



*Ministry for the*  
**Environment**  
*Manatū Mō Te Taiao*

# **Offshore Options**

**Managing Environmental Effects in  
New Zealand's Exclusive Economic Zone**

Published in June 2005 by the  
Ministry for the Environment  
Manatū Mō Te Taiao  
PO Box 10-362, Wellington, New Zealand

ISBN: 0-478-25916-6  
ME number: 603

This document is available on the Ministry for the Environment's website:  
[www.mfe.govt.nz](http://www.mfe.govt.nz)



# Acknowledgements

The Ministry for the Environment would like to acknowledge the input from the following people, who attended one or more informal workshops held on 17 June, 22 June and 14 September 2004 to develop and test the ideas contained in this report:

Allison Arnold (World Wide Fund for Nature)  
Mac Beggs (Geosphere)  
Des Darby (Institute of Geological and Nuclear Sciences)  
Suzanne Doig (Te Puni Kokiri)  
Riki Ellison (Ministry for the Environment)  
Janet Grieve (National Institute of Water and Atmospheric Research)  
Caroline Hart (Department of Conservation)  
Jeremy Helson (Ministry of Fisheries)  
John Huckerby (Power Projects)  
Deb Hume (URS consultants)  
Astrid Hutchinson (Ministry for the Environment)  
Liz Jones (Ministry of Fisheries)  
John Lumsden (John Lumsden Consulting)  
Katrina Lynn (Ministry of Economic Development)  
Kerry Marshall (New Zealand Conservation Authority)  
Jennie McMurran (Ministry of Fisheries)  
Tania McPherson (Te Ohu Kai Moana)  
Clive Monds (Environment and Conservation Organisations of New Zealand)  
Kim Morgan (Ministry for the Environment)  
Paul Nicholas (NZ Shipping Federation Inc)  
Rosemary Paterson (Ministry of Foreign Affairs and Trade)  
Mike Patrick (Petroleum Exploration Association of New Zealand)  
Caroline Ryder (Ministry for the Environment)  
Lisa Sheppard (Ministry for the Environment)  
Cath Wallace (Environment and Conservation Organisations of New Zealand)  
John Willmer (Seafood Industry Council)  
Barry Winfield (Ministry of Economic Development)  
Peter Whitehouse (Business NZ)  
Ray Wood (Institute of Geological and Nuclear Sciences).

# Contents

Acknowledgements	i
Executive Summary	iv
Introduction	1
Context of the Project	4
History	4
New Zealand's jurisdiction in the EEZ under international law	4
Current activities in the EEZ	5
Summary	7
Current Environmental Legislation in the EEZ, and Management Gaps	8
Legislation in the EEZ with environmental requirements	8
Assessing the gaps in environmental legislation in the EEZ	8
Environmental Management Processes in the EEZ: An International Perspective	17
Australia	17
United States	18
United Kingdom	20
Lessons from Australia, the US and the UK	22
Options for Improving Environmental Management in the EEZ	23
Option 1: The voluntary approach	23
Option 2: Filling the gaps in current legislation	24
Option 3: One Act managing resources in the EEZ	25
Option 4: The umbrella act: one assessment of environmental effects	26
Analysis of the options	27
The preferred option	29
Conclusions	31
Next steps	33
Appendix: Environmental Management in New Zealand's Exclusive Economic Zone	34
References	49

# Tables

Table 1:	Legislation, conditions and gaps in environmental management of current activities in New Zealand's EEZ	9
Table 2:	Legislation, conditions and gaps in environmental management that would apply to future activities that may occur in New Zealand's EEZ	15
Table 3:	Summary of the benefits and disadvantages of four options to improve environmental management in the EEZ	32

# Executive Summary

New Zealand's Exclusive Economic Zone (EEZ) is the area offshore from 12 to 200 nautical miles. This zone holds not only a wealth of biodiversity, but also economic wealth-creating opportunities, such as fishing, petroleum mining and shipping. Our EEZ connects us to the rest of the world, via undersea telecommunication cables, and ships and aircraft passing through the zone.

This report has been produced by the Ministry for the Environment with the aim of looking at how environmental effects are assessed and managed in New Zealand's EEZ. It is a 'think piece' report, designed to stimulate debate and inform subsequent, more detailed thinking and analysis as a national Oceans Policy evolves.

The report is structured into three key sections.

## Current environmental legislation in the EEZ and management gaps

The first section canvasses what environmental legislation currently covers the EEZ and identifies management gaps. Existing legislation protects marine mammals and wildlife, controls the disposal of wastes and discharges from ships and offshore installations, and provides for the sustainable use of fisheries resources.

This section also identifies existing activities in New Zealand's EEZ and whether there are procedures for assessing and controlling their environmental effects. We find that although there are existing provisions for some activities, there are significant gaps and omissions. For some activities (such as the laying and maintenance of submarine cables and pipelines) there are no existing regulations designed to protect the environment.

## International environmental management of activities in the EEZ

The second section looks at examples of other countries' management systems for their EEZs. Australia, the United States and the United Kingdom all have more advanced regimes to manage environmental effects than New Zealand. Australia's overarching Environmental Protection and Biodiversity Conservation Act and the United Kingdom's strategic environmental assessment provide particularly useful models for informing New Zealand's choices on ways to manage the environmental effects of activities more comprehensively in the future.

This report concludes that there are gaps and inconsistencies in the current management regime, and proposes options for improving environmental management in the EEZ.

# Options for improving environmental management in the EEZ

The third section explores four options for improving environmental management in the EEZ, and identifies our preferred approach.

- *Option 1 – the voluntary approach:* government would work with industries operating in the EEZ to develop appropriate environmental management procedures. Compliance with these procedures would be voluntary (at least initially).
- *Option 2 – filling the gaps in current legislation:* this would involve putting in place new legislation to cover activities not already covered, and improving the environmental management provisions of existing legislation as necessary.
- *Option 3 – one Act to manage all resources in the EEZ:* all of the current legislation applying in the EEZ would be replaced by one Act controlling resource management (including the allocation of resources and/or management of their effects) in the EEZ.
- *Option 4 – an ‘umbrella’ Act:* a new statute would be developed requiring environmental assessments to be carried out for all activities with potentially significant environmental effects (similar to the approach taken under Australia’s Environmental Protection and Biodiversity Conservation Act 1999). Detailed regulation of specific activities through existing legislation would continue.

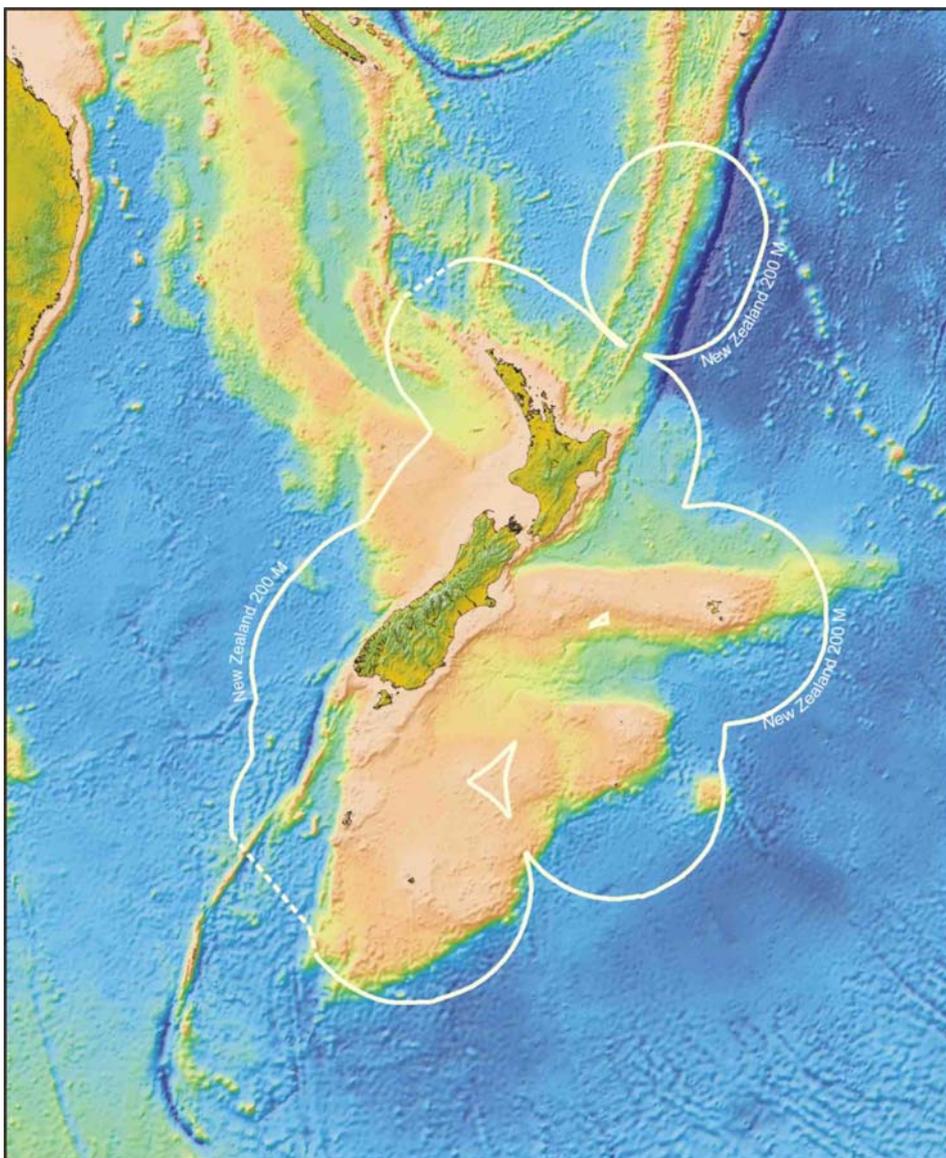
The Ministry for the Environment suggests that the preferred approach should be a two-stage process combining two options. Option 1, in which the government would first seek voluntary agreements with industry, is the most appropriate in the short term because there are few activities currently operating in the EEZ. In the long term Option 4 (the ‘umbrella’ act approach) provides the most flexibility to provide for the range of existing and potential future activities in the EEZ. This would be a new piece of legislation requiring an assessment of environmental effects for all activities that have a significant effect on the environment. The Act would allow for a consistent approach to be taken to the assessment of environmental effects in the EEZ, and would be based on the nature and extent of different types of activities and their associated risks.



# Introduction

New Zealand's Exclusive Economic Zone (EEZ) is the area of sea and seabed that extends from 12 nautical miles off our coast to 200 nautical miles<sup>1</sup> as illustrated in Figure 1. Under international law we have 'sovereign rights' over this area (as discussed in the next section). New Zealand has the fifth largest EEZ (roughly 430 million hectares) in the world, about 15 times the size of our land mass. This is because of our distance from other countries, which means that there are only a few areas where the 200nm boundary of another country intersects with ours.

**Figure 1: Map of New Zealand's Exclusive Economic Zone (EEZ) courtesy of the Institute of Geological and Nuclear Sciences**



---

<sup>1</sup> Seaward of the outer limits of the territorial sea, including the contiguous zone, to an outer limit of 200 NM from the baselines (breadth of the EEZ is normally 188 NM).

New Zealand's marine ecosystems and species are highly diverse. This is due to a combination of factors, including our geological history and isolation, the range and complexity of habitats, and the influence of major ocean currents. The result is a wide variety, if patchy distribution, of marine plants and animals.

Habitats in the EEZ include plains of mud; volcanic vents such as those near White Island, whose micro-organisms 'breathe' sulphur rather than oxygen; and the great coral-festooned sea mounts of the deep ocean. New Zealand is visited by a number of migratory species, and provides habitats that are critical to the long-term viability of some of these species, particularly marine birds that breed in New Zealand.

Marine scientists estimate that perhaps as much as 80% of New Zealand's indigenous biodiversity is found in the sea. While many of our marine fish also occur in other countries' seas, many of our benthic (bottom-dwelling) marine species are found only in New Zealand waters. Evaluating the state of New Zealand's marine biodiversity is difficult due to the very limited information we have about deep-sea species.

New Zealand's EEZ also provides us with considerable economic opportunities. Fishing (including aquaculture) is New Zealand's fourth largest export earner. However, despite the size of New Zealand's EEZ, its waters are relatively deep (New Zealand's offshore fisheries are among the deepest in the world) and not particularly rich in nutrients, so the productivity of our fisheries resources is relatively low.

Oil and gas have been discovered in several parts of New Zealand's offshore territory, although the only commercial production has been the development of the Maui field, extending 35 to 50 km off the Taranaki coast. The government's recent decision to prioritise and create incentives for gas exploration (due to the decline in the Maui field) has stimulated petroleum exploration activities in the EEZ. A number of offshore oil and gas fields in the EEZ are being appraised and are expected to be developed over the next few years.

New Zealand's EEZ also connects us to the rest of the world, with undersea telecommunication cables, ships and aircraft passing through the zone. Almost 85% of New Zealand exports by value (99% by volume) are carried by sea,<sup>2</sup> and around 90% of international telecommunication services with New Zealand are carried on submarine cable systems (the remainder are carried via satellites). Consequently, a submarine cable failure could have a serious impact on the New Zealand economy.

The oceans offer great potential for innovation and investment in a range of different wealth-creating activities. While a large amount of New Zealand's land-based and fisheries resources are already being utilised, the EEZ and continental shelf offer significant untapped space and resources for future developments.

Despite the importance of our EEZ, regulations to protect the environment in the EEZ are few, inconsistently applied, and variable. Jurisdiction under the Resource Management Act 1991 (RMA), New Zealand's primary environmental management legislation, only extends 12 nautical miles offshore. Some activities in the EEZ, such as the dumping of wastes, are subject to environmental controls but for other activities, such as the laying of pipelines and cables, there are few requirements to consider the environmental effects of the activity.

---

<sup>2</sup> Imports account for 75% by value (also 99% by volume).

The Ministry for the Environment has written this report to:

- outline the context and history of issues relating to environmental management in New Zealand's EEZ, including the current level of activity
- summarise the current legislative framework for environmental management in the EEZ and expose the management gaps
- describe the way that other countries manage the environmental effects of activities in their EEZs
- analyse options for improving environmental management in the EEZ, including any associated issues.

