.<sup>122</sup>

The chief executive remains responsible to the Minister for the quality of research through setting standards and specifications and that the

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<sup>119</sup> Peter Hartley *Conservation Strategies for New Zealand* (Tasman Institute, New Zealand Business Roundtable 1997) 60 [Hartley].

<sup>120</sup> Gerry Evans "Small fisherman in a big sea" *The Dominion*, Wellington, 4 September 1999, 21 quoting John Inkster, Cook Strait hoki fisherman.

<sup>121</sup> Graeme Speden "Minister protects the minnows by mollycoddling the sharks" *The Independent*, Wellington, 7 October 1998, 9.

<sup>122</sup> Fisheries Act 1996 Amendment 1999 s 65 inserts new Part 15 A "Performance of Services by Approved Organisations". Note that Supplementary Order Paper No 164, (Wednesday 24 March 1999) cl 63 and schedule 8A provided that purchase of research and stewardship of catch and effort databases may not be performed by an approved service delivery organisation. The clarification was introduced following an outcry to the Bill, but was dropped before the final passage.



Minister may take any lack of reliable information into account when setting the TAC or TACC.<sup>123</sup>

There are several implications with devolving research to the industry. The first is that the bare minimum of any kind of research will be done. The second is that any research that is done will be focused more on exploratory fishing rather than on stock assessment, sustainability and ecosystem effects.<sup>124</sup> Absent guidelines as to what sort of research should be commissioned, it is not impossible to think that industry could spend a huge portion of its research budget on market and product research.<sup>125</sup> The third is that research bodies who speak out about any negative effects fisheries have on marine ecosystems will be muted because of the pressure of tendering their services to the industry.<sup>126</sup> Finally, research based on catch per unit effort data as reported by quota holders is not representative. Because technology allows fishers to find fish with increasing accuracy, catch return may increase even when effort remains constant and population is declining.

This approach fails to promote and facilitate the development and conduct of marine scientific research, as required by Article 239 of UNCLOS and Article 12(b) of the Biodiversity Convention.<sup>127</sup> The Ministry has acknowledged that more information is required in order to manage the marine environment according to an ecosystem approach.<sup>128</sup> Its actions do not accord with its words.

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<sup>123</sup> Report from the Primary Production Committee on the Fisheries Amendment Bill, no 258-2 xi.

<sup>124</sup> Satellite pictures taken 850 km above sea level tell trawlermen exactly where the fish are feeding, enabling them to treble their catch rates. See Keith Perry "Sky-eye putting fish in NZ nets" *New Zealand Herald*, Auckland, 21 July 1999, A3 [Perry].

<sup>125</sup> This is the type of research which fishing companies have commissioned in the past, FORST *Research Strategy for the Public Good Science Fund 1996/7 - 2000/1* Foundation for Research, Science and Technology, Wellington, cited in Wallace, above n 42, 69.

<sup>126</sup> Wallace, above n 42, 69.

<sup>127</sup> Quin, above n 89, 530.

<sup>128</sup> *Changing Course*, above n 109, 8.



Even with research commissioned by the Ministry, the budget has been following a trend of decline in nominal and real terms.<sup>129</sup> The cuts are not justifiable given that current stock biomass estimates are only available for around 10 per cent of QMS stocks.<sup>130</sup>

#### 4 *Pressure to raise catch limits*

Industry tends to press for increases and oppose decreases in the TAC.<sup>131</sup> Wallace suggests this is driven by a high discount rate which results from pressure to pay off loans for vessels and to avoid cuts in quota which are recognised as bankable assets. This suggests that the asset which the property rights incentive is designed to protect has become the quota, as opposed to the fishstock. Another reason is that demand for fish is relatively inelastic. Commercial fishers are not often subject to lower prices when more is put on the market.

#### 5 *Summary*

There is little evidence in the documentation of research planning, budgeting or the decisions on catch limits and other "sustainability" measures that the requirements to consider international obligations, future generations' needs and adverse impacts of fishing on the environment or the environmental principles of the Fisheries Act 1996 have been applied.<sup>132</sup>

Despite a completely new set of environmental obligations in the 1996 Act, the Ministry has continued its focus on fish stocks and the MSY

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<sup>129</sup> Industry has allegedly been instrumental in obtaining the cuts to the research budget, especially the Fishing Industry Board (now the Seafood Industry Council) and the commercially focussed Treaty of Waitangi Fisheries Commission, see Wallace, above n 42, 69.

<sup>130</sup> Wallace, above n 42, 69. See generally Ministry of Fisheries *Report from the Fishery Assessment Plenary Stock Assessments and Yield Estimates (annual)*.

<sup>131</sup> For an example of industry pressure to increase or maintain catch limits, see *New Zealand Fishing Industry Association*, above n 102.

<sup>132</sup> Wallace, above n 42, 71



target, while occasionally addressing the visible impacts of fishing on marine mammal and seabird bycatch.<sup>133</sup> Benthic species have been mostly neglected.

It is arguable that the broad discretion conferred on decision makers by the sustainability provisions of the 1996 Act have been relied upon to avoid institutionalising legally binding commitments.<sup>134</sup> Another possible reason is that regulation is anomalous to the free-market property rights based policy underlying the QMS.

## VI QMS POLICY - PROPERTY RIGHTS

### A Property

The aim of ITQs is to minimise the common property nature of the fishery by attempting to create a private property right. The QMS is intended to eliminate the rush for fish, the destructive competition for the limited available catch, and over-capitalisation of the industry.<sup>135</sup> It is accepted both in common parlance and at ministerial level that the QMS confers property rights in the harvest of the fishery resource.<sup>136</sup>

<sup>133</sup> Wallace, above n 42, 72

<sup>134</sup> Wallace, above n 42, 72

<sup>135</sup> Pearse, above n 6, 5.

<sup>136</sup> See definitions in *Changing Course* above n 109 "QMS: based on individual transferable *property rights*..."; *Seafood NZ Significance in 2010* <[http://www.seafood.co.nz/Foresight/significance\\_in\\_2010.htm](http://www.seafood.co.nz/Foresight/significance_in_2010.htm)> (last accessed 10/04/99) "The *property rights* based systems by which fishing rights are allocated... give the industry the necessary security to make the very large investments in vessels, processing plant, research and development, and marketing infrastructure needed to compete effectively on world markets."; *Ministry of Fisheries Review of the Fisheries Act 1996* <<http://www.fish.govt.nz/review/index1.htm>> (last accessed 13/03/99) "QMS: Individual transferable *property rights* used to manage New Zealand's commercial fishery". But see *Ministry of Fisheries 5 Year Strategic Plan* <[http://www.fish.govt.nz/strat\\_plan/index.htm](http://www.fish.govt.nz/strat_plan/index.htm)> (last accessed 10/04/99) at 15 "QMS... used ITQs to *manage* New Zealand commercial fisheries and so ensure sustainable utilisation." (emphases added).



