OCEANS POLICY SECRETARIAT

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MARINE BIOSECURITY

Contents

Introduction

1 Biosecurity is not defined in legislation, but a good summary description is:

> *Biosecurity, or biological security, is the system for the prevention, eradication and management of the risks posed by pests and diseases to the economy, the environment, and human health.*[1]

2 We use the term 'marine biosecurity' to apply this description to New Zealand's marine environments.

3 The Government's Sustainable Development Programme of Action reflects a commitment to:

- using the best information available to support decision making
- addressing risks and uncertainty when making choices and taking a precautionary approach when making decisions that may cause serious or irreversible damage
- respecting environmental limits, protecting ecosystems and promoting the integrated management of land, water and living resources.

4 This paper examines the current status of marine biosecurity in New Zealand and identifies the key issues and desired outcomes for developing a comprehensive system of marine biosecurity management.

Background

5 We rely heavily on our marine biodiversity and natural resources for our wealth and way of life. Biosecurity plays a key role in protecting these interests and values.

6 The marine environment provides a significant proportion of our national revenue. Seafood is our fourth biggest export earner, at over $1.49 billion annually, and the seafood industry employs over 26,500 people (full-time equivalents). Tourism, a market that is arguably based on our biodiversity and large island environment, contributes 9% of our Gross Domestic Product.

7 New Zealand's biosecurity system is world-leading, but it is under increasing pressure.[2]

8 New Zealand has already received at least 148 accidentally introduced exotic marine species – some of which have caused serious problems[3]. It may only be a matter of time before there is a catastrophic breach that seriously damages our marine ecosystems and the growing marine economy that is reliant on those ecosystems (such as tourism, fishing, aquaculture and bioprospecting).

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[1] 'Guarding Pacific's Triple Star – Draft Biosecurity Strategy for New Zealand' published December 2002, page 13.
[2] Draft national Biosecurity Strategy, page 9.
[3] e.g. Undaria and algal blooms affecting shell-fish.

9 Such a breach could also put at risk human health and our enjoyment of the marine environment. Biosecurity is essential for maintaining the quality of recreational waters, such as bathing beaches and shell-fish gathering areas, as well as traditional food-gathering areas. It also plays an important role in safeguarding people's access to the ocean and its resources for commercial, recreational and customary purposes.

10 We therefore have a clear interest in minimising risks to New Zealand's marine environment from biosecurity threats.

Desired outcomes for marine biosecurity

11 It is therefore essential that the adverse effects of marine pests, weeds and diseases are effectively prevented or managed.

Current biosecurity management system

Legislation

12 The statutory framework for biosecurity is provided by two main pieces of legislation. The Biosecurity Act 1993 provides tools to manage the risk of pests and unwanted organisms being accidentally (or illegally) introduced into the country. The Hazardous Substances and New Organisms Act 1996 covers the intentional introduction of new species and genetically modified organisms. The Resource Management Act 1991 and the Fisheries Act 1996 also provide some tools for managing marine biosecurity.

Management agencies

13 Four central government agencies are responsible for biosecurity in New Zealand: the Ministry of Agriculture and Forestry (MAF), Department of Conservation (DoC), Ministry of Health (MoH), and the Ministry of Fisheries (MFish). Memorandums of Understanding (MOUs) developed between the four departments define responsibility for issues and techniques for cooperation.

14 MFish has responsibility for a range of marine biosecurity functions including:

- ballast water and hull fouling/cleaning management at the border
- surveillance at ports of entry and high risk areas
- some incursion and pest management functions.

15 A more detailed description of MFish's biosecurity functions is in Appendix One.

16 The other central government agencies also have functions that relate to or affect marine biosecurity. DoC has marine biosecurity responsibilities in relation to risks to indigenous flora and fauna; MoH is involved when human health is an issue; and MAF has functions relating to the setting of standards for imported risk goods, and certification of exported seafood products.

17 At the local level, regional councils have biosecurity responsibilities which are implemented through coastal plans under the Resource Management Act and pest management strategies under the Biosecurity Act.

National strategies

18 A draft national biosecurity strategy[4] was published in December 2002, and a marine biosecurity strategy is under development. These are key documents setting out the government's marine biosecurity goals, management priorities and management tools.