# Context of the Project

This section of the report sets out the history of the project, provides a brief outline of New Zealand's jurisdiction in the EEZ under international law, and discusses the current level of activity in the EEZ.

## History

In 1996 the Parliamentary Commissioner for the Environment's report *Environmental Management of Petroleum and Mineral Mining Activities beyond the 12-mile Limit* identified problems with environmental management in the EEZ. The report noted that management of petroleum and mineral mining activities from 12 to 200 nautical miles does not include adequate procedures for the assessment of environmental effects, the setting and enforcement of environmental conditions, or public consultation.

In 2000 the Oceans Policy Process was initiated, one of whose goals is to ensure integrated and consistent management of the oceans within New Zealand's jurisdiction. Stage 2 of the Oceans Policy process included a review of marine legislation, which was carried out in 2002/03.<sup>3</sup> The review identified that there is no consistent or clearly understood process for the assessment of environmental effects for the full range of activities undertaken in New Zealand's EEZ. A range of agencies have responsibilities for granting permission for particular activities in the EEZ; some assess and monitor certain types of environmental effects, while others do not consider these effects at all.

## New Zealand's jurisdiction in the EEZ under international law

New Zealand's jurisdiction in the EEZ (from 12 to 200 nautical miles) is more limited than the jurisdiction that we have in our territorial sea, which runs from the shore to 12 nautical miles. New Zealand has full 'sovereignty' over its territorial sea, including full sovereignty over New Zealand vessels and New Zealanders in the territorial sea. The United Nations Convention on the Law of the Sea (UNCLOS) recognises and reflects the limits on New Zealand's sovereignty regarding the passage of foreign ships, and the sovereign immunity of warships and non-commercial government vessels.

In the EEZ, New Zealand has 'sovereign rights' – a more limited jurisdiction than sovereignty – for the purposes of exploring and exploiting, conserving and managing natural resources of the waters, seabed and subsoil. It also has 'jurisdiction' with regard to the establishment of artificial islands, installations and structures and marine scientific research. New Zealand's sovereign rights to exploit the natural resources in the EEZ must be undertaken pursuant to New Zealand's environmental policies and in accordance with New Zealand's duty to protect and preserve the marine environment. New Zealand must also have due regard to the rights of other states. Other states have certain freedoms, including navigation, overflight and laying cables in the EEZ.

---

<sup>3</sup> See Oceans Policy Secretariat 2002.

## Current activities in the EEZ

Part of the project is to understand what level of activity is currently occurring in the EEZ. The activities currently operating in the EEZ can be categorised under:

- shipping
- petroleum activities (including prospecting and extraction)
- laying and maintenance of submarine cables and pipelines
- fishing
- scientific research (biological and non-biological)
- dumping of waste
- prospecting for minerals.<sup>4</sup>

The current level of activity in these industries is described below.<sup>5</sup>

### Shipping

Despite advances in other forms of transport, shipping remains a relatively inexpensive and efficient method for large-volume goods. Almost 85% of New Zealand exports by value (99% by volume) are carried by sea, while imports account for 75% by value (also 99% by volume). There is, however, a trend towards larger vessels and therefore a reduction in the number of ship visits.

### Petroleum

Offshore hydrocarbon exploration began in New Zealand in the 1960s, and oil and gas have been discovered in several parts of New Zealand's offshore territory, with the only commercial production to date being the development of the Maui field, which extends 35 to 50 km off the Taranaki coast. With the decline of the Maui field a number of other offshore oil and gas fields in the EEZ are being appraised and are likely to be developed over the next few years.

### Submarine cables and pipelines

Around 90% of New Zealand's international telecommunication services are carried on submarine cable systems, with the remainder handled via satellites. The majority of services carried on undersea cables systems today consist of data in the form of email and internet traffic. Submarine cables are at risk from damage due to natural causes or other ocean users, and a submarine cable failure could have a serious impact on the New Zealand economy.

Pipelines service the Maui gas field off Taranaki. These pipelines have been a vital component of primary energy supply since 1979. They may become less significant economically as supplies from the Maui field start to taper off, or they may be utilised as part of some future offshore petroleum development.

---

<sup>4</sup> The other current activity that has been identified is defence, but this is not covered in this report due to a lack of obtainable information on the nature and scale of the activity.

<sup>5</sup> Data obtained from Centre for Advanced Engineering 2003.

## Fishing

Fishing is New Zealand's fourth largest export earner. Despite the size of New Zealand's EEZ, its waters are relatively deep (New Zealand's offshore fisheries are among the deepest in the world) and not particularly rich in nutrients, so the productivity of its fisheries resources is relatively low.

Since the development of deepwater fisheries in New Zealand's EEZ in the 1970s and 1980s much of the EEZ has now been explored by modern fishing and research vessels, and it does not appear that there are many undiscovered fishing resources of significant size. The New Zealand fishery is arguably therefore approaching the limits of exploitation with few prospects for expansion, such that growth potential will be mainly dependent on added value from processing and marketing gains.

## Scientific research

While there are no precise figures for scientific research in the EEZ, around \$50–\$70 million of marine research is conducted annually in New Zealand (Chapman and Lough 2003). New Zealand has an extremely diverse marine flora and fauna, and its EEZ represents one of the world's most extensive and varied marine environments. The zone also contains a diversity of life that is economically important (eg, for fishing and aquaculture), and which supports conservation values and recreational use of the sea.

Many of our activities in New Zealand are connected to the biological and physical processes operating in the ocean. Recent research has therefore focused on understanding physical, ecological and biological systems.

## Dumping

The environmental effect of dumping is dependent on the amount and type of waste, and the sensitivity of the area where it is dumped. In New Zealand dumping is largely restricted to the disposal of dredge spoil generated from port and harbour dredging activities. However, old ships are also disposed of (several a year), and there is also the potential for used petroleum production facilities to be left on site when decommissioned.

## Prospecting for minerals

There is a growing body of knowledge around the potential nature and location of mineral seabed resources. Many are associated with hydrothermal (underwater hot spring) mineralisations. While there are currently no offshore mineral mining operations in New Zealand,<sup>6</sup> prospecting operations have been undertaken around the EEZ, particularly on the Kermadec Ridge.

---

<sup>6</sup> Underwater mining operations are not yet commercially viable due to the costs and technical challenges involved in accessing underwater environments.

## Summary

As described above, there are only a few industries currently operating in the EEZ. Fishing and shipping are the largest, and have had reasonably stable levels of operation over the last five years. Other commercial activities operate at a lower scale:

- submarine cables and pipelines are large investments on which returns are made over a number of years
- petroleum exploration has increased in the EEZ, although there is currently only one production facility
- dumping is largely restricted to the disposal of dredge spoil generated from port- and harbour-dredging activities.

There are also a number of technologies that are being trialled in the EEZs of countries overseas, including deep sea aquaculture farms, energy generation projects and the mining of minerals (other than petroleum). While the relevant technologies are not economically viable at the moment, they are likely to be developed to this point in the next 10–20 years.

# Current Environmental Legislation in the EEZ, and Management Gaps

This section of the report describes the four main statutes controlling environmental impacts in New Zealand's EEZ (from 12 to 200 nautical miles), and assesses the environmental requirements for current activities.

## Legislation in the EEZ with environmental requirements

The four main statutes controlling environmental impacts in the EEZ are the:

- Marine Mammals Protection Act 1978
- Wildlife Act 1953
- Maritime Transport Act 1994
- Fisheries Act 1996.

The Marine Mammals Protection Act 1978 is administered by the Department of Conservation and makes provision for the protection, conservation and management of marine mammals within New Zealand and within New Zealand fisheries waters (including the EEZ and territorial waters). The Act protects marine mammals from harm or harassment.

The Wildlife Act 1953 is also administered by the Department of Conservation and provides for the protection and control of wildlife. It protects black coral, red coral and spotted black grouper, as well as other marine species such as seabirds and reptiles (eg, turtles and sea snakes).

The Maritime Transport Act 1994 is administered by Maritime New Zealand. Marine protection rules specifically cover, *inter alia*, the disposal of waste at sea, and the operational discharge of oil, noxious liquid substances, sewage, waste and other matters from ships and offshore installations.

The purpose of the Fisheries Act 1996 is to provide for the utilisation of fisheries resources while ensuring sustainability (defined as maintaining resources to meet the reasonably foreseeable needs of future generations; and avoiding, remedying or mitigating any adverse effects of fishing on the aquatic environment). The Ministry of Fisheries administers this Act.

## Assessing the gaps in environmental legislation in the EEZ

### Current activities

In order to assess whether environmental management in the EEZ is adequate, we need to identify activities that are currently operating in the EEZ. As discussed in the context section, broadly speaking these are shipping, petroleum activities (including prospecting and extraction),

laying and maintenance of submarine cables and pipelines, fishing, scientific research (biological and non-biological), dumping, and prospecting for minerals. The next step is to identify the legislation and environmental requirements that would apply to each activity and whether these are adequate.

Table 1 below sets out the environmental requirements that apply to each activity and whether they include:

- procedures to assess environmental effects
- powers and procedures for setting conditions to protect the environment.<sup>7</sup>

Please note that Table 1 does not discuss voluntary efforts by industry to manage environmental effects.

**Table 1: Legislation, conditions and gaps in environmental management of current activities in New Zealand’s EEZ**

Activity	Environmental effects	Legislation	Environmental conditions	Adequacy of the environmental management
All activities	n/a	Marine Mammals Protection Act 1978 Wildlife Act 1953	This Act protects marine mammals from harm or harassment (with very limited exceptions). This Act protects black coral, red coral and spotted black grouper, and other marine species such as seabirds and reptiles (eg, turtles).	n/a
Shipping	The environmental effects of shipping are from discharges (waste, sewage, oil), accidents (oil spills, wrecks, physical damage), and biosecurity risks (ballast water or organisms on the hulls of ships). Ships can also strike and hurt protected species (eg, whales).	Maritime Transport Act 1994	Marine protection rules and maritime rules specifically cover, <i>inter alia</i> , the disposal of waste at sea, and the operational discharge of oil, noxious liquid substances, sewage, waste and other matters from ships, and offshore installations.  Many of the rules give effect to conventions that New Zealand has signed, such as the Convention for the Prevention of Pollution from Ships (MARPOL).	There are no procedures for requiring the assessment of environmental effects of shipping. There are procedures for setting conditions to protect the environment for the disposal of wastes and operational discharges. There are no specific procedures for setting conditions on dumping ballast water. Regulations can be created under the Territorial Sea and Exclusive Economic Zone Act 1977, ss 8 and 27, where no other Act applies. However, no regulations have been developed. Discharges of ballast water in the territorial sea are covered by the Biosecurity Act 1993, but these provisions do not apply in the EEZ.

<sup>7</sup> This table summarises sections of the paper *Management in New Zealand’s Exclusive Economic Zone*, the full paper is attached as Appendix 1.

Activity	Environmental effects	Legislation	Environmental conditions	Adequacy of the environmental management
Petroleum activities (including prospecting and extraction)	<p>Marine seismic surveys can have a short-term adverse effect on some marine life.</p> <p>Drilling can have the following environmental effects: localised contamination of the marine environment through drilling muds; potential for contamination of marine environment through oil spills and waste discharges; disturbance of sediments, marine life and habitats (on the seafloor); and death of marine life (eg, burial, smothering of benthos in the immediate area of the drill site).</p> <p>Construction activities such as pile-driving and blasting can also disturb and kill marine life in localised areas.</p>	<p>Maritime Transport Act 1994</p> <p>Crown Minerals Act 1991</p>	<p>Marine protection rules set by Maritime New Zealand can apply to ships or offshore installations. A Marine Protection Rule (Part 200) is currently being drafted by Maritime New Zealand. This rule will require an approved discharge management plan for any rig or offshore installation (for all wastes, oily-water discharges, drilling by-products and produced water), and a comprehensive spill prevention and response plan.</p>	<p>There is no requirement for an assessment of environmental effects of a proposal to mine petroleum in the EEZ before a permit is granted under the Crown Minerals Act 1991. An assessment of environmental effects cannot be included as a condition of a mining permit.</p> <p>Oil spill planning needs to be done for petroleum activities. A draft Marine Protection Rule (200) will cover operational discharges other than oil from offshore activities.</p> <p>There are no specific procedures for setting environmental conditions on the building of platforms or disturbance of the marine environment. Regulations can be created under the Territorial Sea and Exclusive Economic Zone Act 1977, ss 8 and 27, where no other Act applies. However, no regulations have been developed.</p>
Laying and maintenance of submarine cables and pipelines	<p>Laying of cables can involve the clearing of seabed routes by pre-laying grapnel (eg, Telecom cables require a four-metre-wide strip) and installation using a cable installation ship and submarine cable plough (eg, Telecom cables are buried two metres below the seabed). These activities cause localised disturbance of marine sediment processes and impact on marine biota and fisheries.</p>	<p>Submarine Cables and Pipelines Act 1996</p>	<p>None</p>	<p>There is no requirement to assess the environmental effects of a proposal to lay submarine cables in the EEZ.</p> <p>There are no specific procedures to set conditions on a proposal to lay submarine cables. Regulations can be created under the Territorial Sea and Exclusive Economic Zone Act 1977, ss 8 and 27, where no other Act applies. However, no regulations have been developed.</p>
Fishing (including customary take)	<p>Fishing gear that makes contact with benthic habitats (bottom trawls, dredges) has major ecological impacts. The nature and extent of that impact depends on the type of gear used, the way it is used, the frequency of the disturbance, and the sensitivity of the habitat and species to the disturbance of the substrate.</p> <p>Catch of fish impacts on protected species as well as target stocks.</p>	<p>Fisheries Act 1996</p>	<p>Under this Act the Ministry of Fisheries sets the total allowable catch for each fish stock in the Quota Management System (QMS), after consideration of biological and other information. The Ministry of Fisheries does not currently have specified or structured environmental assessment procedures.</p>	<p>Decision-makers under the Fisheries Act 1996 must take into account the purpose, environmental principles and information principles in the Act. The draft Ministry of Fisheries Strategy for Managing the Environmental Effects of Fishing proposes that an environmental risk assessment be undertaken for each fishery within a specified timeframe.</p> <p>There are provisions enabling conditions to be set on fishing, to protect the environment, under the Fisheries Act 1996.</p>

Activity	Environmental effects	Legislation	Environmental conditions	Adequacy of the environmental management
Scientific research – biological	There are many different methods for conducting scientific research, and some of them can cause significant environmental damage (eg, towing a dredge across the sea floor to collect samples of marine life).	Fisheries Act 1996	The environmental effects of biological scientific research are considered when special permits are granted for investigative research under the Fisheries Act 1996.  When granting a special permit for investigative research, the Chief Executive of the Ministry of Fisheries must take into account the purpose, environmental principles and information principles in the Fisheries Act. Investigative research proposals must include a detailed proposal and a standard Ministry of Fisheries research proposal.	There are procedures for assessing the environmental effects of biological scientific research.  The environmental effects of biological scientific research are considered when special permits for investigative research are granted under the Fisheries Act 1996.  There are procedures under the Fisheries Act 1996 (when granting special permits) to set environmental conditions on biological scientific research.
Scientific research – non-biological	There are many different methods for conducting scientific research and some of them can cause significant environmental damage (eg, towing a dredge across the sea floor to take rock samples).		None	There are no procedures for assessing the environmental effects of non-biological scientific research. There are no specific procedures to set environmental conditions on non-biological scientific research. Regulations can be created under the Territorial Sea and Exclusive Economic Zone Act 1977, ss 8 and 27, where no other Act applies. However, no regulations have been developed.
Prospecting for minerals	Prospecting/exploration activities include: multi-eco-sounding, plume sampling, use of submersibles, geochemical sampling, rock sampling by video, grab sampling (from ship or remotely operated vehicle) or dredges. Depending on the prospecting or exploration methods being employed, the environmental impacts will range from nil to localised impacts that could be significant.	The Continental Shelf Act 1964	None	There are no procedures for assessing the environmental effects of prospecting for minerals other than petroleum.  There are regulation-making powers under the Continental Shelf Act 1964 to protect the living resources of the sea within safety zones.