The incidents of "the full liberal concept of ownership" are:<sup>137</sup>

- (a) the right to possession of a thing;
- (b) the right to use a thing;
- (c) the right to manage a thing;
- (d) the right to income derived from others' use of a thing;
- (e) the right to the capital value of a thing;
- (f) the right to security against expropriation of a thing;
- (g) the power to sell, give or bequeath a thing;
- (h) lack of any term on the possession of those rights in respect of a thing;
- (i) the duty to refrain from using the thing in a way that harms others;
- (j) the potential liability that judgments may be executed against the thing; and
- (k) the expectation that any rights which others may have in the thing will revert on termination of those rights.

Property rights in natural resources will not necessarily fit all of these criteria. It is not the case that property rights either exist or do not; they exist imperfectly along a continuum of more precisely defined rights.<sup>138</sup>

The effectiveness of the QMS depends on the characteristics of the quota rights, the way they are administered, the restrictions on their holders, the degree of influence quota owners and other interested parties have over fisheries management decisions and the extent of legal protection afforded to non-commercial values associated with the fishery.<sup>139</sup>

Most academic works which concern property rights in natural resources emanate from free-marketeers. Such writing focuses primarily on characteristics such as duration, flexibility, exclusivity, quality of title, transferability and divisibility and how to enhance those rights.<sup>140</sup> When these rights are well defined, the argument follows that owners of resource property rights that have a positive market value will receive any benefit from improving, and suffer any losses from degrading, resource value.<sup>141</sup>

<sup>137</sup> Waldrom J *The Right to Private Property* (1986) 49 cited in David Kirkpatrick "Property Rights - Do You Have Any?" *New Zealand Journal of Environmental Law* 1 (1997) 267, 271 [Kirkpatrick].

<sup>138</sup> Clarke, above n 76, 25.

<sup>139</sup> Pearse, above n 6, 11 and Kaitilin Gaffney *Property Rights Based Fisheries Management: Lessons from New Zealand's Quota Management System* (MCA Thesis, Victoria University of Wellington, 1997) 56.

<sup>140</sup> See for example Clarke above n 76, 26; and Hartley, above n 119, 60.

<sup>141</sup> Hartley, above n 119, 49.



Few works dwell specifically on the duty to refrain from using the thing in a way that harms others. One exception is Kirkpatrick who emphasises that property rights are rights of people against other people.<sup>142</sup> For instance ownership of a car refers to a complex web of rights and duties which that person has with many others: rights against all others to immediate possession; duties to other road users; the liberty to drive on public roads and the obligations to observe the Road Code. The following discussion comments briefly on the nature of the property right in ITQ with emphasis on the duties which should attach to that right.

## ***B The Nature of the ITQ Property Right***

### *1 Legislation*

The nature of rights in ITQ are unique. The 1983 Act completely avoids the term "property". The 1996 Act follows in its footsteps, but is more helpful in that it says ITQ are capable of being "owned" and adds the ability to use quota as a registered security (although these provisions are not yet in force).<sup>143</sup> The general characteristics of ITQ as listed in section 27 of the 1996 Act represent most of the components contained in the "bundle of rights" approach to defining what is property. Yet the provision expressly states it does not confer any right.

Similar wording is used in parallel US and Australian legislation.<sup>144</sup> The intent behind this language is to prevent ITQ holders from developing

<sup>142</sup> Kirkpatrick, above n 137, 272.

<sup>143</sup> See especially Fisheries Act 1996 ss 65 - 74 which deals with annual catch entitlement (ACE) and Part VIII which creates a system for registration of transfers, mortgages and caveats. Sources at the Ministry of Fisheries say the prerequisite to the implementation of the system for registration of transfers, mortgages and caveats is the establishment of the ACE regime which is unlikely to take place before 2000.

<sup>144</sup> For America see 16 U.S.C. § 1853(d)(2)(A), (3)(D) (1997); In Australia ITQs are described as "statutory fishing rights" in the Fisheries Management Act 1991 (Cth) s 21(1).



"investment-backed expectations" that could give rise to a constitutional requirement that government compensate them for the elimination of such rights.<sup>145</sup>

Nonetheless, New Zealand's legislative provisions seem to accord a right akin to a private property right.

Sections 28P - 28ZG of the 1983 Act provide for "dealings in quota" and establish a register for each quota management area which records details of quota holders, lessors, lessees and all relevant transfers.

It is currently possible to use an ITQ in a transaction by way of security, although such a transaction is not capable of registration.<sup>146</sup> Restrictions on transfers and leases relate to minimum holdings of quota and interests in quota,<sup>147</sup> the power of the Crown to acquire, hold, transfer, lease, or cancel quotas in certain circumstances,<sup>148</sup> and aggregation limits.<sup>149</sup> Restrictions of any kind tend to lower the value of quota as a property interest, so it is important to ensure that they are effective in their intended purpose.<sup>150</sup>

The right to take fish conferred under quota is exclusive in the sense that fish subject to the QMS cannot be taken for sale other than under quota.<sup>151</sup> Quota rights are issued with perpetual terms.<sup>152</sup>

<sup>145</sup> For America see the Fifth Amendment; For Australia see s 51(31) of the Constitution.

<sup>146</sup> Fisheries Act 1983 s 28Q(6). The commencement of Part VIII of the 1996 Act which provides for registration of transfers, mortgages, caveats and priorities will bring the regime closer to one of property rights. This is not expected to happen until at least late 2000.

<sup>147</sup> Under the Fisheries Act 1983 s 28S no one quota-holder can hold more than 35% of the total commercial quota in offshore fisheries and 20% in inshore fisheries. (See Fisheries Act 1996 s 59 for new aggregation limits not in force; and s 74 for minimum holdings of annual catch entitlement not in force.) Further, quota-holders must be citizens of New Zealand or at least 75% New Zealand owned if they are a corporation.

<sup>148</sup> Fisheries Act 1983 s 28U. See also Fisheries Act 1996 s 50 (not in force).

<sup>149</sup> Fisheries Act 1983 ss 28W, 28Y, 28Z. See also Fisheries Act 1996 ss 56 - 58.