Draft national Biosecurity Strategy for New Zealand

19 The government's draft national Biosecurity Strategy covers marine as well as land-based and fresh water biosecurity. The draft Strategy is expected to be submitted for Cabinet approval by 30 June 2003, and to be publicly released in July 2003. Its aim is:

> to ensure we have the best biosecurity systems in the world to keep New Zealanders, our natural resources and our unique native plants and animals safe and secure from damaging pests and diseases by keeping them out or quickly finding and eradicating them and by controlling or eliminating established pests and diseases.[5]

20 The draft national Strategy proposes that MFish should take on an expanded role and become accountable for marine biosecurity, and ensure that "capabilities are developed to address economic, environmental and societal outcomes within the marine environment"[6]. It is also proposed that MAF becomes the lead agency for terrestrial and fresh water biosecurity. The implications of these new accountabilities and governance arrangements are still being worked through.

21 A working group has been established to develop policies and frameworks to support the national Strategy if and when the government signs up to it.

MFish's proposed marine biosecurity strategy

22 MFish is developing its own strategy for marine biosecurity, which will sit under the umbrella of the national Strategy. The marine biosecurity strategy will help MFish implement the government's goals as they relate to marine biosecurity.

23 The risk management approach underpins MFish's work on marine biosecurity (including the draft strategy). Risk management enables decisions to be made in an environment where we accept that we cannot achieve zero risk, and that we have limited information, resources, and conflicting demands for resources.

[4] 'Guarding Pacific's Triple Star – Draft Biosecurity Strategy for New Zealand' prepared on behalf of the Biosecurity Council and published in December 2002 for the purposes of consultation.
[5] Draft national Strategy, page 8.
[6] Draft national Strategy, page 31.

Key issues arising for New Zealand

Issues set out in the Draft Biosecurity Strategy for New Zealand

24 The draft national Biosecurity Strategy identifies the following key issues in relation to biosecurity[7]:

- Society's increasing expectations of biosecurity
- Stretched or missing capabilities to meet these new demands
- Inadequate risk analysis and decision-making processes for risks that are increasingly difficult to quantify and decisions involving more difficult value judgements
- Need for governance mechanisms and legislation to address these emerging pressures adequately
- Cost implications of lifting biosecurity performance – who will pay, and how will this be decided?

25 The draft national Strategy identifies four necessary prerequisites to lifting performance across the biosecurity system[8]:

- Leadership and participation: clear leadership, including communication of a collective vision, and integration and coordination across the biosecurity system. The public, industry and government agencies must have a strong sense of ownership, support and commitment to biosecurity and be active and informed participants in biosecurity programmes
- Responsiveness to Maori: recognising the special nature of taonga
- Decision-making and priority setting: decisions must be taken at the appropriate level, taking into account the full range of values and based on good science and adequate information
- Capability and funding: agencies should have the resources and capabilities to deliver on their accountabilities, with the correct incentives in place for industry and individuals to fund biosecurity activities.

Particular issues arising for marine biosecurity

26 Issues identified in the draft national Strategy (above) flow across the entire biosecurity management system. Within the context of these, particular issues arise in relation to marine biosecurity. These are described below.

Information

27 Information is core to managing marine biosecurity effectively. However, we know a lot less about natural resources, processes and functions in the ocean than those on land. This lack of information makes it hard to determine whether a newly-discovered species has been in New Zealand for some time or has just arrived. It also makes it hard to assess the risks posed by a new species, and to evaluate the best response to avoid or minimise adverse impacts.

[7] Draft national Strategy, page 10.
[8] Draft national Strategy, page 10.

28 Key information gaps occur in relation to:

- the extent of our marine biodiversity
- the status of pests within the marine environment
- the risks of particular vector pathways
- the range of organisms that could have an impact
- the consequences of particular exotics arriving in New Zealand.

29 Generic marine information issues are discussed in more detail in Working Paper One.

National guidance on priorities, values and outcomes for marine biosecurity

30 A key problem for management agencies is a lack of national guidance (e.g. in legislation, policies or strategies) on the priorities, values and outcomes that should guide biosecurity management. This means that decision makers are hindered in their ability to decide on what action to take first, and to focus resources accordingly. It also creates difficulties in responding to people's range of expectations – for instance on appropriate risk tolerance levels. Issues of particular significance for Maori, and in relation to the Treaty of Waitangi, also arise in the context of this problem.