Activity	Environmental effects	Legislation	Environmental conditions	Adequacy of the environmental management
Dumping	The environmental effects of dumping are dependent on the amount and type of waste and the sensitivity of the area where dumping occurs. In New Zealand dumping is largely restricted to the disposal of dredge spoil generated from port and harbour dredging activities.	Maritime Transport Act 1994	Marine protection rules specifically cover, inter alia, the disposal of waste at sea.	There are procedures for assessing the environmental effects of dumping under the Maritime Transport Act. There are also procedures for setting environmental conditions on dumping under the Act.

Table 1 shows that there are few procedures in place for assessing the environmental effects of current activities past the 12 nautical mile boundary of the RMA. In summary, in the EEZ:

- the only procedures in place for assessing the environmental effects of an activity are for dumping and biological research
- a strategy for managing the environmental effects of fishing is currently in draft form – this proposes that an environmental risk assessment be undertaken for each fishery within a specified timeframe
- there are no procedures in place for assessing the environmental effects of shipping, exploration or mining for petroleum, the laying of submarine cables, or the cumulative effects of activities.

This means that for many activities in the EEZ, government is unable to assess whether an activity will have a significant effect on the environment.

Table 1 also highlights that there are few specific procedures for setting environmental conditions on activities in the EEZ. There are regulations – or the ability to place regulations – on oil spills, operational discharges, fishing, biological scientific research and the disposal of wastes.

There are regulation-making powers under the Territorial Sea, Contiguous Zone and Exclusive Economic Zone Act 1977 for the enforcement and setting of penalties:

*Where no other provision is for the time being made by any other enactment for any such purposes, the Governor-General may from time to time, by Order in Council, make regulations for all or any of the following purposes:*

- Regulating the conduct of scientific research within the exclusive economic zone:*
- Prescribing measures for the protection and preservation of the marine environment of the zone:*
- Regulating the construction, operation, and use of artificial islands (whether permanent or temporary), and other installations and structures within the zone, including the establishment of safety zones around such islands, installations, and structures:*
- Regulating the exploration and exploitation of the zone for the production of energy from the water, currents, and winds, and for any other economic purposes:*
- Providing for such other matters as are necessary or expedient for giving full effect to the sovereign rights of New Zealand in relation to the zone:*
- Providing that a breach of any such regulations shall be a criminal offence, and imposing penalties by way of fine not exceeding \$10,000 for any such offences:*

- (g) *Providing for such other matters as are contemplated by or necessary for giving full effect to the provisions of this Part of this Act (other than matters for which regulations may be made under section 22 of this Act) and for its due administration.*

However, no regulations have been set so far under this Act.

The Territorial Sea, Contiguous Zone and Exclusive Economic Zone Act 1977 primarily establishes the various zones in the marine area – the territorial sea, internal waters, contiguous zone and the EEZ – and the means for setting the boundaries for those zones. The Act gives effect to the international law of the sea by setting out New Zealand’s sovereignty, jurisdiction and sovereign rights to the marine area. While the Act has catch-all regulations within it, it is not designed to regulate environmental effects.

It is also unclear when the general regulation powers within the Act would apply, given that they are restricted to situations “where no other provision is for the time being made by any other enactment for any such purposes”. For example, there is no Act that looks at the environmental effects of the laying of submarine cables and pipelines, although the Submarine Cables and Pipelines Protection Act 1996 does protect and manage cables and pipelines.

The Environmental Protection and Enhancement Procedures (EP & EP) may also still apply in the EEZ. The EP & EP are a 1973 Cabinet minute (updated in 1987)<sup>8</sup> that advise that government departments should ensure that a system of environmental assessment is implemented. The EP & EP also advise that it is the responsibility of government departments to ensure that environmental protection and enhancement are incorporated in their policies and operations.

Under the EP & EP, environmental assessment is to be applied to, among other things:

*... the granting by the Crown of all licences, authorisations, permits and privileges which may have environmental implications and which are issued pursuant to a list of Acts (including the Fisheries Act 1908, the Mining Act 1971).*

The EP & EP go on to provide advice on environmental assessment.

In 1995 the Ministry for the Environment advised the Parliamentary Commissioner for the Environment that the EP & EP were still applicable. However, the Ministry for the Environment has since published *Auditing Assessments of Environmental Effects (AEE); A Good Practice Guide* (Ministry for the Environment 1999). This is the government’s advice on policy and procedures for environmental assessment under the RMA. The EP & EP have therefore been superseded in areas covered by the RMA by the explicit requirements to conduct an assessment of environmental effects under the Act. Arguably, the EP & EP still applies outside the 12-mile limit, as there is currently no guidance for environmental assessment in that domain.

The EP & EP are non-statutory – they are restricted to government activities rather than the private sector. For example, the Minister of Energy cannot decline a mining permit on the basis of adverse environmental effects being identified. The guidance on assessment of

---

<sup>8</sup> The EP & EP were updated to enable their application for an interim period while the Environment Act came into force and the government had decided, through legislation or some other means, on the final form of its policy and procedures for environmental assessment.

environmental effects under the EP & EP is also dated, and in some cases applies to Acts that have been superseded or no longer exist. However, the principles behind the EP & EP are sound and could serve as a basis for developing environmental assessment procedures in the EEZ.

## Future activities

As increasing pressures are put on near-shore resources, it is likely that activities will extend further offshore (past the 12-mile boundary of the RMA) in the next 10 years. The management regime needs to be robust enough to manage the environmental effects of these 'future activities'. Based on the experience of countries overseas, the activities that may occur in New Zealand's EEZ in the future are:

- aquaculture
- the mining of minerals (other than petroleum)
- marine protected areas
- tourism
- energy generation.

As we have done for current activities, the legislation and environmental requirements that would apply to future activities are assessed, in Table 2 below, to see whether they include procedures to assess the environmental effects and procedures for setting conditions to protect the environment.<sup>9</sup>

---

<sup>9</sup> This table also summarises sections of the paper *Management in New Zealand's Exclusive Economic Zone*. The full paper is attached as the Appendix.

**Table 2: Legislation, conditions and gaps in environmental management that would apply to future activities that may occur in New Zealand's EEZ**

Activity	Environmental effects	Legislation	Environmental conditions	Adequacy of environmental management
Aquaculture	The effects of aquaculture vary according to the type of farm and the surrounding environment. Wastes (uneaten fish food and faeces) enter the environment, cause nutrient enrichment and accumulations of organic matter on the seabed, or both. Fish, shellfish or other farmed species infected with disease may introduce pathogens to the environment, and escaped exotic fish from the farms can alter the biodiversity of an area.	It is unclear what legislation would apply to an aquaculture venture in the EEZ, as neither the Aquaculture Reform Bill nor the RMA applies in the EEZ.	None	There are no specific procedures for setting environmental conditions on aquaculture. Regulations can be created under the Territorial Sea and Exclusive Economic Zone Act 1977, ss 8 and 27, where no other Act applies. However, no regulations have been developed.  There are also no navigational safety provisions that would apply to an aquaculture farm in the EEZ.
Mining minerals other than petroleum	Viable economic methods have yet to be developed for the extraction of minerals other than petroleum. Suction dredge, scoop, grab and drag methods have been trialled in the past. Environmental impacts will depend on the environment: where there are no flora or fauna, impacts will be negligible, but where flora and fauna exist, impacts could be significant depending on the environment and the scale of extraction.	The Continental Shelf Act 1964	None	There are no procedures for assessing the environmental effects of the mining of minerals other than petroleum.  There are regulation-making powers under the Continental Shelf Act 1964 to protect the living resources of the sea within safety zones.
Marine protection	Marine protection usually has positive environmental effects.	Fisheries Act 1996 (closures under this Act)	None	There is no legislation currently that provides for marine reserves in the EEZ because the Marine Reserves Act 1971 does not currently apply in the EEZ. The Marine Reserves Bill, which has been introduced into Parliament and is to be reported back from Select Committee, would allow marine reserves to be created in the EEZ.
Tourism, energy projects and other activities	Economically viable methods have not yet been developed for these activities.	The Territorial Sea, Contiguous Zone and Exclusive Economic Zone Act 1977	None	There are no procedures for assessing the environmental effects of tourism, energy projects or other new activities.  Regulations can be created under the Territorial Sea and Exclusive Economic Zone Act 1977, ss 8 and 27, where no other Act applies. However, no regulations have been developed.

Table 2 highlights that in the future, new activities in the EEZ would not be covered by the current management regime. Aquaculture legislation extends out to 12 nautical miles (the boundary of the RMA) but does not apply in the EEZ. Regulation-making powers under the Continental Shelf Act 1964 and the Territorial Sea, Contiguous Zone and Exclusive Economic Zone Act 1977 could be used for environmental protection. However, as discussed above, doubt has been expressed about whether these regulations would stand up to legal challenge. If government does not have the ability to require assessment of the environmental effects of new projects, it is difficult to see how appropriate regulations would be devised.

Also, for new activities in the EEZ, such as aquaculture, no navigational safety provisions would apply. This means that government would not be able to insist that aquaculture structures are lit and marked appropriately in the EEZ. A lack of navigational safety could lead not only to loss of life, but environmental pollution.

A key problem is that for most activities there is no specific government agency with responsibility for managing their environmental effects. Maritime New Zealand administers the Maritime Transport Act, which creates rules and regulations on the disposal of wastes and operational discharges; the Ministry of Fisheries has a role under the Fisheries Act 1996 to manage the sustainable utilisation of fisheries resources; and the Department of Conservation can protect specified marine species under the Marine Mammals Act 1978 and the Wildlife Act 1953. Aside from these key roles, other departments do not have a role in environmental management in the EEZ. The Ministry of Economic Development grants licences for petroleum and mineral exploration and production<sup>10</sup> but does not manage the environmental effects of these activities.

Environmental rules and regulations in the EEZ are different for each activity, and in some cases it is appropriate to manage activities differently. For example, the kinds of environmental assessment that might be appropriate as part of a large aquaculture farm proposal would probably be different to an assessment for a single shipping voyage. The environmental context of activities is also important. The environmental effect of prospecting for minerals might be judged to be unacceptable in areas that are identified as being particularly sensitive, while considered appropriate in others. Currently we have very limited information about the EEZ, so management plans need to be able to adapt to increasing information.

In the past, government has run processes (under the EP & EP) to cover some of the gaps in environmental management, such as the environmental assessment of the Maui proposal. However, inconsistent management and *ad hoc* processes have created uncertainty for businesses about what may be expected of them when operating in New Zealand's EEZ.

In conclusion, change is needed to the way New Zealand manages the environmental effects of activities in its EEZ. The environmental effects of many projects operating in the EEZ are not assessed. Even if assessments were carried out, government would have limited legal ability to place conditions on the impact the activity could have on the environment. As a result, businesses are left unclear about the expectations of their operations in New Zealand's EEZ. Change is therefore needed, both to protect the environment and to provide certainty to businesses wishing to operate in the EEZ.

---

<sup>10</sup> Although no minerals other than petroleum have been mined to date.

# Environmental Management Processes in the EEZ: An International Perspective

This section of the report summarises a paper entitled *Approval Processes in the EEZ: An International Review*, prepared for Ministry for the Environment (2004). The review looks at regulatory practices in the EEZs of three countries: Australia, the United States and the United Kingdom. The summary below outlines how each country manages the environmental effects of activities in their EEZs.

## Australia

Effects on the environment from activities within Australia's EEZ are controlled through a variety of Acts, all under the umbrella of the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act). This Act, which is the Commonwealth's principal environmental statute, is triggered by all activities that may have a 'significant' effect on a matter of national environmental significance. All matters affecting Commonwealth marine areas (outside of three nautical miles, but within the EEZ and continental shelf) are considered to be of national environmental significance. There are also guidelines on activities considered to have a 'significant' effect.

The EPBC Act delegates assessment of activities to a state or territory if a bilateral agreement or declaration is in place. Otherwise, the Commonwealth Environment Minister decides what assessment approach should be taken. There are five possible options:

- assessment on preliminary documentation
- assessment by public environment report
- assessment by environmental impact statement
- assessment by public enquiry
- assessment by accreditation process.

Which option is selected depends on the level of information available and the nature of the impact of the activity. The public can comment on an assessment made through any of these routes. The Commonwealth Environment Minister must make a decision within a specified period.