<sup>150</sup> Pearse, above n 6, 12.

<sup>151</sup> Fisheries Act 1983 s 28ZA.



ITQs represent a proportion of the TACC.<sup>153</sup> Percentage quota is less certain and less secure as a property right than specific tonnages.<sup>154</sup> The Government can increase or decrease the TAC for any fishery without providing any compensation to the industry.<sup>155</sup> For example, any reduction in the TAC may have the effect of reducing certain fishers' ITQ to less than the minimum holding of quota or interest in quota.<sup>156</sup> This event would render that person's right to use their quota useless.<sup>157</sup>

On the other hand, assigning quota-holders defined shares in current catch and also in potential yields, arguably gives them strong incentives to support good management research and enhancement.

The legislation does not expressly confer any duties on ITQ holders as an incident of the right they hold which are wider than the duties to comply with the legislation as it specifically effects their target species. That is, so long as fishers only catch fish for which they hold quota, or comply with the deemed value system for bycatch and various regulations with respect to certain areas, their right to take fish is unaccompanied by general statutory duties with respect to the marine environment.

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<sup>152</sup> See Fisheries Act 1996 s 27(a).

<sup>153</sup> Until 1989, quotas were denominated in tonnes. Quotas were changed to percentages of the TAC to allow for adjustments in TACs without requiring the Government to intervene as buyer or seller in the quota market. This intervention proved too costly following the gross over-estimation of the productivity of the orange roughy stocks.

<sup>154</sup> The Fisheries Act 1996 s 42 (not in force) expresses quota in terms of shares as whole numbers where the sum of the whole stock is 100,000,000. This terminology enhances the perception that ITQs are private property rights.

<sup>155</sup> See Fisheries Act 1983 ss 28OB, 28OD, 28OE.

<sup>156</sup> Fisheries Act 1983 s 28S(5).

<sup>157</sup> Fisheries Act 1983 s 28S(2). A similar power exists for a consent authority under the RMA to cancel a resource consent in certain circumstances without compensation in ss 85 and 126.



In *NZ Fishing Industry Association (Inc) v Minister of Fisheries*<sup>158</sup> commercial interests challenged the Minister of Fisheries' decision to reduce the TACC for snapper in QMA 1 by 39 per cent. The Minister assumed he was required to do this by law so as to move towards MSY. The biomass of snapper for QMA 1 was estimated to be 50 per cent below that required to provide MSY. Industry were successful in their challenge to the 1995 and 1996 decisions on the grounds that the Minister failed to take into account relevant considerations. However the cut in TACC was made effective for the 1997 year. The Court of Appeal held that while quota is undoubtedly a valuable species of property, the rights inherent in that property are not absolute, and are subject to the provisions of the legislation establishing them. The legislation contains the capacity for quota to be reduced without compensation. In the words of McGechan J in the High Court, "the ITQ constitute(s) a form of property right... (which is) a right; but now is a right subject to override".<sup>159</sup>

This approach is consistent with the earlier case of *Sanford (South Island) Ltd & Ors v Moyle & Ors*.<sup>160</sup> In that case the Minister introduced regulations to reduce salmon bycatch by commercial trawlers fishing for red cod and barracuda in QMA 3. From December to February, the waters off Banks Peninsula are rich with red cod and barracuda, as well as returning sea run salmon. The bycatch of salmon over six fishing years ranged from 12.2 tonnes to 68.6 tonnes in 1986/87.<sup>161</sup>

67 per cent of the salmon bycatch was caught by trawlers over 23 metres in length. In 1988 the Minister introduced a ban on trawling by trawlers

<sup>158</sup> *New Zealand Fishing Industry Association*, above n 102.

<sup>159</sup> *NZ Federation of Commercial Fishermen Inc & Ors v Minister of Fisheries* (24 April 1997) unreported, High Court, Wellington Registry, CP 237/95, 90 per McGechan J.

<sup>160</sup> *Sanford*, above n 102.



in excess of 23 metres off specified areas of Banks Peninsula from mid-December to the end of February.<sup>162</sup> The plaintiffs were caught by the ban at the prime time of year. They claimed large losses arising from being forced to fish elsewhere and submitted that the Minister acted in complete disregard of their rights as ITQ holders.<sup>163</sup>

McGechan J decided it was not likely that Parliament intended to facilitate the destruction of the marine environment, particularly where fish may have some recreational or commercial importance. He notes the property element inherent in the ITQ is to be given proper recognition, but subject to that the section 89 regulation making power can go as far as may be necessary for proper marine conservation purposes, both of ITQ and non ITQ species.

McGechan J found the regulation did not go so far as to render ineffective ITQ rights of the plaintiffs.<sup>164</sup>

### 3 *What the case law shows*

The property right in ITQ is subject to statutory override. Similarly, it has been held that "the concept of sustainable management [in the RMA] takes priority over private property rights".<sup>165</sup> But in fisheries, this override is only used in "exceptional circumstances" such as when a fishery is in danger of collapse or severe overfishing.

Commercial fishers consider their status as stakeholders in the marine environment to be entrenched by virtue of the property rights they hold

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<sup>161</sup> This amounted to one third of the fish believed to be returning that summer.

<sup>162</sup> Regulation made pursuant to the Fisheries Act 1983 s 89(1)(a).

<sup>163</sup> *Sanford*, above n 102, 6.

<sup>164</sup> His Honour's reasons were that the regulation did not reduce the QMA; did not reduce the TAC as the tonnage was still available over the remaining months; prohibited fishing over a relatively small area; prohibited fishing for a limited period; and only prohibited large boats from operating.

<sup>165</sup> *Falkner v Gisborne District Council* [1995] NZRMA 462, 478 (HC).



and will attempt to use those rights to trump those with lesser rights or no rights. In *Sanford v Moyle* the salmon bycatch was so significant, the plaintiffs cannot have been unaware of the potential impact on the commercial industry of the non-ITQ species, or for that matter, the recreational fishery. Yet they undertook legal proceedings to maintain their right to catch their ITQ species, while knowingly having a destructive impact on a fishery to which no one could claim property rights.

It may well have been the commercial interest of stakeholders in the salmon industry which lobbied the Minister to make the regulation which was the subject of the litigation. There are undoubtedly many other instances where fishers trawl up copious amounts of other species of marine fauna and flora in the exercise of their ITQ property right which are not seen, reported or monitored.