Roles and responsibilities

31 Although Memorandums of Understanding (MoUs) and other policies provide clarity on most aspects of agencies' roles and responsibilities, some gaps remain.

32 Roles are clearly defined for biosecurity responses at the beginning of the incursion response process. However, there is less clarity later in the process when the focus moves from the initial incursion response phase to the ongoing management phase. In particular, it can be difficult to resolve funding liability issues when a decision is made to transfer ongoing management responsibility from a national agency to a regional organisation. Problems with the control of Undaria highlight this problem.

33 There is also less clarity about who is responsible for managing diseases in the marine environment.

34 Both the draft national Biosecurity Strategy, and policies being developed by the working group to support it, will help clarify roles and accountabilities across biosecurity management issues and agencies.

Jurisdictions

35 Management discrepancies arise as a result of differing jurisdictional boundaries under various laws governing biosecurity. The Resource Management and Biosecurity Acts set out powers within the territorial sea (i.e. out to the 12-nautical mile limit), whereas the United Nations Convention of the Law of the Sea, Maritime Transport and Fisheries Acts all set out obligations within the exclusive economic zone (to the 200-nautical mile limit). This means that management obligations differ depending on where the biosecurity issue arises. In some cases, different obligations

affect the same issue because the biosecurity threat moves across jurisdictional boundaries (for instance, because it is carried in ballast water or on boat hulls).

36 There may also be a need to assess whether biosecurity measures are effective within current jurisdictional boundaries – that is, to ensure that the legislation allows measures to be carried out where they can have best effect (within or beyond the 12-nautical mile boundary).

Funding and capability

37 National and local biosecurity management agencies need adequate resources and capabilities to deliver on their roles and responsibilities and to achieve desired outcomes. Gaps in current resourcing arrangements are hard to assess, due to the lack of an overarching framework for assessing risks, priorities, capabilities and resourcing across marine issues and management agencies. Such a framework would ensure that New Zealand is not exposed to significant risks while being well protected against others.

38 In addition to this generic issue, particular gaps are a lack of taxonomic expertise and strategic priority-setting skills, and inadequate marine information.

Awareness and education

39 Many people who carry out activities in the marine environment have little understanding of what marine biosecurity is, why it is important, and who manages it. This can result in the late reporting of new species, seriously compromising management agencies' ability to react effectively and prevent unwanted species from becoming established. It can also mean that people do not know that their activities are causing a biosecurity threat, and therefore do not take any actions to reduce risks.

40 MFish issues information on some known pests, and asks people to report findings of these. However, more guidance is needed so that people know who to inform about new findings or incursions.

Assessment of the issues

41 As described above, key marine biosecurity issues have already been identified in several key contexts – notably under work on the draft national Biosecurity Strategy and MFish's proposed marine biosecurity strategy. Most of these issues will be addressed in programmes of action developed under these strategies. However, an Oceans Policy may be able to strengthen existing initiatives in a number of ways. These are considered below.

Information

42 Working Paper One sets out a series of issues in relation to the need for better coordination of marine information. Responses to these issues should make explicit provision for information needs in relation to marine biosecurity.

National guidance on priorities, values and outcomes for marine biosecurity

43 An Oceans Policy will have, as a clear focus, the development of overarching priorities, values and outcomes for managing the marine environment as a whole. These will act as points of reference for agencies' policies and activities on specific issues such as marine biosecurity.

Roles and responsibilities

44 An Oceans Policy should set out mechanisms for coordinating agencies' activities across the full range of oceans issues – perhaps through establishment of a new institution, statute, or set of guiding principles. Agencies' roles and responsibilities will need to be clearly defined and integrated under any such integrating mechanism. Roles and responsibilities in relation to biosecurity should be an important focus of this work.

Jurisdictions

45 Jurisdictional problems have been identified in the context of a range of oceans management issues and activities. Measures to address these should address problems arising specifically in the context of marine biosecurity.

Funding and capability

46 An Oceans Policy should provide guidance about key priorities for focusing management effort across the full range of oceans issues. This could provide direction for national and local funding decisions across all management agencies to address key threats to the marine environment. It would also help management agencies to rank biosecurity needs in relation to other management priorities, and allocate their funding appropriately to manage biosecurity as effectively as possible.

Awareness and education

47 An Oceans Policy could help to augment public awareness and education efforts under current policies under generic methods designed for raising awareness across the full range of oceans issues.