## How does this affect different activities?

### Petroleum

Two key Acts control petroleum activity: the Petroleum (Submerged Lands) Act 1967 (PSLA) and the EPBC Act. There are four main environmental approvals that may be required:

- an environment plan under the PSLA (Management of Environment) Regulations 1999 – this is required for every activity
- approval under the EPBC for activities that may affect a matter of national environmental significance – in practice, few mineral or petroleum exploration projects require approval under the EPBC Act

- approval under the EPBC for activities that may interfere with cetaceans – a separate permit is required
- approval under the EPBC for activities within a Commonwealth marine reserve.

The PSLA contains specific provisions to protect the environment, which include a requirement to control and prevent the escape of wastes and petroleum. The Act also requires activities to be carried out in a manner that does not unduly interfere with other rights or interests, including the conservation of the resources of the sea and seabed. The permit holder must also maintain insurance against expenses or liabilities relating to clean up or other remedial work if petroleum should leak from the facilities.

Requirements for approval under the PSLA are:

- actions must be undertaken in a manner that is consistent with the principles of ecologically sustainable development
- permit holders must report any incident arising from activities that are outside the parameters of environmental performance standards in the environmental management plan
- regulations are based on meeting performance goals, rather than being prescriptive.

## **Fisheries management**

Fisheries management in the Commonwealth is controlled by the Fisheries Management Act 1991 and the Fisheries Administration Act 1991. The EPBC Act requires a strategic assessment of each fishery managed by the Australian Fisheries Management Authority under the Fisheries Management Act. Management plans for fisheries are assessed, not individual concessions or permits. This ensures that broad environmental issues are adequately addressed by the specific management plans.

## **Ocean dumping**

The Environment Protection (Sea Dumping) Act 1981 provides for wastes and other substances to be dumped in Australian waters. If the dumped material contains low levels of contaminants, and the dumping site was chosen to minimise adverse effects, then the dumping will comply with this Act and a permit may be granted by the Minister. If the dumping has a 'significant impact', then the full process of the EPBC Act must be followed. The EPBC process includes a more detailed environmental assessment.

## **United States**

The US has no overarching legal framework for ocean management or environmental protection, but they are currently in the process of developing a more integrated approach to oceans management. Currently US marine policy is complex, with the environmental impacts of different activities being controlled through different regulations, and managed by different agencies (around 10 of them).

The National Environmental Policy Act of 1969 (NEPA) promotes a sustainable development approach to the use of the environment. It requires the appraisal of environmental effects of identified federal projects and activities. NEPA requires an environmental impact assessment (EIA) for every major federal action that significantly affects the quality of the human

environment. Specific requirements for NEPA are separate from federal sectoral approval for different activities in the EEZ (as discussed below).

## **How does this affect different activities?**

### **Petroleum**

Offshore petroleum development is controlled by the Outer Continental Shelf Lands Act. This Act establishes federal jurisdiction on the outer continental shelf, and gives the Secretary of the Interior responsibility for administering mineral exploration and development of the continental shelf.

The Department of the Interior prepares a five-year plan that specifies the size, time and location of areas to be assessed for federal offshore petroleum leasing. It also prepares an environmental impact assessment in accordance with NEPA regulations. An exploration plan needs to be submitted and approved for exploration activity. The Department of the Interior prepares one of three documents, depending on the level of information.

- A categorical exclusion review is the briefest form of NEPA assessment, and is used to verify that a more in-depth environmental assessment or environmental impact statement is not needed.
- An environmental assessment is prepared to determine if significant impacts may occur that would require preparation of an environmental impact statement. Environmental assessments are prepared for outer continental shelf oil and gas activities on a selective basis. An environmental assessment documents the potential environmental impacts of proposals that do not require an environmental impact statement.
- An environmental impact statement is the most in-depth examination of an activity's potential effects. The Outer Continental Shelf Lands Act requires that an environmental impact statement be prepared "at least once" for approval of a development and production plan in any area outside the Gulf of Mexico.

In addition to the exploration plan, a development and production plan must be approved before any development or production activity begins. This document must contain supporting information, such as environmental information, an archaeological report, biological report, or other necessary environment data. After receiving the plan, the government prepares a categorical exclusion review, an environmental assessment or an environmental impact statement.

### **Fisheries management**

The key piece of federal legislation for fisheries management is the Magnuson-Stevens Fishery Conservation and Management Act. This establishes eight regional fisheries management councils. These councils must prepare a fisheries management plan for each fishery in their jurisdiction. There is a high degree of industry participation in these councils.

To be approved by the Secretary of Commerce, fisheries management plans must contain a number of requirements, including:

- measures that focus on long-term sustainability of the fishery
- descriptions of the physical and financial characteristics of the fishery and the industry
- effects of the management plan on the habitat and fishing sectors

- measures to prevent overfishing, bycatch, and the mortality of fish released alive
- equitable allocation of harvest restrictions or benefits among fishing interests.

Once a fishery management plan is approved, the management plan is promulgated as a set of federal regulations with the force of law. All permit and licensing systems for that fishery must be aligned with the management plan.

## Ocean dumping

The Oceans Dumping Act regulates the dumping of all types of materials into ocean waters. It prevents or restricts dumping substances into the ocean that adversely affect human health or the marine environment. The United States Army Corps of Engineers issues permits for dredged material, and the Environmental Protection Agency (EPA) regulates the dumping of all other material.

When granting a permit, the EPA must show that the following has been considered:

- the need for the proposed dumping
- the effects on human health, fisheries, marine ecosystems and the coastline
- the persistence and permanence of the effects of dumping
- the effects of dumping particular volumes and concentrations
- appropriate locations and methods of disposal or recycling, including alternatives
- the effects on other uses of the ocean.

## United Kingdom

Environmental management in the UK is conducted mainly by central government or national agencies. The Department of Environment, Food and Rural Affairs is responsible for policy, and the English Environment Agency is responsible for implementation and enforcement (there are similar offices in Scotland and Northern Ireland).

However, activities within the EEZ are controlled by sectoral-based agencies, such as the Department of Trade and Industry for oil and gas activities. Some activities require a *strategic environmental assessment* (described below) before the area of land is made available to businesses. An additional complication is the influence of European Union policy on UK legislation.

## How does this affect different activities?

### Petroleum

Oil and gas authorisations involve three stages: a strategic environmental assessment, licensing, and controls on specific activities.

A *strategic environmental assessment* occurs when blocks of area are made available for exploration and production. It looks at a range of factors, including any environmental protection standards in the area, any issues, potential activities, likely environmental impacts of the activity, how impacts will be managed and monitored, and any information gaps or uncertainty.

Like the US, the UK issues separate exploration and production licences. The *production licence* includes conditions to protect the environment and the needs of fisheries, defence, transport, and any other interests in the block.

The third stage places *controls on specific activities*. There are a number of other statutes that apply to oil and gas activities (at least a dozen). Operators that obtain a production licence must still comply with these requirements. Of particular significance are the Offshore Petroleum Production and Pipelines (Assessment of Environmental Effects) Regulations 1999, which require an environmental impact assessment and an environmental statement to be submitted for certain projects. An environmental statement must be approved before a production licence can be granted.

## **Fisheries management**

Fisheries management in the UK is directed by European Union Policy – the Common Fisheries Policy. This policy and the domestic management systems that give effect to it have serious deficiencies, and the Common Fisheries Policy is currently being reviewed.

Under the Common Fisheries Policy system, the UK is allocated a total allowable catch, which is then on-allocated to industry through licences and grants. The process for determining total allowable catch is largely political, and there appears to be no structured impact assessment process.

## **Offshore wind farm authorisations**

The process for regulating offshore wind farms in the UK is similar to that for oil and gas projects. It involves a *strategic environmental assessment, tendering of space and granting of leases, and specific development approvals*.

Approval from several agencies is needed to establish an offshore wind farm.<sup>11</sup>

- The Department of Trade and Industry grants approval to construct and operate a generating station under the Electricity Act 1989.
- The Department for Environment, Food and Rural Affairs consents to deposit materials in waters below mean high-water springs under the Food and Environment Protection Act 1985.
- The Department of Transport grants consents for construction under or over the seashore lying below the level of mean high-water springs under the Coastal Protection Act 1949.

When granting a licence under the Food and Environment Protection Act 1985, matters considered include the potential hydrological effects, interference with other activities, risks to fish and other marine life, and any adverse implications for designated marine conservation areas.

The European Union requires all applications for offshore wind farms that are likely to have a significant effect on the environment to undergo an environmental impact assessment. The Department of Trade and Industry has decided that this effectively covers all offshore wind

---

<sup>11</sup> The Department of Trade and Industry does offer a one-stop-shop for dealing with the different government agencies.

farms. This environmental impact assessment is reported in an environmental statement (as with oil and gas projects).

## **Lessons from Australia, the US and the UK**

As described above, Australia, the US and the UK each have a different management system for their EEZ. Although each country manages the environmental effects of activities differently, each has a greater ability to manage environmental effects than New Zealand currently does.

Effects on the environment from activities within Australia's EEZ are controlled through a variety of Acts, all under the umbrella of the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act). This Act is able to comprehensively cover all activities that have a 'significant' affect on a matter of national environmental significance in the EEZ.

The US has no overarching framework for ocean management or environmental protection, so while comprehensive, US marine policy is also quite complex. The environmental impacts of different activities are controlled by a number of regulations and managed by around 10 agencies. The US is currently in the process of developing a more integrated approach to oceans management.

Environmental management in the UK is also complex, comprising a myriad of activity-based legislation as well as the overarching provisions of European Union policy. One of the first steps in the approval process for the granting of petroleum and offshore windfarm permits in the UK is a strategic environmental assessment, which is a process for predicting and evaluating the environmental implications of a policy, plan or programme. Strategic environmental assessment is done area by area as a way to strike a balance between promoting economic development and effective environmental protection. This area-based approach is useful when there will be intensive development in a particular location.

Australia's overarching Environmental Protection and Biodiversity Conservation Act and the UK's strategic environmental assessment provide particularly useful models for informing New Zealand's choices on ways to manage the environmental effects of activities within the EEZ more comprehensively in future.

# Options for Improving Environmental Management in the EEZ

The section on current environmental legislation in the EEZ identified that change is needed to the way New Zealand manages the environmental effects of activities in its EEZ (from 12 to 200 nautical miles offshore). There are gaps and inconsistencies in the current management regime. Change is needed both to protect the environment and to provide certainty to businesses wishing to operate in the EEZ.

This section of the paper outlines four options for improving environmental management in the EEZ. These options are described in detail below, followed by an analysis of the advantages and disadvantages of each.

## Option 1: The voluntary approach

Option 1 is to work with industries to help them to develop their own environmental operating procedures for the EEZ. Operating procedures can be industry-led or agreements between parties, but the defining characteristic of Option 1 is that it must be voluntary to sign-up to. Operating procedures designed for the EEZ could initially be voluntary, but if they were acceptable to government they could guide the form that future legislation might take.

An example of an informal industry-led voluntary approach is the assessment of environmental effects being done by OMV New Zealand Ltd (OMV). OMV intend to extract oil from the Maari crude oil field in January 2006 (the Maari field is within the EEZ). OMV are undertaking a full assessment of environmental effects process with key stakeholders, central and local government, Maori and local community groups, despite there being no statutory requirement to do so. In order to take what measures it reasonably can to reduce the risk of the project's long-term viability being affected by regulatory changes, OMV approached central government agencies to identify key environmental issues as part of the voluntary assessment of environmental effects process.

Another voluntary approach to environmental management is through independent accreditation of environmental performance. An example of this approach is Telarc's services for independent evaluation of management systems. Telarc also measures environmental management systems and provides certification in line with international standards such as ISO 14001.

The Packaging Accord is an example of a voluntary industry and government initiative. The signatories to the accord – industry, local and central government – have voluntarily committed to taking steps to reduce the proportion of packaging in our total waste stream. Signatories are aiming to save resources when they design, make and choose packaging and to do their best to recover and reuse the materials. This means producers and packaging users will take more responsibility from the beginning to the end of the packaging lifecycle. This is an example of 'extended producer responsibility', a core principle of the New Zealand Waste Strategy 2002, supporting sustainable development.

Another example of a voluntary initiative between government and industry are the mining codes of practice in Australia. In 1994 Environment Australia formed a partnership with the Australian mining industry to identify and develop products on best practice environmental management in mining. The partnership is guided by a stakeholder representative steering committee, with members drawn from mining companies, the Minerals Council of Australia, government departments, research organisations, and non-government organisations with specific interests in mining.

Environment Australia and a mining industry representative chair the stakeholder representative steering committee jointly. Funding has been shared between government and industry: recurrent funding is provided mainly from Environment Australia, while industry has provided sponsorship funding for the production of specific booklets, supplied authors at reduced or no cost for many booklets, provided expertise to the technical review panel, and met the costs of steering committee members.

The negotiated greenhouse agreements between the Ministry for the Environment and businesses is an example of voluntary agreements between industry and government. During the first Kyoto Protocol commitment period (2008 to 2012), the government recognised that the international competitiveness of some New Zealand firms or industry groupings could be at risk because of an emissions charge<sup>12</sup> to be introduced in 2007. Firms that are prepared to undertake to meet international best practice targets in the management of their greenhouse gas emissions can negotiate a full or partial exemption from the emissions charge with the government. This is called a negotiated greenhouse agreement (NGA). To date, one NGA has been concluded and applications to negotiate an NGA have been received from a dozen other firms.

## Option 2: Filling the gaps in current legislation

Option 2 would fill the gaps in the current legislation, so that the legislation that applies to each activity in the EEZ has a consistent approach and is comprehensive. There are two ways this could be done:

- by simply creating extra rules to fill the gaps in current legislation, or
- by including a requirement in each Act to assess the environmental effects of each activity.

Because current legislation has been designed on an activity-specific basis, filling the gaps would require an assessment of each piece of legislation, taking into account the rules that already exist. Changes to current management will depend on the ability of current legislation to protect the environment.

The assessment carried out in this report indicates that there are gaps in the ability to regulate the environmental effects of:

- the introduction of new species through ballast water
- the disturbance of the benthic environment (bottom of the sea floor) when building platforms and drilling in the marine environment

---

<sup>12</sup> The government has decided to introduce an emissions charge on fossil fuels and industrial process emissions (ie, carbon dioxide and fossil methane) from 2007 to create an incentive to reduce emissions. The charge will approximate the international emissions price, but be capped at NZ\$25 a tonne of carbon dioxide equivalent.