*New Zealand Fishing Industry Association v Minister of Fisheries* represents a clear indication that the property rights based incentive to protect stocks does not work on its own. *Sanford v Moyle* shows the incentive is even weaker for non-QMS species. A logical extrapolation is that any incentive to protect the marine environment arising from the property rights regime must be almost nil.<sup>166</sup> There are two possibilities for supplementing the property right conferred on fishers. The first is regulation involving input controls. However this would be seen as a backwards step given that the QMS was implemented in response to failures of the previous system of input controls. The second option is to better define property rights in fisheries in relation to duties to the marine environment and other stakeholders in the marine environment. This will be further explored in Part VII.

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<sup>166</sup> This is consistent with the suggestion that fishers are more concerned with protecting their quota asset than fishstock asset.



#### 4 *Uncertainty and lack of compensation*

In *Sanford v Moyle* the Court suggested that the making of regulations which result in the plaintiffs facing possible losses without legal rights to compensation under the legislation seemed to be against the spirit of the QMS and its intended commercial certainties, and that the Minister ought to inquire into the matter.<sup>167</sup>

The Fisheries Act 1983 provides in section 28OD that no compensation is payable in the event a TACC is reduced. This provision has been criticised for two reasons. Firstly, the loss is borne disproportionately by commercial fishers as opposed to recreational and customary interests. Second, it injects a significant amount of commercial uncertainty into the property rights regime.

The first argument omits to mention that the next provision, section 28OE, provides that additional quota created by an increase in the TACC is offered on a proportionate basis free of charge to those persons who suffer loss under the previous provision. In other words, commercial fishers also benefit disproportionately under the regime as a result of having entrenched rights.

The second argument would hold true if the starting point was a pure economic model of property rights in natural resources. Any outside interference does "inject *commercial* uncertainty" into the model. However that starting point is unrealistic. Fisheries has always been an industry subject to significant *ecological and commercial* uncertainty arising from climatic extremes and natural events such as toxic algal blooms. A lack of compensation injects no more uncertainty into the system than what was there. In fact the imposition of the property rights regime as previously discussed creates *commercial* certainty in the

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<sup>167</sup> *Sanford*, above n 102, 11.



industry. Ministerial control of the TAC enhances *ecological and commercial* certainty by providing a safeguard for target stock.

If fishers fish unsustainably in the face of declining stock and habitat destruction, they eventually face the closure or collapse of the fishery. No compensation would be payable for that. A TACC reduction is a significantly lesser cost than the cost of a collapsed fishery. And it is a collapsed fishery which it is ultimately designed to prevent. It is a safeguard of the fishers' interests, as well as a measure for the public interest at the cost of industry. The argument that reducing TACC so as to mitigate or remedy adverse effects created by either natural extremes or the fishers' activities themselves should be compensable lacks logic.

Finally, when discussing issues of compensation, it is worth remembering the original nature of the common law public right of fishing. Prior to the introduction of the QMS fish were a public resource, albeit subject to regulation and a permit system. The creation of the private right to the harvest of fish created wealth which was taken away from the public and allocated as a windfall to commercial fishers free of charge and with no tangible benefit to the taxpayer.<sup>168</sup> If fishers fish a stock or species down to an unsustainable level, this involves a cost to the general public. Publicly funding compensation to industry for a TACC reduction essentially involves the taxpayer paying the cost of the loss of the resource twice.

### 5 *Specificity*

The QMS in practice focuses entirely on fish mortality to achieve a target population level that theoretically will produce a sustainable yield.

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<sup>168</sup> Analysis of the social implications of this redistribution is beyond the scope of this paper.



However overfishing is often less related to fish mortality than the result of failure to control when, where and how fishing occurs.<sup>169</sup>

Because impacts to habitat can not be quantified, they tend to be ignored. One proposal is to replace the rate of fishing mortality definition with cumulative fishing impact, and to describe and quantify, where possible, all gear impact on ecosystem productivity.<sup>170</sup> Such a suggestion is especially salient to New Zealand where marine ecosystem management is almost entirely dependant on the fisheries management scheme.

The suggestion is administratively feasible. Fishers declare the method they are using on statutory catch effort returns.<sup>171</sup> The chief executive may set conversion factors which shall be used to determine the greenweight of any fish, aquatic life, or seaweed.<sup>172</sup> In doing so, it may be appropriate to consult with Maori, environmental, commercial and recreational interests.<sup>173</sup> The chief executive may issue a certificate specifying conversion factors for a particular vessel which must be used to determine the weight of any fish.<sup>174</sup> Such a certificate may be subject to conditions, including conditions relating to methods of taking fish.<sup>175</sup>

This provision provides a framework within which a system of "cumulative fishing impact" could operate. As a basic example, take two fishers who each have 10 tonnes of quota for snapper and on one particular trip, catch 2 tonnes each. Fisher A takes fish by bottom trawling, which has a high impact on the marine environment, but involves low immediate costs of production. Fisher B takes snapper by

<sup>169</sup> Rieser, above n 114, 813.

<sup>170</sup> Smolowitz, above n 35.

<sup>171</sup> Fisheries Act 1996 s 189 and Fisheries (Reporting) Regulations 1990. See appendix 4.

<sup>172</sup> Fisheries Act 1996 s 188(1); Fisheries Act 1996 s 2 provides that "Greenweight" is the weight of fish before processing.

<sup>173</sup> Fisheries Act 1996 s 188(1).

<sup>174</sup> Fisheries Act 1996 s 188(2).

<sup>175</sup> Fisheries Act 1996 s 188(3)(b). Conditions may also relate to methods of processing, packing and labelling of fish, aquatic life or seaweed.



bottom longlining whereby the impact on the marine environment is far less, but the immediate cost of production is far greater in terms of time taken and labour used to catch the fish. Currently the spillover costs of environmental damage and decreased biodiversity which arise from fisher A's bottom trawling method are ignored. The 2 tonnes of snapper taken by fisher A has a higher impact on the marine environment than the 2 tonnes of snapper taken by fisher B. Fisher A is exercising a right to fish in a way which amounts to a cost to other stakeholders in the marine environment. The result is an inefficient allocation of resources.