- the disturbance of the benthic environment when laying submarine cables (which can require a four-metre-wide and two-metre-deep route)
- the disturbance of the marine environment when conducting non-biological scientific research (which can include drilling and dredging in the benthic environment)
- the disturbance of the marine environment when prospecting for minerals.

It would be difficult to create rules to protect the environment without undertaking an assessment of the environmental effects of proposed activities. For example, to protect sensitive areas (such as sea mounts) in the EEZ, government could create a blanket rule that submarine cables should bypass sea mounts. However, without assessing the area itself it would be difficult to tell the sensitivity of the proposed site. For the example of the sea mounts, the cable layer would need to determine if there were any sea mounts on their proposed route. This could be a costly exercise if there is poor information for the area.

The second way of filling gaps in current legislation would be to include in each Act a requirement to assess the environmental effects of each activity, in addition to making sure that each Act has procedures for setting conditions to protect the environment. An example of how this might work would be to include a requirement to assess the environmental effects of petroleum mining via the Crown Minerals Act. This would mean that before drilling or site preparation was started, an assessment of the area and the effects of the activity would be made. Government would also be able to place conditions on the way petroleum permits are granted, or to add environmental conditions on permits (if necessary).

### **Option 3: One Act managing resources in the EEZ**

Option 3 is to replace all of the current legislation applying in the EEZ with one Act. This new Act would apply to all activities across the board. It would control resource management in the EEZ, including the allocation of resources and/or management of their effects. Current legislation, including the Fisheries Act, Marine Mammals Act, Wildlife Act, Maritime Transport Act, Crown Minerals Act and the Continental Shelf Act, would be repealed in so far as it applies to the EEZ.

Part of managing resources in the EEZ would include an environmental management regime for the EEZ. A new regime would require each activity to undergo an assessment of environmental effects and then set out conditions and rules for operating in the EEZ. The new Act could include a common approach to assessing environmental effects and/or a common threshold of impacts for the EEZ.

The RMA is an example of how one Act can manage a number of resources. Although the RMA did not replace all resource management legislation,<sup>13</sup> it brought together laws governing land, air and water resources and introduced a new approach to resource management. Companies wishing to carry out activities (other than permitted activities) must apply for a resource consent. The prescribed process includes an assessment of the effects of the activity on the environment. The RMA applies to all land, and includes New Zealand's territorial sea (mean high-water springs out to 12 nautical miles). The jurisdiction of the RMA cannot be

---

<sup>13</sup> For example the Fisheries Act 1996 manages fisheries resources and the Crown Minerals Act 1991 manages mineral resources.

extended beyond 12 nautical miles due to the more limited ‘sovereign rights’ that New Zealand has in the EEZ.

The defining characteristic of Option 3 is that the new Act would manage all activities in the EEZ – not just the environmental impacts of the activities. It would create a ‘one-stop-shop’ for management in the EEZ.

## **Option 4: The umbrella act: one assessment of environmental effects**

Option 4 would use a single piece of legislation – an ‘umbrella’ act – to require the environmental assessment of all activities occurring in the EEZ. The umbrella act would also give the government the power to place conditions on or prohibit activities if significant environmental effects are likely as a result of the activities. Unlike Option 3, an umbrella act would not affect existing legislation.

This approach is similar to Australia’s Environmental Protection and Biodiversity Conservation Act, which is an umbrella act that requires approval and an environment assessment if an activity would result in a significant environmental effect. It applies to all activities, even if there is existing legislation controlling a particular activity. There is a series of triggering criteria, and a variety of mechanisms to assess the proposed activity depending on the information available and the severity of the impact. A similar approach could also work in New Zealand.

The umbrella legislation would also need to enable government to place conditions or prohibit certain activities on the grounds of adverse effects. If an environmental assessment reveals significant adverse environmental effects, government needs some means to place conditions on the activity, or even prohibit the activity from going ahead. This would need to be integrated with any existing permits and licences government already issues.

This approach could be adapted for the different nature of activities in the EEZ – from large-scale projects with localised impacts (eg, an oil rig), to transitory industries with multiple operators and where cumulative impacts become more important (eg, shipping). Later, an assessment could be done on the effects of the shipping industry through a particular region (eg, off the Taranaki coast or along one of the major shipping lanes). The assessment might identify sensitive areas that should be avoided by ships, or require different operating practices to avoid environmental damage.

To see how this might work in practice, we can use prospecting for minerals as an example. A minerals prospector must apply for a permit under the Continental Shelf Act 1964. If a new umbrella act were to apply, the proposal would need to be assessed to see whether it ‘triggers’ the requirement for an assessment of environmental effects. If the proposal does trigger the requirement, an assessment for environmental effects would need to be undertaken and approval granted through the umbrella act before a permit to prospect for minerals could be granted.

# Analysis of the options

Each of the four options has both advantages and disadvantages, which are outlined below.

## Option 1: The voluntary approach

### Advantages

Under the voluntary approach, government would work with industries in the EEZ to develop operating procedures. Complying with the environmental best practice operating procedures would (at least initially) be voluntary. There are two main advantages to this approach. First, a voluntary approach allows for incremental changes to environmental management in the EEZ. Although there is limited human activity in the EEZ currently, it is likely to increase in the future, and we can use the time before commercial activity increases significantly to work with industry to develop operating procedures to protect the marine environment in the interim.

The second benefit is that stakeholders can be used to help design the regulations that will affect them. Industry are in the best position to know what the impacts of their activities are, and they are likely to be well informed about best practice in their areas.

Finally, a voluntary approach to environmental management would be relatively inexpensive for government to implement, with much of the cost being taken up by business. Management could be more flexible and adaptive because legislative change would not be necessary.

### Disadvantages

The key argument against Option 1 is that a voluntary agreement needs to be in the industry's interests for it to work. Environmental voluntary agreements work best when there is an incentive for businesses to sacrifice short-term commercial gains for long-term benefits. In this case there are limited incentives for companies to protect the environment in the EEZ, particularly when there is a financial disadvantage in doing so.

Some international companies that operate in the EEZ already assess the environmental effects of their activities before they begin work. They need to do this to satisfy the expectations of their shareholders that they will operate in an ethical manner. However, generally, when adopting environmental operating procedures, there is a financial incentive for companies to adopt minimum requirements. Also, if the purpose of doing an assessment of environmental effects is to decide if a project should go ahead or not, industry has an incentive to decide to go ahead with the project. It would be difficult for companies to make an objective decision.

Voluntary agreements tend to work best when there are a limited number of parties to sign an agreement, or if one party has significant influence over others (eg, a monopolistic buyer or seller). Without a legislative mandate to do so, the government would not be able to enforce compliance with operating procedures that are voluntary. By definition, a voluntary approach is not legally binding. Government would therefore be unable to stop companies undertaking activities with significant adverse effects. It would also be very difficult to assess the cumulative effects of activities, as companies would operate independently of each other.

The voluntary approach is not favoured by some of the stakeholders that have been involved in this project. They believe that the current system is fragmented and difficult to understand. Many of the companies would like to see regulations developed that would be able to provide them with the certainty to allow them to make investment decisions. If a voluntary approach were taken to environmental management in the EEZ, with each industry developing different operating procedures, then environmental management is likely to stay fractured.

## **Option 2: Filling the gaps in current legislation**

### **Advantages**

A benefit of filling in the gaps of current legislation is that it allows environmental management to be tailored to each activity. In particular, activities that are permanently located in the EEZ are likely to need to be managed differently to those activities that are transitory (such as shipping). For example, it would be impractical to assess the environmental effects of every shipping voyage, but there could be an assessment of the environmental impact of the industry as a whole. For other activities (eg, oil rigs), it would be more appropriate to do a case-by-case assessment of each project.

This option utilises the existing legislation. Filling the gaps in current legislation would also provide certainty to businesses operating in the EEZ about what the rules are and who will enforce them. Essentially this option is an extension of how we currently regulate activities in the EEZ, on an activity-by-activity basis.

### **Disadvantages**

The problem with Option 2 is that simply filling the gaps in existing legislation would not cover emerging new activities. In the next 10 years it is likely that there will be increasing activity in the EEZ, with new activities starting. Under this option, every time a new activity starts in the EEZ, officials will have to devise a system for how to assess and then manage the environmental effects of the activity.

Another problem with Option 2 is that this solution is likely to require changes to many pieces of legislation. Making these changes while trying to make the pieces of legislation consistent is likely to be very difficult. Also, there are different departments dealing with the different pieces of legislation, so it would be difficult to assess the cumulative effects of activities.

## **Option 3: One Act managing resources in the EEZ**

### **Advantages**

Option 3 is to replace all the current legislation applying in the EEZ with one Act controlling resource management (including allocation of resources and/or management of their effects) in the EEZ across the board (ie, in relation to all activities). One of the advantages to this option is that it would be easy for businesses to have to interact with only one agency. The management regime would have clear rules, which would provide certainty to businesses. Option 3 would also cover future activities, because each activity would go through the same assessment of environmental effects.

## **Disadvantages**

There are some strong disadvantages to Option 3, however. It would be costly for government to implement this option, because the required legislative process would be long and resource intensive. The pieces of legislation that apply in the EEZ at the moment are not targeted at just environmental management. For example, the purpose of the Fisheries Act 1996 is to 'provide for the utilisation of fisheries resource while ensuring sustainability'. The Fisheries Act, in particular, is a large and complex piece of legislation that has been amended over time. Trying to incorporate multiple pieces of legislation with different purposes would be an extremely difficult task. Finally, the change to institutional arrangements would be difficult to implement.

## **Option 4: An umbrella act: one assessment of environmental effects**

### **Advantages**

An umbrella act would be a new piece of legislation which would require the environmental assessment of activities, while leaving the current pieces of environmental legislation in place. The advantage of this option is that it fills the clear gap in current legislation in the EEZ. Currently, regulations can be placed on most activities, but there is no requirement to do an assessment of the environmental effects of activities before they start.

'Umbrella' legislation would also be flexible enough to cover new activities, and with each activity following a similar assessment process it would be easier to compare the effects of different activities. For future activities that are not covered by existing law (eg, aquaculture), the legislation would give government the ability to place conditions or prohibit activities where there are significant effects. Where law does not apply, government's ability to place such restrictions is questionable.

### **Disadvantages**

A key disadvantage of the approach is the lack of a single government agency with the clear mandate to assess environmental effects and to authorise or prohibit activities. As already discussed, currently different agencies control different activities. New institutional arrangements could be established to either establish a new organisation with responsibility for all environmental authorisations (the Australian model), or those agencies with current responsibilities could be given more powers to consider environmental matters (eg, the Crown Minerals division of the Ministry of Economic Development for mining) and one of those agencies mandated to take the responsibility for any activities that do not fall within existing agencies' mandates.

## **The preferred option**

The solution for improving environmental management in the EEZ needs to be in proportion to the problem. As this paper has identified, while there are gaps in the management of environmental effects in the EEZ, the amount of activity in the EEZ is currently low. Accordingly, in the short term (one to two years) the voluntary approach is the Ministry for the Environment's preferred option. The benefits of this approach (Option 1) are that it would be relatively inexpensive, would allow incremental change, and is inclusive of industry – and consequently will be more likely to have industry support.

In the medium term (two to three years), and as activities increase in the EEZ, Option 4 is preferred. Option 4 entails government putting in place procedures to assess the effects of activities in the EEZ and placing conditions on the impact that activities have on the environment. Improving environmental management in the EEZ would therefore be a two-step process: a voluntary process in the short term, with legislation enacted in the medium term. Industries that take advantage of the voluntary approach, and set up before legislation is developed, should be recognised in some way in the new legislation, giving industry an added incentive to engage with the voluntary approach.

This paper identifies three options for developing legislation: filling the gaps, one act to manage resources in the EEZ, or an umbrella act approach. Filling the gaps in current legislation (Option 2) is rejected because it would not cover emerging new activities, and trying to make existing legislation take a consistent approach (where appropriate) and comprehensive would be complex and costly. The one act to manage all resources approach would also be very complex, time-consuming and costly. It would involve rolling all of the legislation relating to resource use and allocation in the EEZ into one single act. It has a number of problems, including how to replace longstanding legislation (which has been designed for different purposes). Effectively, this solution would be larger in scope than the problem itself.

Environmental management needs to be different for different activities. Stationary activities (such as petroleum extraction) should be managed differently to those that are transitory (such as shipping).

The environmental context of activities is also important. The environmental effect of prospecting for minerals might be judged to be unacceptable in areas that are identified as being particularly sensitive. Currently we have very limited information about the EEZ, but as information increases, management needs to be adaptive. Option 3 fails to deal with these issues, and consequently should be rejected.

Option 4, an umbrella act, would require all activities over a particular threshold to go through the same environmental assessment. This approach could be adapted for the different nature of activities in the EEZ and would need to take into account existing rules and regulations. This approach would be the most effective solution, because it would allow government to assess and then set conditions on activities that are likely to have the greatest impact on the environment.

In conclusion, a voluntary approach could improve environmental management in the EEZ in the short term, but as activity in the EEZ increases, umbrella legislation should be developed. This should be a two-step process. Industries should be encouraged to take advantage of any voluntary approach initially, while in the medium-term legislation would build on these initiatives to create a comprehensive national framework for assessing the environmental impacts of activities.

# Conclusions

Environmental management in New Zealand's EEZ (from 12 to 200 miles offshore) is currently inconsistent and fragmented. Some activities have controls to protect the environment, while others do not. What is needed is a regime that delivers consistent outcomes, is comprehensive, provides for future activities, and does not place undue compliance costs on industry.

Lessons can be learnt from how other countries manage environmental effects in the EEZ. Australia and the UK, in particular, have comprehensive regimes to assess and manage environmental effects: Australia uses an overarching 'umbrella' act and the UK does a strategic assessment of each region within its seas.

Four possible approaches for managing environmental effects in New Zealand's EEZ have been identified.

- *Option 1 – the voluntary approach:* government would work with industries operating in the EEZ to develop appropriate environmental management procedures. Compliance with these procedures would be voluntary (at least initially).
- *Option 2 – filling the gaps in current legislation:* this would involve putting in place new legislation to cover activities not already covered, and improving the environmental management provisions of existing legislation as necessary.
- *Option 3 – one Act to manage resources in the EEZ:* all of the current legislation applying in the EEZ would be replaced by one Act controlling resource management (including allocation of resources and/or management of their effects) in the EEZ across the board (ie, in relation to all activities).
- *Option 4 – an umbrella Act:* this would involve creating a new piece of legislation requiring environmental assessments to be carried out for all activities with the potential to have significant environmental effects (ie, assessments would be required for all activities with effects above a defined threshold of acceptable impact, similar to the approach taken under Australia's Environmental Protection and Biodiversity Conservation Act 1999). Detailed regulation for specific activities would continue to apply through existing legislation.

Table 3 summarises the benefits and disadvantages of each option.

**Table 3: Summary of the benefits and disadvantages of four options to improve environmental management in the EEZ**

<b>Option 1: The voluntary approach</b>	
<p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>• It allows for incremental change to the management regime.</li> <li>• Industry have more involvement in the changes.</li> <li>• It is relatively inexpensive.</li> <li>• Industry are able to utilise their knowledge.</li> <li>• Environmental management would be flexible and adaptive.</li> </ul>	<p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• There are limited incentives for businesses to raise environmental standards.</li> <li>• A voluntary approach would have no legal standing. Government cannot enforce compliance with voluntary operating procedures.</li> <li>• Businesses could not be certain that the rules would not change.</li> <li>• Assessing the cumulative effects of activities would be difficult.</li> <li>• Not all businesses would take part, with patchy environmental results.</li> </ul>
<b>Option 2: Filling the gaps in current legislation</b>	
<p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>• Management can be tailored to each activity.</li> <li>• It utilises existing legislation.</li> <li>• This option provides certainty to business.</li> </ul>	<p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• It would be resource intensive to implement this option.</li> <li>• The management regime would not be adaptive to changing circumstances.</li> <li>• It would be difficult to ensure that the environmental effects of future activities are covered.</li> <li>• Assessing the cumulative effects of activities would be difficult.</li> </ul>
<b>Option 3: One act managing resources in the EEZ</b>	
<p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>• It would be easy for businesses to only have to interact with one agency.</li> <li>• The management regime would take a consistent approach to managing activities.</li> <li>• The rules would be clear, which would provide certainty to business.</li> <li>• Future activities are covered.</li> <li>• It would be easier to assess the cumulative effects of activities.</li> </ul>	<p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• It would be very resource intensive to implement this option.</li> <li>• The compliance costs for activities would be high, because there is no threshold below which activities do not have to go through an assessment of environmental effects. Management would not be flexible.</li> <li>• Environmental management cannot be tailored to each activity.</li> <li>• The institutional arrangements would be difficult to implement.</li> </ul>
<b>Option 4: An umbrella act: one assessment of environmental effects</b>	
<p><b>Benefits</b></p> <ul style="list-style-type: none"> <li>• The management regime would be flexible, because there would be a threshold before the activities are assessed.</li> <li>• The management regime would take a consistent approach.</li> <li>• It would be easier to assess the cumulative effects of activities.</li> <li>• Current legislation is utilised.</li> <li>• The umbrella act would cover new activities that will come up in the future.</li> </ul>	<p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• There would be a two-stage process: an assessment of environmental effects as well as rules and regulations that are already in place.</li> <li>• The institutional arrangements to implement this option could be difficult.</li> </ul>

Both Options 2 and 3 have been rejected by the Ministry for the Environment because the disadvantages of both options outweigh the benefits. Option 2 (amending current legislation) would not cover future activities and would not ensure a consistent approach. Option 3 (one act managing resources in the EEZ) could cover all activities effectively, but would not be practical to implement.

The preferred approach is to create a two-step process: Option 1 to be implemented in the short term (one to two years) and Option 4 to be developed over the medium term (two to three years). Option 1, the voluntary approach, allows industry to be involved in the creation of voluntary standards (which will more likely result in greater buy in), and enables systems to be put in place that are specific to different activities. However, this option is only likely to be successful in the short term, with long-term benefits being eroded by increasing numbers of operators and activities in the EEZ requiring a more regulatory approach.

Option 4, the umbrella act approach, is the most flexible and adaptive in terms of the range of existing and future activities in the EEZ, and it allows for a consistent approach to the assessment of environmental effects in the EEZ. The umbrella act allows government to cover any gaps in existing legislation without having to amend activity-specific legislation.

Combining these two approaches means that industries that take advantage of the voluntary approach are able to engage with government and help develop the umbrella legislation to be put in place over the medium term.

## Next steps

This paper recommends that the best approach to environmental management in the EEZ is to develop umbrella legislation over the next two to three years. In the short term a voluntary approach should be developed for key industries currently operating in the EEZ. Industries that took part in a voluntary approach would be recognised in any future legislation.

In the first instance, we propose that priority be given to developing an industry-wide agreement with the oil and gas industry (subject to their agreement), which is the key industry that is currently expanding into the EEZ. This agreement could be developed on the basis of work done with OMV to date and modelled on the packaging accord. Voluntary agreements could then be progressively sought with other industries operating in the EEZ over time.

Work on developing any legislation can begin once Oceans Policy resumes and Cabinet approval has been sought.

# Appendix: Environmental Management in New Zealand's Exclusive Economic Zone

## Purpose of the appendix

This appendix presents a paper produced by the Ministry for the Environment with the aim of identifying activities currently operating in New Zealand's EEZ and the legislation and environmental requirements that apply to them. The paper also aims to identify activities that could begin in the next 10 or 20 years (based on overseas experience) and the legislation and environmental requirements that would apply to them.

The first section of the paper outlines the legislation that applies to all activities in the EEZ. The paper then takes each of the activities that currently operate in the EEZ (shipping, petroleum activities, submarine cables and pipelines, fishing, scientific research) and gives a brief description of the activity and its environmental effects and the legislation that applies to the activity, and then gives a summary of the environmental requirements that apply to that activity. The paper then does the same thing for activities that may occur in the EEZ in the future (aquaculture, mining of minerals other than petroleum, marine protected areas, tourism projects, energy projects). The conclusion of the paper assesses whether the current legislation is adequate.

## Legislation that applies across all activities in the EEZ

There are currently three pieces of legislation that apply across all activities in the EEZ:

- the Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977
- the Marine Mammals Protection Act 1978
- the Wildlife Act 1953.<sup>14</sup>

These Acts are described below.

The *Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977* establishes New Zealand's territorial sea, contiguous zone and EEZ. It provides for the exercise of sovereign rights, including the exploration, exploitation, conservation and management of resources within the EEZ. It is administered by the Ministry of Foreign Affairs and Trade. The regulation-making powers of the Act include "prescribing measures for the protection and preservation of the marine environment of the zone".

---

<sup>14</sup> Future emissions charge legislation, likely to be administered by IRD, will provide for an emissions charge to be levied on all fossil-sourced CO<sub>2</sub> and fossil-sourced CH<sub>4</sub> emissions generated in New Zealand. The scope of the charge is intended to match the scope of New Zealand's reporting obligations under the United Nations Framework Convention on Climate Change and the Kyoto Protocol. Accordingly, the emissions charge is likely to be payable on all emissions generated in the EEZ, including on all fuel purchased *inter alia* by merchant vessels, research vessels, tourist vessels and recreational vessels for use in the EEZ, or on any journey that begins and ends in New Zealand without entering the port of another state, and by fishing vessels regardless of where the fishing occurs. It is likely the charge will also apply to CO<sub>2</sub> and CH<sub>4</sub> emissions generated by petroleum and mineral activity in the EEZ and to any other emission-generating activity in the EEZ. The purpose of the emissions charge is to provide an incentive to reduce carbon dioxide and methane emissions and thus indirectly secure an environmental benefit.

The *Marine Mammals Protection Act 1978* is administered by the Department of Conservation and makes provision for the protection, conservation, and management of marine mammals within New Zealand and within New Zealand fisheries waters (including the EEZ and territorial waters).

Under this Act, every person commits an offence if they:

*... except under the authority of any enactment, places or leaves any structure or trap or chemical or other substance in any place where a marine mammal is or is likely to be and which injures or harms, or is likely to injure or harm, any marine mammal, or uses any vehicle, vessel, aircraft, or hovercraft to herd or harass any marine mammal.*

In addition, no person may ‘take’ (broadly defined) a marine mammal without appropriate permits. Where a person accidentally or incidentally kills or injures a marine mammal, reporting procedures must be followed.

The *Wildlife Act 1953* is also administered by the Department of Conservation and provides for the protection of control of wildlife. Under this Act, all wildlife is protected in New Zealand and New Zealand fisheries waters apart from those listed in the First to Fifth Schedules of the Act. Any person who accidentally or incidentally kills or injures any wildlife or marine wildlife, must report this to a ranger or fishery officer.

Wildlife includes “any mammal (not being a domestic animal or a rabbit or a hare or a seal or other marine mammal), any bird (not being a domestic bird), any reptile, or any amphibian...” It also includes the following marine species: black coral: all species in the Order Antipatharia; Red coral: all species; and spotted black grouper (*Epinephelus daemeli*).

## **Current activities in the EEZ and legislation governing them**

### **1. Shipping**

#### ***Description of the activity***

Despite advances in other forms of transport, shipping remains a relatively inexpensive and efficient method for large-volume goods. Almost 85% of New Zealand exports by value (99% by volume) are carried by sea. Imports, on the other hand, account for 75% by value (also 99% by volume). There is a trend towards larger vessels and, therefore, a reduction in the number of ship visits. The environmental effects of shipping are from discharges (waste, sewage, oil), accidents (oil spills, wrecks, physical damage) and biosecurity risks (ballast water or on the hulls of ships).

#### ***Legislation, agency and approval processes***

The *Maritime Transport Act 1994* is administered by Maritime New Zealand. Marine protection rules specifically cover, *inter alia*, the disposal of waste at sea, and the operational discharge of oil, noxious liquid substances, sewage, waste and other matters from ships and offshore installations.

Ships and offshore installations must comply with rules relating to the operational discharge of oil and other harmful substances. These rules address the requirements for waste treatments systems and the provisions of emergency response plans to address accidental spills of oil.

The *Biosecurity Act 1993* is administered by the Ministry of Agriculture and Forestry. It provides a framework for central government, regional councils and industry groups to manage pests and unwanted organisms in New Zealand. The main risks in the EEZ are around needing to put controls on the discharge of ballast water. The Biosecurity Act applies to “New Zealand territory” – defined by the outer limits of the territorial sea (in that obligations under Part 3 begin when a craft crosses the contiguous zone into New Zealand territory). However, other powers extend into the contiguous zone. Section 4 states that the Act does not impose importation controls on fish and marine mammals taken in the EEZ.

New Zealand hopes to implement the International Convention for the Control and Management of Ships’ Ballast Water and Sediments 2004 in the next few years. This may be achieved by modification of the present Import Health Standard under the Biosecurity Act, but will probably also be achieved through surveys of ships to ensure that they are equipped for and are operating ballast water management processes. Such surveys could be undertaken under the Maritime Transport Act by Maritime New Zealand.

Steps have been taken in the territorial sea to minimise the risks to the marine environment from ships emptying ballast water. In May 1998 voluntary guidelines for ballast water were replaced with an Import Health Standard, which requires all ships to exchange their ballast with mid-ocean water. Mid-ocean water contains fewer organisms such as planktonic larvae of crabs, sea-stars, fan worms, shellfish, spores of seaweeds. The Import Health Standard names Hobart in Tasmania and the port at Melbourne, Australia as “higher risk areas” due to the presence of the Northern Pacific sea-star, one of the six species identified as posing the highest risk to our marine environment. All water from other countries must be exchanged before discharge in New Zealand waters, but for these high-risk areas, no exemptions (eg, because of adverse sea conditions) can be given for discharge of non-exchanged water. For ballast tanks containing water from these sources the water must be kept on board and not discharged if it has not been exchanged mid-ocean.

The *Health and Safety Act 1992* applies to:

- people employed (or engaged under an employment agreement or contract for services governed by New Zealand law) to work on board a New Zealand ship
- people on board a foreign ship carrying coastal cargo, while the foreign ship is on demise charter to a New Zealand-based operator
- people performing work on a foreign ship while it is carrying out petroleum operations in New Zealand continental waters (as defined in section 222[1] of the Maritime Transport Act 1994)
- the person who employs or engages the person described above
- the ship as a place of work.

## 2. Petroleum activities

### *Description of the activity*

Offshore hydrocarbon exploration began in New Zealand in the 1960s, and oil and gas have been discovered in several parts of New Zealand's offshore territory, with the only commercial production to date arising from the development of the Maui field, 35 to 50 km off the Taranaki coast. With the decline of the Maui field a number of other offshore oil and gas fields in the EEZ are being appraised and are likely to be developed over the next few years.

Offshore oil and gas production can only follow discovery of commercially viable fields through investment in exploration, which involves a range of activities culminating in drilling and evaluation of exploration (wildcat) and usually appraisal wells, which may or may not be used as production wells.

*Prospecting and exploration*<sup>15</sup> activities include:

- reconnaissance geophysical surveys using an aircraft or a boat
- the taking of samples (but not the use of explosives)
- marine seismic surveys, which use a boat and a trailing device to produce a sonic wave travelling from the sea surface to sub-sea rock formations (there is evidence that marine seismic surveys may have a short-term adverse effect on some marine life)
- rock sampling (aeromagnetic/gravity survey) by boat or aircraft
- drilling, which can have the following environmental effects:
  - localised contamination of the marine environment through drilling muds
  - potential for contamination of marine environment through oil spills and waste discharges
  - disturbance of sediments, marine life and habitats (on the seafloor)
  - death to marine life (eg, burial, smothering of benthos in the immediate area of the drill site).

*Extraction* activities include:

- drilling the wells to be used to produce the field
- installing facilities to handle the produced phases (which may be just gas but usually also liquids – condensate, crude oil and/or formation water)
- transporting the produced fluids to further processing facilities either on shore or at a central offshore facility (eg, a platform or moored vessel – generally involving pipelines)

---

<sup>15</sup> For oil, gas or condensate: a deposit of petroleum in the ground at elevated pressure and temperature may be either gas or liquid. In equilibrating to surface pressure and temperature, it will separate into two produced phases – liquid to crude oil plus associated gas; gas to gas plus or minus condensate (some gas is naturally 'dry'). Various fractions can be separated off (eg, propane and butane are gas at the surface but with a little compression become liquid) and transported as a liquid under pressure and sold (eg, in the South Island and for barbecues etc) as LPG, whereas North Island pipeline gas is mainly methane, which practically cannot be liquefied (but can be compressed – as CNG – which has been sold as alternative car fuel).