It may be possible to internalise this externality by using conversion factors to artificially inflate the greenweight of fish caught using methods with harmful impacts, and to likewise deflate the greenweight of fish caught using more friendly methods.<sup>176</sup>

For instance the 2 tonnes of snapper taken using bottom trawling by fisher A could be multiplied by a conversion factor of say 1.5. This would deem fisher A to have caught 3 tonnes of snapper. The 2 tonnes of snapper taken using bottom long lining by fisher B could be multiplied by 0.5. This would deem fisher B to have caught 1 tonne of snapper. Fisher B would therefore have 9 tonnes of quota remaining for the year. Fisher A would have 7 tonnes. The ratio of quota which fisher A is deemed to have used to that which fisher B is deemed to have used would in theory be the ratio of the value of all the natural resources fisher A takes to the value of all the resources fisher B takes.<sup>177</sup>

This is an extremely simplistic example, but does contain functions fundamental to fisheries management. The externality cost involved in using destructive fishing impacts is internalised to the fisher who uses

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<sup>176</sup> Artificial inflation of catch weight by certain methods would be imposed as a condition of using those methods pursuant to s 188(2) and (3).

<sup>177</sup> This multiplier would need to be determined by fisheries economists and environmental scientists, and possibly following consultation with various stakeholder groups.



those methods, and the consumer to whom the increased cost of production is passed on. This increased cost of production does not involve third party transaction losses as the case of a tax and subsidy, although ultimately the effect on the supply of fish is the same as if a tax were imposed. Conversely, the suggestion provides an incentive to use less destructive impacts which are not as commercially viable as methods such as bottom trawling.<sup>178</sup> Industry will have an added incentive to come up with more cost-efficient environmentally friendly means of catching fish. One of the consequences of the suggestion is that whichever method is chosen, the price of snapper will increase. However the increase in price simply represents the internalisation of the true cost of harvesting the fish. New Zealand fish could thereby be marketed on the basis of not only sustainable fishing, but also ocean-friendly fishing.<sup>179</sup>

This type of arrangement would at least partially address the criticisms of the QMS which are directed towards its species specific nature.

## **VII OTHER 'RIGHTS' IN THE MARINE ENVIRONMENT**

### **A Overview**

Following is a synopsis of rights bases for non-commercial fisheries harvesting presented in a report to the NZ Seafood Industry Council Ltd (the report).<sup>180</sup>

<sup>178</sup> Such an arrangement would provide a competitive edge for fishers desirous of using friendly methods. See description of the efforts of the Cape Cod Commercial Hook Fishermen's Association in *Solutions to Seafloor Trawling* <<http://www.igc.apc.org/nrdc/nrdc/eamicus/97win/hisol.html>> (last accessed 26 July 1999).

<sup>179</sup> A similar strategy underpins our international marketing of non-genetically modified foods which is proving to be successful. See also Australia's Marine Stewardship Council which is an independent NGO established by WWF and Unilever which runs a voluntary sustainable fishery certification programme for fishers, processors and retailers, <<http://www.msc.org>> (last accessed 29 September 1999).

<sup>180</sup> Clarke, above n 76, iv.



Marine aquaculture operates as sole owners or occupiers of small areas of the column of water granted under the Resource Management Act.

Customary fisheries involve territorial user rights, being held by particular iwi occupying adjoining land and having rules developed by the owners and observed by them.

Recreational marine fisheries operate as open access fisheries, subject to lightly enforced regulations, although research is currently being undertaken into a property rights regime for recreational fishers also.<sup>181</sup>

Non-use rights, which do not involve the extraction of fish, are currently imprecisely defined.

A detailed examination of each of these areas in themselves is beyond the scope of this paper. The next section will concentrate on the interaction between commercial fishery users and what the report describes as "non-users".

### ***B "Non-use" Rights***

Non commercial stakeholders in the marine environment have for the most part been ignored by fisheries legislation.<sup>182</sup> The first legislative recognition of such interests occurred recently. The relevant section provides for regulation for specific alternative TACs not determined in accordance with MSY where "managing the stock at a level other than permitted under section 13 will have no detrimental effects on *non-commercial fishing interests in that stock*".<sup>183</sup>

<sup>181</sup> "Stakeholder Management of Recreational Fisheries" Address by Minister of Fisheries to the Recreational Fishing Council AGM *New Zealand Executive Government Speech Archive* (18 July 1997) <<http://www.executive.govt.nz/minister/luxton/jls1807.htm>> (last accessed 9 April 1999).

<sup>182</sup> For Parliamentary consideration see italicised text in passage from Hon Jim Sutton, (31 July 1996) NZPD 14034 above n 94.

<sup>183</sup> Fisheries Act 1996 Amendment 1999 s 14A(5)(c), emphasis added.



Although this represents an important step towards statutory recognition of non-commercial fishing interests, by limiting the interests to a particular QMS stock, it denies recognition of non-commercial interests in the wider marine environment.

The report correctly identifies that non-use rights are imprecisely defined, but fails to even attempt to identify what "non-use" is or who "non-users" are. It seems to assume that "non-users" are conservationists and environmentalists. It provides an excuse for avoiding any definition on the grounds that there is no accepted definition of what non-use values may be. It is true that society's values change over time. But looking at non-use values from a uniquely conservation and environmental perspective is unduly limiting the definition before an attempt at a definition is even begun.

The report's analysis of rights of stakeholders in the marine environment, in addition to dismissing without analysis the rights of environmentalists and conservationists, neglects to address rights of:

- (a) scientists and bioprospectors to maintain biological and genetic diversity;
- (b) sea vegetable harvesters to not be deprived of the resource from which they earn a living;
- (c) eco-tourism operators including dive shops and fishing charters; and
- (d) future generations to enjoy not only the fisheries resource, but the entire abundance of marine resources that we enjoy today.

These rights are "non-use" rights only with respect to the commercial fishery. They are part of a larger mix of extractive and non-extractive uses, uses which are as yet unknown and non-use values.<sup>184</sup> It is unrealistic not to factor these rights and interests into a report on

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<sup>184</sup> See appendix 1.



fisheries management, when fisheries management legislation is the primary tool New Zealand uses to manage its oceans to the outer limits of the EEZ. These rights have either simply not been considered, or the authors of the report have bundled them into the non-use rights which they declined to define, and hence stymied debate on how to give effect to those rights. The reason given for not more precisely defining rights in respect of the marine environment was mainly that the costs of doing so may be prohibitive. This was because:<sup>185</sup>

- Fish move and, as such, do not lend themselves very well to definition within a confined area.
- Rights to the marine environment and entitlements to fish within that environment could lead to a conflict of interests if they are not held by the same person.

The first reason implies that in order to protect the marine environment, one would need to know exactly which fish were being caught where. If the aim is to protect rights to the marine environment as a whole, it does not matter where the fish are within the ocean. The fisher must respect the rights of "non-users" regardless of where the fish are.

The second reason seems to be advocating that commercial fishing interests should be both judge and jury with respect to the marine environment, otherwise there would be a conflict of interest. It is that very "conflict" of interest between commercial fishers and non-users which, if permitted to take place on a level playing field, could play a fundamental role in protection of the marine environment. Rather than creating a "conflict", acknowledging and according rights to various interests has the effect of creating a system of checks and balances. This is especially important in a free-market climate where the government has demonstrated a marked lack of political will to regulate to protect the rights of non-users absent "exceptional circumstances".

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<sup>185</sup> Clarke, above n 76, 25.



Scientists and sea vegetable harvesters have rights to their resource via permit systems.<sup>186</sup> This permit does not confer a property right. If their interests were being seriously compromised by commercial fishing practices, it is likely that, after the matter was brought to the Minister of Fisheries' attention with sufficient persuasion, the Minister would intervene with regulation under section 297 or 298 of the 1996 Act. However regulation in response to such practices may well be too late if the area was particularly lucrative for trawlable commercial species. These "non-fisheries-user rights" would have vanished or been seriously compromised without compensation. This potential situation calls for a prevention mechanism. Under a regulatory model, that would involve regulation or prohibition of destructive fishing methods. Under the current market based property rights model, it involves the enforcement of environmental bottom lines to the effect that no interests in the marine environment are compromised by virtue of one set of interests being more entrenched than another. The sustainability provisions of the 1996 Act would perhaps achieve this end if they were given some teeth. However as long as fishers feel free to ignore the provisions while exercising their rights in the most efficient manner they know how, we will not leave the road to the destruction of the marine environment.

The rights of future generations are addressed in the section 8 purpose provision of the 1996 Act. As previously mentioned, this provision attempts to create two environmental bottom lines. The rights of future generations render pre-emptory enforcement of these environmental bottom lines crucial, as these stakeholders do not have the luxury of lobbying the Minister to regulate in the event their rights are compromised. It has been suggested that the Parliamentary Commissioner for the Environment could evolve into an environmental guardian to champion these rights.<sup>187</sup> Further, ensuring that contemporary communities feel that their interests are addressed, and

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<sup>186</sup> Fisheries Act 1983 s 63.



each person receives their 'ecological share' is likely to have positive flow on effects for inter-generational equity.<sup>188</sup>

It is also important that the precautionary principle be given its full effect with respect to these un-recognised stakeholders. Their potential to utilise and the way in which they value the oceans resources is possibly far greater than we can imagine.

### *C The Imbalance*

According to a background paper to the Draft Biodiversity Strategy,<sup>189</sup> property rights regimes should determine not only the extent of exclusive benefits from having access to components of biodiversity, but also the duties or responsibilities that are associated with, and may constrain, this right of access.

A key property rights issue is the extent to which the degree of exclusivity derived from having ownership of, or use rights to, components of biodiversity provides people with an incentive to use those components responsibly. In the context of this paper, does the degree of exclusivity derived from having ownership in the harvest of one or several commercial fish species under the QMS, provide fishers with an incentive to have regard to marine biodiversity in general? The answer, unfortunately, is that the QMS achieves this end in neither legal form nor underlying philosophy.

The QMS does not adequately specify who has what rights in relation to the use and protection of genetic, species and ecosystem diversity. This specification should incorporate the notions of rights (to use) and duties (to protect).

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<sup>187</sup> Richardson, above n 84, 126.

<sup>188</sup> Richardson, above n 84, 127.



Rights and duties for non-commercial fishing interests in the wider marine environment remain largely undefined. Definitional problems with respect to "non-use" rights are real. But that does not constitute an adequate reason to ignore the existence of those rights. The result of ignoring those rights is that they are, and will continue to be, rendered secondary to the more precisely defined property rights in the harvest.

For fishers, the QMS specifies rights with respect to target species. Fishers are bound by no duties beyond the duty not to take fish for which they have no quota and to comply with various regulations.

Stewardship and environmental obligations are held by the Government under the 1996 Act. This stance in itself is commendable given that in many instances involving matters of public importance the benefits are diffuse, and no individual or company can benefit enough to make conservation and sustainable use through private ownership viable.

Nonetheless it is the holders of ITQ who actually impact on the resource, and possess knowledge and control with respect to that impact. The entrenched nature of the ITQ property right coupled with industry's scientific capability to know in reality what effects they are having on the marine environment arguably creates a fiduciary duty towards holders of any other right in the marine environment. The possibility of a fiduciary duty arising from an imbalance of rights and knowledge highlights the need to impose stewardship and social obligations on holders of ITQ.

The umbrella of stewardship and environmental obligations towards the marine environment ought to be expanded so that commercial fishers in the exercise of their rights must give effect to corresponding duties. It is unsatisfactory that these stakeholders are conferred only rights to harvest

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<sup>189</sup> *Property Rights Regimes and Indigenous Biodiversity* (Draft, author unknown) background paper for Draft Biodiversity Strategy [*Property Rights Regimes*].



unaccompanied by duties towards the environment from which they extract that harvest.<sup>190</sup> Better definition of duties owed by fishers towards other stakeholders in the marine environment is a simple and necessary step towards addressing the inadequacy of the definition of "non-use" rights in the marine environment.

### *VIII CONCLUSION*

New Zealand's seafloor ecosystems comprise resources valued by a wide range of interests. The extent of their biological, species and genetic diversity is not yet understood. What is clear is that human kind's ability to fully utilise these resources has immense scope to be increased both in the current generation and in future generations.

Commercial fishing impacts such as trawling, dredging and overfishing have adverse, and often irreversible effects on the marine environment.

International legal obligations, notably that requiring an integrated ecosystem approach to fisheries, are not being given effect to within the domestic regime.

New Zealand's approach to ecosystem management instead mostly stems from fisheries management in the form of the QMS. The sustainability provisions of the 1996 Act are not given adequate effect. The ideology underlying the Fisheries Act 1996 means that the market is the primary mechanism New Zealand has which addresses marine ecosystems. It is widely accepted that the market is an inappropriate forum in which to address the environmental effects of natural resource exploitation. In fisheries, the largest problem is the imbalance of rights between those

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<sup>190</sup> An enforcement of the section 8 environmental bottom lines by way of mandatory environmental impact assessment would be one way in which such duties could be recognised.



with commercial fishery interests and other stakeholders in the marine environment. This imbalance effectively means commercial fishers are free to exercise their right while knowingly having an adverse impact on other stakeholders' interests in the marine environment.