- ongoing operational activities to manage the off-take, maintain the facilities, and eventually decommission the wells and facilities when the resources have been depleted.

### ***Legislation, agency and approval processes***

The *Continental Shelf Act 1964* (section 4) provides that the provisions of the Crown Minerals Act apply to petroleum in the seabed and soil of the continental shelf. Regulations have been made under the Continental Shelf Act. These all relate to controlling safety on and around offshore installations (Floating Storage Productions and Off-loading Safety Zone Regulations, Maui A Safety Zone Regulations and Maui B Safety Zone Regulations).

The creation of an exclusion zone is currently administered by the Ministry of Foreign Affairs and Trade (MFAT). However, as both MFAT and Maritime New Zealand recognise that Maritime New Zealand is better placed to regulate this aspect, MFAT and Maritime New Zealand have agreed to review the process. Exclusion zones are limited to a maximum width of 500 m from the edge of the installation.

Under the *Crown Minerals Act 1991* (via section 4 of the *Continental Shelf Act 1964*), the Minister of Energy (administered by Crown Minerals, an agency within the Ministry of Economic Development) grants permits for prospecting, exploration and mining of petroleum on such conditions as considered necessary (including consultation with iwi). Previously the *Petroleum Act 1937* asserted Crown ownership over mineral rights. Applications may be declined on grounds such as an inadequate work programme, but there are no specific environmental obligations in the Act. A standard condition is to comply with “good oil field practice”, but this is not defined to any extent.

As resource owner the Crown is in effect licensing the holders of permits under the Crown Minerals Act to discover, develop and produce resources in return for a royalty on production, and the flow-on economic benefits to the economy. The Act provides for a 10-year plan known as the Minerals Programme for Petroleum. The second minerals plan was released on 1 January 2005. Flaring is currently regulated under the *Petroleum Regulations 1999*, but as a petroleum resource management issue and not as an environmental issue. Flaring can be associated with both exploration and mining and can only be undertaken with the appropriate consent. Under these regulations, gas should not be seen as a waste product. Therefore operators will need to review alternatives and assess all technical and economic options with respect to oil, gas and produced water. This review must consider the long-term production of the project.<sup>16</sup>

*Petroleum prospecting permits* are granted under the Crown Minerals Act for the purpose of conducting reconnaissance geophysical surveys and/or reconnaissance geochemical surveys and/or general investigative studies or surveys with the purpose of providing information for further petroleum exploration. Prospecting may also include the taking of samples by hand or hand-held methods. Prospecting permits may be granted both offshore and onshore. Work

---

<sup>16</sup> Field operators may wish to vent or flare gas, especially when a discovery is under appraisal before enough has been learned to design and install production facilities. During such a well test, the oil can be produced into a tank and driven to a tanker terminal or refinery, but the gas could not be delivered to a user without a potentially wasted major investment in processing facilities and a pipeline (the construction of which would also have environmental effects that may be better avoided). There is a trade-off between the operator’s unwillingness to invest to potentially sell at an economic loss, the Crown’s (as owner/licenser) desire to have the resource used if at all possible (it is not their economic loss), the immediate environmental “footprint” where flaring or even venting may be preferable to the construction of facilities and pipelines that end up serving little or no long-term purpose, versus the hypothetical greenhouse effects on the global environment.

undertaken over the permits is most likely to be minimum impact activity, which is defined in section 2 of the Crown Minerals Act 1991. (This is not, however, a requirement of such permits). Petroleum prospecting permits are relatively rarely issued – only three or four have been issued in 10 years (of which one has included a marine seismic survey).

*Petroleum exploration permits* are granted under the Crown Minerals Act for the purpose of undertaking work to identify petroleum deposits, and evaluating the feasibility of mining any discoveries made. Exploration activities include geological, geochemical and geophysical surveying, exploration and appraisal drilling, and testing of petroleum discoveries. In most cases, an exploration permit would precede the consideration and granting of a mining permit. Petroleum exploration permits are more commonly granted, even though initial activities are often better classified as ‘prospecting’. The distinction between the prospecting permit and the exploration permit is not the activities to be conducted but the nature of the property right – a prospecting permit is non-exclusive whereas an exploration permit is exclusive and also carries the exclusive right to a mining permit over any discovery made within the area of the exploration permit.

*Mining permits* are granted under the Crown Minerals Act to enable the development of a petroleum field with the purpose of extracting and producing petroleum. A petroleum field is defined by the occurrence of a petroleum deposit or accumulation, and can be specified in terms of a geological formation or formations or parts of formations, or a specified reservoir or reservoirs, or a combination of any of the aforementioned. A mining permit also allows the permit holder to undertake prospecting or exploration activities in the area over which the mining permit is held.

An application for a mining permit is made exclusively by an exploration permit holder who has discovered a petroleum field within the exploration permit area. The application is made in accordance with sections 23 and 32(3) and subject to sections 27 and 43 of the Crown Minerals Act 1991. It is referred to as a subsequent (mining) permit application. Section 32(3) provides that the holder of an exploration permit has an exclusive right to apply for, and to receive, a mining permit (except where the original permit states otherwise), provided that the exploration permit holder meets all the following requirements:

- satisfies the Minister that a petroleum field has been discovered as a result of activities authorised by the exploration permit
- applies under section 23 of the Act before the expiry of the exploration permit to surrender the permit insofar as it relates to the land in which the discovery exists
- has a work programme approved, pursuant to section 43(1)(a) of the Crown Minerals Act 1991, unless the Minister agrees that a work programme is not required to be approved, pursuant to section 43(1)(b) which so provides; then
- the permit holder shall be granted, in exchange for the surrendered exploration permit area, a mining permit.

*Maritime Transport Act 1994* – marine protection rules set by Maritime New Zealand can apply to ships or offshore installations. In addition, a Marine Protection Rule (Part 200) covering operational discharges other than oil from offshore installations is currently being drafted by Maritime New Zealand. This rule will cover aspects such as drill cuttings, produced water, and other chemical discharges, and will focus on environmental management of these discharges. It aims to take a non-prescriptive, partnership approach rather than establishing and enforcing performance standards. The proposed rule will also apply the chemical classification framework that has been developed under the Hazardous Substances and New Organisms Act (HSNO). The only prescriptive aspect of the rule is that oil discharge from produced water should not exceed 30 mg/L produced water on a monthly average, and 100 mg/L at a maximum.

*Health and Safety Act 1992* – fixed installations are covered by the Petroleum Regulations of the Health and Safety in Employment Act.

### ***Summary of environmental requirements***

*Maritime Transport Act 1994* – marine protection rules set by Maritime New Zealand can apply to ships or offshore installations conducted on a ship. A Marine Protection Rule (Part 200) covering operational discharges other than oil from offshore installations is currently being drafted by Maritime New Zealand.

*Crown Minerals Act 1991* – there is no legal requirement for the assessment of environmental effects to be undertaken, and it can not be included as a condition of a mining permit.

## **3. Submarine cables and pipelines**

### ***Description of the activity***

Around 90% of international telecommunication services with New Zealand are carried on submarine cable systems and the remainder via satellites. The majority of services carried on submarine cables systems today consist of data in the form of email and internet traffic. The business process involves very expensive capital investment in cable and associated electronic infrastructure, recovered by low-cost, high-volume toll returns. A submarine cable failure could have a serious impact on the New Zealand economy. Risks to cables come in the form of natural causes or other ocean users.

Pipelines service the Maui gas field off Taranaki. These pipelines have been a vital component of primary energy supply since gas and condensate started to flow to shore in 1979. They may become less significant economically as supplies from the Maui field start to taper off, or, on the other hand, they may be utilised as part of some future offshore petroleum development.

Laying of cables can involve the clearing of seabed route by pre-lay grapnel (eg, Telecom cables require a four-metre-wide strip), or installation using a cable installation ship and submarine cable plough (eg, Telecom cables are buried two metres below the seabed). These activities may disturb marine sediment processes and impact on marine biota and fisheries.

The submerged cables in New Zealand's EEZ are part of the Southern Cross Cable Network and stretch between Auckland and Sydney and Auckland and Hawaii. There are no other planned cables listed.

### ***Legislation, agency and approval processes***

*Submarine Cables and Pipelines Protection Act 1996* – the Minister of Transport is responsible for administering the Submarine Cables and Pipelines Protection Act 1996. The Governor-General can (by Order in Council and on the recommendation of the Minister of Transport) declare areas to be protected for the purposes of the Act.

An Order in Council can be made to regulate the navigation or conduct of ships engaged in the laying, repairing or maintenance of submarine cables or submarine pipelines and prescribing the lights or signals to be displayed by those ships while engaged in those operations.

## 4. Fishing

### *Description of the activity*

Fishing is New Zealand's fourth largest export earner. Despite the size of New Zealand's EEZ, its waters are relatively deep and not particularly rich in nutrients, so the productivity of its fisheries resources is relatively low. New Zealand's offshore fisheries are among the deepest in the world. Species such as orange roughy, which live at depths of up to 1500 m, present special challenges for fishing and stock management. The New Zealand fishery is arguably approaching the limits of exploitation, and few prospects for expansion, with growth potential mainly dependent on added value from processing and marketing gains.

Since the development of deepwater fisheries in New Zealand's EEZ in the 1970s and 1980s much of the EEZ has now been explored by modern fishing and research vessels, and it does not appear that there are many undiscovered fishing resources of significant size.

Fishing gear that makes contact with benthic habitats (bottom trawls, dredges) has the potential to create a major ecological impact. The nature and extent of that impact depends on the type of gear used, the way in which it is used, the frequency with which it makes contact with the habitat, and the sensitivity of the habitat to the removal of susceptible species or disturbance of the substrate. The importance of these types of effects can only be determined on a case-by-case basis, although some combination of gear types and substrates are potentially more damaging than others.

### *Legislation, agency and approval processes*

*Fisheries Act 1996* – the purpose of the Fisheries Act is to provide for the utilisation of fisheries resources while ensuring sustainability (defined as maintaining resources to meet the reasonably foreseeable needs of future generations, and avoiding, remedying, or mitigating any adverse effects of fishing on the aquatic environment).

Engagement in commercial fishing requires obtaining a fishing permit and compliance with the applicable rules. All fishers have to report catch and comply with catch, method and other restrictions. For species in the Quota Management System (QMS), the fisher must either cover their catch with ACE (annual catch entitlement, which is generated from quota holding) or pay a deemed value. Both quota and ACE may be bought and sold on the open market. Fishing for commercial species not in the QMS, other than tuna, is limited to those who had permits for those fisheries when the permit moratorium came into effect in the early 1990s. The Ministry of Fisheries is putting a lot of work into bringing non-QMS fisheries into the QMS.

Less well-defined rights exist for recreational and Maori fishers. Anyone can engage in recreational fishing providing they comply with the rules (bag limits, size limits, closed areas, etc). Customary fishing needs to be undertaken within the authority of a customary fishing permit.

The Minister of Fisheries sets a total allowable catch (TAC) for each fish stock in the QMS, after consideration of biological and other information. Sustainability of target fish stocks is fundamental to managing the effects of fishing. Over the last five years the amount of research devoted to biodiversity, including the impacts of fishing on non-target stocks and habitats, has increased significantly. This research helps inform fisheries management decisions. Environmental information is taken into account where it is available, but industry and environmental groups often dispute how well this has been done.

The total allowable catch may be subject to change where research indicates a change in the population of the fish stock, or where there are concerns about impacts on by-catch species or the marine environment. Early closure of one of New Zealand's most commercially valued squid fisheries, the 6T squid fishery, has occurred in previous fishing years when the permissible New Zealand sealion (previously called the Hooker sealion) by-catch limit has been exceeded.

In setting annual catches for the total allowable catch, the Minister must take account of any population management plan under the Wildlife Act or the Marine Mammals Protection Act, but currently there are no such plans. Measures have been developed under section 15 of the Fisheries Act to manage the impacts on sealions, and there are also emergency powers available to address any serious decline in or threat to fisheries, including a significant adverse change in the marine environment (section 16).

In addition, there are a raft of other fisheries regulations that have the effect of managing the impacts of fishing on the environment. These include closed areas, closed seasons, fishing method restrictions. Local area management tools (mataitai, taiapure and rahui) also assist in managing the impacts of fishing on the environment.

The Ministry of Fisheries does not currently have specified or structured environmental assessment procedures as such. Anyone may undertake commercial fishing provided they comply with the rules. However, the draft Ministry of Fisheries Strategy for Managing the Effects of Fishing is designed to ensure that the Ministry of Fisheries meets its environmental obligations in an efficient and consistent manner. The Strategy proposes that an environmental risk assessment be undertaken for each fishery within a specified timeframe.

*The Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977* – this provides for the exploration, exploitation, conservation and management of resources within the EEZ. Linkage is made to the Fisheries Act through the deeming of seas of the EEZ as New Zealand Fisheries waters.

## **5. Scientific research**

### ***Description of the activity***

New Zealand's open ocean environments are important in many ways. They are part of a global system of cycling nutrients and chemicals, and they drive many aspects of our local climate and climate variability. New Zealand has an extremely diverse marine flora and fauna, with its EEZ representing one of the world's most extensive and varied marine environments. They also contain a diversity of life that is economically important (eg, for fishing and aquaculture), and which supports conservation values and recreational use of the sea. Therefore, many of our activities in New Zealand are connected to the biological and physical processes operating in the ocean. Many of these issues are or will be important in managing how we as a country understand and use the marine environment.

Bio-prospecting is the examination of biological resources (eg, plants, animals, micro-organisms) for features that may be of value for commercial development. Bio-prospecting focuses on the discovery and commercialisation of valuable biological features. It is not genetic modification, although this is one of many possible research and development techniques that could be applied to a bio-prospecting discovery. Essentially, bio-prospecting involves taking something from the ocean for research and development.

There are many different methodologies for conducting scientific research, and some of them can cause significant environmental damage; for example, the towing of a dredge across the sea floor to take rock samples).