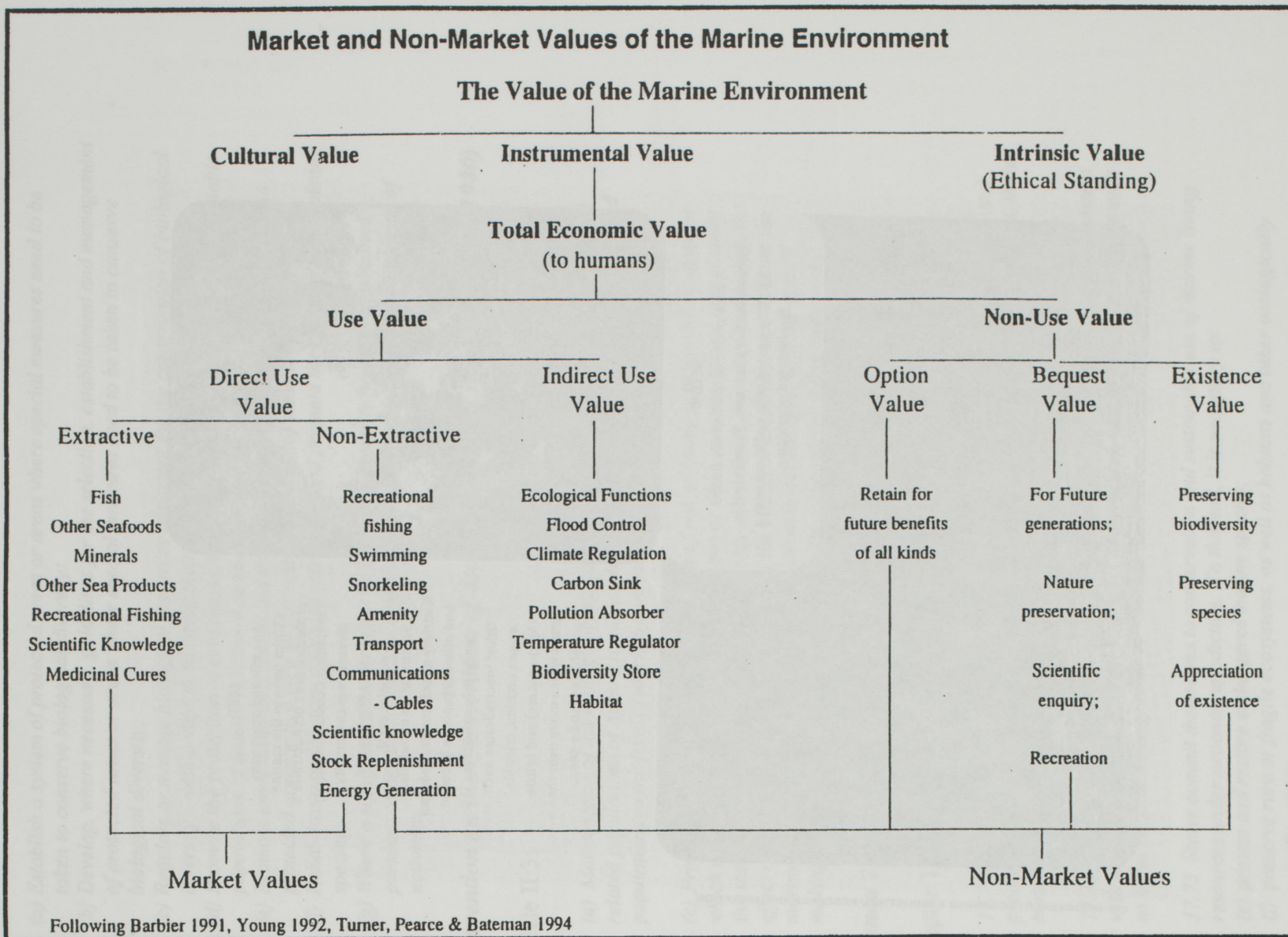
The problem is exacerbated by the fact that the Ministry of Fisheries' administration of the Act is subject to the powerful lobby of the vested interests of the commercial fishing industry. This explains the lack of political will in implementing the 1996 Act's sustainability provisions. In contrast, the lobby of other stakeholders in the marine environment such as environmentalists, conservationists, sea vegetable harvesters, eco-tourism operators and scientists begins with less entrenched rights. Moreover, the target of this lobby is fragmented between the Ministry of Fisheries, the Department of Conservation and the Ministry for the Environment.

Private property rights in the commercial harvest of fish must be clearly accompanied by environmental duties. These duties are essential to address the imbalance of rights between commercial fishers on the one hand; and other stakeholders in the wider marine environment whose interests are undoubtedly affected by the commercial fishery.

Finally it is worth pondering the Ministry's Maori name, Te Tautiaki i ngā tini a Tangaroa - the guardian of the multitudes of Tangaroa (god of the sea).



Source: Cath Wallace "The Security of the Marine Environment" *A Maritime Nation, New Zealand's Maritime Environment & Security* ed Peter Cozens (Centre for Strategic Studies: New Zealand, Victoria University of Wellington, 1996) 117, 123.





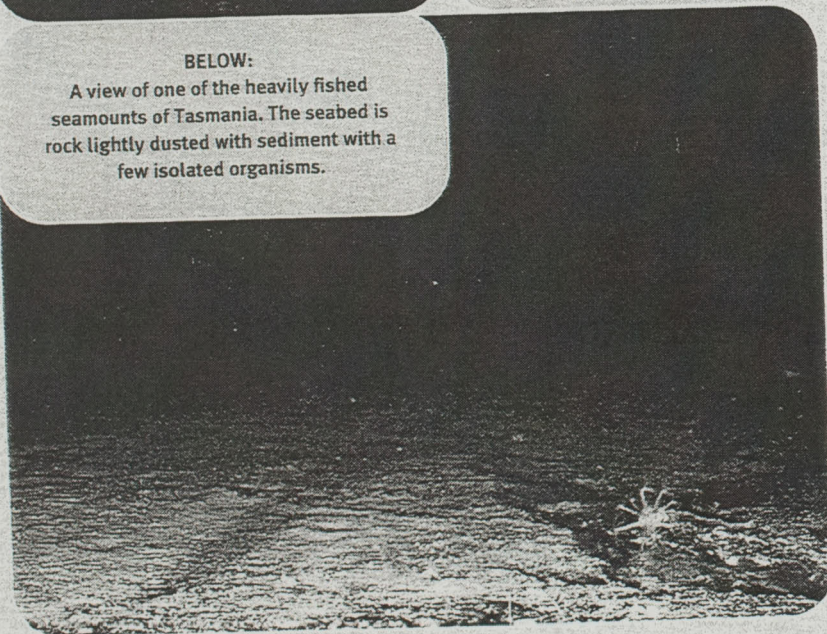
## APPENDIX 2

Source: Nicola Legat "Killing Seas: the Unseen Decimation of our Ocean Ecosystems" (1997) 141  
*North and South* 100, 102.