### ***Legislation, agency and approval processes***

*Fisheries Act 1996* – to engage in commercial fishing requires a permit and compliance with the applicable rules and regulations. Special permits can, however, exempt individuals from rules and regulations applying to commercial fishing. They may be granted under the Fisheries Act (section 97) at the discretion of the Ministry of Fisheries Chief Executive for:

- education
- investigative research
- pest control
- trials of fishing gear or vessels
- sport or recreation for disabled persons
- any other purpose approved by the Minister.

A special permit for ‘investigative research’ can be issued as part of an umbrella special permit or on a case-by-case basis. In considering applications, the Ministry of Fisheries Chief Executive must consult relevant parties if the special permit will have a ‘significant effect on fisheries resources’ or any fishing interests. The Chief Executive of the Ministry of Fisheries must take into account:

- the purpose of the Fisheries Act (to provide for utilisation of fisheries resources while ensuring sustainability)
- the environmental principles in the Fisheries Act (to maintain associated and dependent species, to maintain aquatic biodiversity and to protect habitat of particular significance for fisheries management)
- information principles in the Fisheries Act (base decisions on best available information and apply the precautionary principle).

Investigative research proposals must include a detailed proposal (species, quantities required, vessel, method, personnel) and a standard Ministry of Fisheries research proposal. Permits are issued for a maximum of three years.

*The Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977* – under sections 8 and 27, where no other Act applies, regulations may be made in respect of the territorial sea or the EEZ for any of the following purposes:

- regulating the conduct of scientific research
- protection of the marine environment
- regulating construction and use of artificial islands
- regulating exploration and exploitation of energy projects
- providing for other matters and giving effect to sovereignty.

Regulation-making powers are for enforcement and setting penalties, but no regulations have been set so far. Doubt has been expressed about the usefulness of regulations under section 27. They are limited to circumstances ‘where no other provision for the time being made by any other enactment for any such purposes’. This qualification that would seem to leave room for legal challenge.

In accordance with the provisions of UNCLOS, the New Zealand government authorises access to the EEZ by foreign vessels for the purposes of marine scientific research. Parties to UNCLOS are obliged to undertake marine scientific research in compliance with all relevant regulations adopted in conformity with UNCLOS, including those for the protection and preservation of the marine environment.

## **6. Dumping**

### ***Description of the activity***

The environmental effect of dumping is dependent on the amount and type of waste and the sensitivity of the area where it is dumped. In New Zealand dumping is largely restricted to the disposal of dredge spoil generated from port and harbour dredging activities, but old ships are also disposed of (several a year). There is the potential for used petroleum production facilities to be left on site when decommissioned..

### ***Legislation, agency and approval processes***

*Maritime Transport Act 1994* – the Maritime Transport Act is administered by Maritime New Zealand. Marine protection rules specifically cover, *inter alia*, the disposal of waste at sea, and the operational discharge of oil, noxious liquid substances, sewage, waste and other matters from ships and offshore installations.

Marine Protection Rule Part 180 is concerned with the standards and processes for the deliberate disposal of non-operational waste or other matter from ships, offshore installations and aircraft into the sea. Largely this is restricted to the disposal of dredge spoil generated from port and harbour dredging activities. It is also concerned with the deliberate disposal of ships, offshore installations and aircraft into the sea. The sea area covered by Part 180 includes all dumping within the exclusive economic zone of New Zealand and areas beyond that zone where New Zealand ships and aircraft are involved.

The *New Zealand Guidelines for Sea Disposal of Waste* is a joint publication of Maritime New Zealand and the Ministry for the Environment. It provides advice on preparing applications for permits to dump waste at sea, and is used by the Director of Maritime Safety as an aid in making decisions on applications. The *Guidelines*, which are incorporated by reference as an Advisory Circular to Part 180, include a form of application for a permit to dump waste or other matter under the Maritime Transport Act 1994.

## **Future activities in the EEZ**

## **7. Marine farming (aquaculture)**

### ***Description of the activity***

Marine farming is the propagation and husbandry of aquatic plants and animals to supplement the natural supply. These activities can occur in both natural waters and in artificial aquatic impoundments. There is currently a proposal for a marine farm that extends into the EEZ.

Possible advantages of aquaculture in the EEZ include the ease with which water temperature can be controlled by mixing surface water with deep sea water, and disease control, as there are few viruses and pathogenic bacteria in deep sea water. A disadvantage includes the

maintenance required to keep the water intake pipes free of organisms that cling to the pipes and foul the water. Aquaculture projects in Japan's EEZ are being carried out in Kochi and Toyama Prefectures (Fujita 1997, Taniguchi 1997) and are at an experimental level, but the egg production of Japanese flounder has been demonstrated to be practical since 1997.

The effects of aquaculture vary according to the type of farm and the surrounding environment. Wastes (uneaten fish food and faeces) enter the environment causing nutrient enrichment and accumulations of organic matter on the seabed, or both. Fish, shellfish or other farmed species infected with disease may introduce pathogens to the environment, and escaped exotic fish from the farms can alter the biodiversity of an area.

### ***Legislation, agency and approval processes***

*Resource Management Act 1991* and the *Fisheries Act 1996* – the Aquaculture Reform Act 2004 created a single process for aquaculture planning and consents, through the Resource Management Act 1991. Regional and unitary councils manage all of the environmental effects of aquaculture, including effects on fisheries and other marine resources. Marine farms can only occur in zoned areas, known as aquaculture management areas. The effects of aquaculture on fishing activity are taken into account by a test under the Fisheries Act 1996.

It is unclear what legislation would apply to an aquaculture venture in the EEZ as the Resource Management Act 1991 applies only to the limit of the territorial sea.

## **8. Minerals other than petroleum**

### ***Description of the activity***

There are mineral deposits with long-term potential in the EEZ, including phosphate nodules, poly-metallic nodules and volcanic massive sulphides. Research is needed to determine how much of New Zealand's offshore mineral wealth might be economically viable, given continued improvement in the technologies of prospecting and mining.

New Zealand's EEZ also has the most promising known gas hydrate resource potential in the southwest Pacific. They are known to occur along the East Coast of the North Island and Fiordland and along at least one of the margins of the Lord Howe Rise. They are an appealing energy source because they release less CO<sub>2</sub> than other energy sources. The commercial viability of these resources is still uncertain, and gas production from gas hydrates faces significant engineering challenges.

*Prospecting/exploration* activities include: multi eco-sounding, plume sampling, use of submersibles, geochemical sampling, rock sampling by video grab sampling (from ship or ROV) or dredges. Depending on the prospecting or exploration methods being employed, the environmental impacts will range from nil to localised impacts that could be significant.

Viable economic methods are yet to be developed for the *extraction* of minerals other than petroleum, suction dredge, scoop, grab and drag methods have been trialled in the past. Environmental impacts will depend on the environment: where there are no flora or fauna then the impacts will be negligible, but where flora and fauna exist impacts could be significant depending on the environment and the scale of extraction.

### ***Legislation, agency and approval processes***

*Continental Shelf Act 1964* – this is administered by the Ministry of Foreign Affairs and Trade. The Act provides the Minister of Energy with discretion to add conditions to prospecting and

mining licences. Licences granted under the Continental Shelf Act are subject to the conditions that the Minister of Energy thinks fit to impose in the circumstances. The Ministry for the Environment is responsible for providing the government with advice on the application, operation and effectiveness of the Act in relation to the achievement of the objectives of the Environment Act 1986.

### ***Environmental requirements***

*Continental Shelf Act 1964* – section 8(f) provides a power (through the Ministry of Foreign Affairs and Trade) to make regulations to prescribe measures to be taken in safety zones for the protection of living resources of the sea and natural resources of the continental shelf from harmful agents. While the Minister of Energy has discretion to add such conditions to licences as he or she thinks fit, it is considered unlikely that this would extend to environmental conditions, other than in a very general nature, as the Minister has no responsibility in this regard.

## **9. Marine protection**

### ***Description of the activity***

An objective of the New Zealand Biodiversity Strategy is to expand the network of marine protected areas (using marine reserves and other forms of legal protection) so that it fully represents the range of New Zealand's coastal and marine ecosystems and habitats. By 2010 it is hoped to have protected 10 per cent of the marine environment. Currently over 7% of the territorial sea is protected under marine reserves.<sup>17</sup>

### ***Legislation, agency and approval processes***

The Marine Reserves Bill, which has been introduced into Parliament and is to be reported back from Select Committee, would allow marine reserves to be created in the EEZ.

Under the *Fisheries Act 1996*, fisheries closures and restrictions contribute, in varying degrees, to marine protection. A couple of examples are the Spirits Bay closure in the far north and the closure of 19 deep water sea mounts.

## **10. Tourism**

### ***Description of the activity***

There is growing interest overseas in deep-sea hydrothermal vents for tourism.<sup>18</sup> New Zealand has at least 16 hydrothermal vents, which are located hundreds of metres below the ocean surface. Hydrothermal vents usually form as a result of volcanic activity on the ocean floor. They support thriving communities that include blind shrimp, white crabs, giant tubeworms, clams, shell-less snails, anemones, and fish. These rare geological features have turned out to be veritable oases in the deep sea, with a biomass equivalent to that of a rainforest. Instead of

---

<sup>17</sup> As of May 2003.

<sup>18</sup> Tours are offered to the Nine North hydrothermal vent located 500 miles off the coast of Mexico at nine degrees North latitude in the Pacific Ocean, 8600 feet below the surface. Along with a team of deep-ocean ecologists and other scientists, you can travel to 'immense hydrothermal chimneys, some reaching five stories tall, where you find yourself in a wonderland of alien marine life'.

sunlight, the life that colonizes the vents relies on hydrogen sulphide. Similar to the way that plants use the sun's energy for photosynthesis, the energy created when hydrogen sulfide oxidises can be used by some bacteria for growth, in a process called chemosynthesis. These bacteria form the bottom level of the food chain in these ecosystems, upon which all other vent animals are dependent.

### ***Legislation, agency and approval processes***

The *Territorial Sea, Contiguous Zone, and Exclusive Economic Zone Act 1977* – under sections 8 and 27, where no other Act applies, regulations may be made in respect of the territorial sea or the EEZ for any of the following purposes:

- regulating the conduct of scientific research
- protection of the marine environment
- regulating the construction and use of artificial islands
- regulating exploration and exploitation of energy projects
- providing for other matters and giving effect to sovereignty.

Regulation-making powers are for enforcement and setting of penalties, but no regulations have been set so far. Doubt has been expressed about the usefulness of regulations under section 27, because they are limited to circumstances 'where no other provision for the time being made by any other enactment for any such purposes'. This qualification would seem to leave room for legal challenge.

## **11. Energy projects**

### ***Description of the activity***

The majority of technologies to create ocean energy are currently immature and may require at least 10 years before implementation. The hostile nature of the environment for man-made structure also imparts high potential costs on the fabrication, operation and maintenance of ocean energy devices.

*Offshore wind farms* have been, and are being, extensively developed in countries surrounding the North Sea, enhancing the technologies and reducing the costs. The benefits of offshore wind farms compared with locations on land are enhanced wind strength and reduced visual, noise and other environmental intrusion. Transmission losses from offshore locations, the cost of setting foundations for large wind turbines and water depth all limit the distance such wind farms can be established offshore. Existing technologies are such that offshore wind farms can be developed in water depths up to 40 m and up to 30 km from the coast.

*Wave and swell energy* devices extract kinetic energy from the passage or breaking of ocean waves or the bottom or tidal currents. Most of these devices are not designed for the deep sea yet.

*Oceans thermal exchange* is a heat exchange process using the temperature difference between warm surface water and cold water at depths greater than 1000 m. Research has shown that a temperature difference of more than 20 degrees is required. Because of New Zealand's latitude range, seawater temperature differences in domestic waters are less than 20 degrees so the process is likely to be very inefficient here and unlikely to be economically attractive.

### ***Legislation, agency and approval processes***

The *Territorial Sea and Exclusive Economic Zone Act 1977* – under sections 8 and 27, where no other Act applies, regulations may be made in respect of the territorial sea or the EEZ for any of the following purposes:

- regulating conduct of scientific research
- protection of the marine environment
- regulating construction and use of artificial islands
- regulating exploration and exploitation of energy projects
- providing for other matters and giving effect to sovereignty.

Regulation-making powers are for enforcement and setting of penalties, but no regulations have been set so far. Doubt has been expressed about the usefulness of regulations under section 27. They are limited to circumstances ‘where no other provision for the time being made by any other enactment for any such purposes’. This qualification would seem to leave room for legal challenge.

## **12. Other activities**

### ***Legislation, agency and approval processes***

The *Territorial Sea and Exclusive Economic Zone Act 1977* – under sections 8 and 27, where no other Act applies, regulations may be made in respect of the territorial sea or the EEZ for any of the following purposes:

- regulating the conduct of scientific research
- protection of the marine environment
- regulating construction and use of artificial islands
- regulating exploration and exploitation of energy projects
- providing for other matters and giving effect to sovereignty.

Regulation-making powers are for enforcement and setting of penalties, but no regulations have been set so far. Doubt has been expressed about the usefulness of regulations under section 27, because they are limited to circumstances “where no other provision for the time being made by any other enactment for any such purposes”. This qualification that would seem to leave room for legal challenge.

# References

- Centre for Advanced Engineering. 2003. *Economic Opportunities in New Zealand's Oceans: Informing the development of an oceans policy for New Zealand*. Wellington: Centre for Advanced Engineering.
- Chapman R, Lough C. 2003. *Marine Research in New Zealand: A survey and analysis*. Wellington: Ministry of Research, Science and Technology.
- Ministry for the Environment. 1999. *Auditing Assessments of Environmental Effects (AEE): A good practice guide*. Wellington: Ministry for the Environment.
- Ministry for the Environment. 2004. *Approvals Processes in the EEZ: An international review*. Prepared for the Ministry for the Environment by Enfocus. Wellington: Ministry for the Environment.
- Nakasone T, Akeda S. 1998. *The Application of Deep Sea Water in Japan*. Japan: National Research Institute of Fisheries Engineering.
- Oceans Policy Secretariat. 2002. *Oceans Policy Stocktake Part 1: Legislation and Policy Review*. Prepared for the Oceans Policy Secretariat by URS, Enfocus and Hill Young Cooper. Wellington: Oceans Policy Secretariat.
- Parliamentary Commissioner for the Environment. 1996. *Environmental Management of Petroleum and Mineral Mining Activities Beyond the 12-mile Limit*. Wellington: Parliamentary Commissioner for the Environment.