**LEFT:**  
An unfished seamount  
1500m deep in the marine  
protected area off Australia's  
Tasmanian Coast. This highly  
diverse reef community  
consists of a base of  
colonial coral,  
*Solenosmilia variabilis*.  
A variety of soft corals, sponges  
and other organisms grow on  
top of this substrate.  
Other invertebrates such  
as sea urchins, crinoids  
(feather stars) and brittle  
stars which move over the  
reef can also be seen.

**BELOW:**  
A view of one of the heavily fished  
seamounts of Tasmania. The seabed is  
rock lightly dusted with sediment with a  
few isolated organisms.





## APPENDIX 3

### *Convention on Biological Diversity 1992*

#### Article 8

- (a) *Establish a system of protected areas or areas where special measures need to be taken to conserve biological diversity;*
- (b) *Develop, where necessary, guidelines for the selection, establishment and management of protected areas or areas where special measures need to be taken to conserve biological diversity;*
- (c) *Regulate or manage biological resources important for the conservation of biological diversity... with a view to ensuring their conservation and sustainable use;*
- (d) *Promote the protection of ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings;*
- (e) *Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas;*
- (f) *Rehabilitate and restore degraded ecosystems and promote the recovery of threatened species;*
- (g) *Where a significant adverse effect on biological diversity has been determined pursuant to article 7; regulate or manage the relevant processes and categories of activities.*

### *Convention on the Conservation of Antarctic Marine Living Resources (1980)*

#### Article II 3:

- (a) *Maintenance of the ecological relationships between harvested, dependant and related populations of Antarctic marine living resources and restoration of depleted populations to the levels [which ensure stable recruitment]*
- (c) *Prevention of changes or minimisation of risk or changes in marine ecosystems which are not potentially reversible over two or three decades, taking into account the state of available knowledge of the direct and indirect impact of harvesting, the effect of the introduction of alien species, the effects of associated activities on the marine ecosystem and of the effects of environmental changes, with the aim of making possible sustained conservation of Antarctic marine living resources*

#### *Agenda 21*

#### Chapter 17:

- 17.7 Coastal states... should undertake measures to maintain biological diversity and productivity of marine species and habitats under national jurisdiction. Inter alia, these measures might include:... establishment and management of protected areas...*
- 17.30 Taking action to ensure respect of areas designated within their EEZs consistent with international law, in order to protect and preserve rare or fragile ecosystems such as coral reefs and mangroves.*
- 17.75 States commit themselves to conservation and sustainable use of marine living resources under national jurisdiction. To this end, it is necessary to:*
  - (e) *protect and restore endangered marine species;*
  - (f) *preserve rare or fragile ecosystems, as well as habitats and other ecologically sensitive areas.*



17.86 States should identify marine ecosystems exhibiting high levels of biodiversity and productivity and other critical habitat areas and provide necessary limitations on use in these areas, through, inter alia, designation of protected areas.

**FAO Precautionary Approach to Fisheries: Part 1 Guidelines on the Precautionary Approach to Capture Fisheries and Species Introductions June 1995.**

- (a) Consideration of the needs of future generations and avoidance of changes that are not potentially reversible;
- (b) Prior identification of undesirable outcomes and of measures that will avoid them or correct them promptly;
- (c) That any necessary corrective measures are initiated without delay, and that they should achieve their purpose promptly, on a time scale not exceeding two or three decades;
- (d) That where the likely impact of resource use is uncertain, priority should be given to conserving the productive capacity of the resource;
- (e) That harvesting and processing capacity should be commensurate with estimated sustainable levels of resource, and that increases in capacity should be further constrained when resource productivity is uncertain;
- (f) All fishing activities must have prior management authorisation and be subject to periodic review;
- (g) An established legal and institutional framework for fishery management, within which fishery management plans that implement the above point should be instituted for each fishery;
- (h) Appropriate placement of the burden of proof by adhering to the requirements above.

**United Nations Agreement on the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks**

**Article 6.2**

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

**Article 6.3 provides that States shall:**

- (a) improve decision-making for fishery resource conservation and management by obtaining and sharing the best scientific information available and implementing improved techniques for dealing with risk and uncertainty;
- (c) 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 of distribution of fishing mortality and the impact of fishing activities on non-target and associated or dependant species, as well as existing and predicted oceanic, environmental and socio-economic conditions; and
- (d) develop data collection and research programmes to assess the impact of fishing on non-target and associated or dependant species and their environment, and adopt plans which are necessary to ensure the conservation of such species and to protect habitats of special concern.







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Fisheries (Reporting) Regulations 1990

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SECOND SCHEDULE—continued

PART VI

GEAR CODES

Type of Trawl Net	Gear Code
Bottom trawl .. .. .	BT
Midwater trawl .. .. .	MW
Bottom pair trawl .. .. .	BPT
Midwater pair trawl .. .. .	MPT

PART VII

METHOD CODE

Method	Method Code
Purse seining .. .. .	PS
Danish seining - single .. .. .	DS
Danish seining - pair .. .. .	DPS
Lampara .. .. .	L
Beach seine drag netting .. .. .	BS
Ring net .. .. .	RN
Handgathering .. .. .	H
Diving .. .. .	DI
Handlining .. .. .	HL
Trolling .. .. .	T
Pole and line .. .. .	PL
Bottom trawl - single .. .. .	BT
Bottom trawl - pair .. .. .	BPT
Midwater trawl - single .. .. .	MW
Midwater trawl - pair .. .. .	MPT
Dredging .. .. .	D
Cod potting .. .. .	CP
Rock lobster potting .. .. .	RLP
Eel potting .. .. .	EP
Fish traps .. .. .	FP
Bottom longlining .. .. .	BLL
Surface longlining .. .. .	SLL
Drop/dahn lines .. .. .	DL
Trot lines .. .. .	TL
Set netting .. .. .	SN
Inshore driftnetting .. .. .	DN
Fyke netting .. .. .	FN

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