Conclusions

48 The government has identified biosecurity as an issue of particular significance for New Zealand. Several key strategies and initiatives are in place and under development to ensure effective biosecurity management; the draft national Biosecurity Strategy and proposed MFish marine biosecurity strategy are particularly significant. The Oceans Policy process will need to align itself clearly with these initiatives.

49 The Oceans Policy can help to strengthen these existing initiatives by having special regard to the following dimensions of biosecurity issues:

- information
- national guidance on priorities, values and outcomes
- roles and responsibilities
- jurisdictions
- funding and capability
- awareness and education.

Appendix One: Ministry of Fisheries work programmes for managing marine biosecurity in New Zealand

Border control

Border control work is the focus of the majority of the Ministry of Fisheries' biosecurity effort. The presumption is that prevention is better than cure. MFish's border control focuses on ballast water and hull fouling / cleaning as these are the main vectors for introducing new marine organisms. (International mail and airports are controlled as a major aspect of MAF's biosecurity efforts.)

Ballast water

Under the Biosecurity Act, no ballast water may be discharged without the permission of an inspector. The import health standard (IHS) for ballast water from all countries tells inspectors what conditions must be met before ballast water from other countries can be discharged into New Zealand waters. The IHS requires all vessels to exchange their ballast water mid-ocean. In some situations it is not safe to exchange so an inspector may grant exemptions should weather conditions have precluded exchange. Exemptions do not apply to discharges of ballast water sourced from high-risk areas (at this time, Tasmania and Port Phillip Bay, Victoria). See 'A Guide to New Zealand's Ballast Water Controls'.

All vessels arriving in ballast must complete the vessel ballast reporting form. The form is designed to allow better collection of more accurate information. The form also enables cross-checking of the information provided, providing a degree of compliance monitoring, and will alert MFish to any vessels that are supplying obviously incorrect information. Compliance validation is still a challenge in this field. There is a lot of effort going into developing compliance validation methodologies, here and overseas.

Internationally, there has been gradual progress towards international legally binding controls on ballast water. The International Maritime Organisation (IMO) is leading this programme, and has already developed guidelines, on which New Zealand's controls are based. The intention is to have a convention on ballast water in 2004, with the controls coming into force after that. New Zealand has led the world in developing mandatory controls on ballast water. Australia has now followed suit. Some parts of Canada, the USA, and some South American countries are also moving in this direction. The development of international controls will create a much more consistent framework. Most experts anticipate that ballast water exchange at sea will gradually be replaced by better treatments (e.g. filtration, UV treatment). The successful application of an improved biosecurity regime with respect to ballast water will depend on the widespread adoption and successful promulgation of the new regime amongst state parties. New Zealand will need to take a leading role in promoting acceptance of tighter regulations and in monitoring their enforcement.

Hull cleaning and hull fouling

Any vessel or structure in water eventually becomes home to marine organisms. Organisms growing on vessel hulls can be spread. Sometimes they are scraped off deliberately when a hull is cleaned, sometimes they are knocked off by accident, and sometimes they just discharge reproductive material into the sea. The threat posed is thought to be significant—it is estimated that over 69% of exotic marine species in New Zealand arrived on vessel hulls[9].

MFish, in collaboration with the Ministry for the Environment, is exploring options to manage the risk. Consultation on proposed regulations was undertaken in early 2002 and MFish is now refining its proposals in response to submissions received. It is intended that controls be mainly targeted at highest-risk vessels and be accompanied by guidelines explaining how to minimise risks associated with hull cleaning.

MFish is investigating hull fouling controls to decrease the risk of vessels arriving in New Zealand with fouled hulls, and conducting additional research to identify levels of risk. The Ministry of Foreign Affairs and Trade will work with the Ministry of Fisheries to have tighter controls on hull cleaning and fouling at an international level.

Surveillance

We cannot completely protect New Zealand from unwanted organisms. Therefore, surveillance within New Zealand is an important part of biosecurity. MFish runs a surveillance programme including port baseline surveys, targeted surveillance and a public surveillance network.

Baseline surveys are being undertaken in New Zealand's highest-risk ports to improve knowledge of their biodiversity and pest status. The surveys will establish a baseline from which MFish can measure the effectiveness of voluntary or legislative controls over time. Ports will be resurveyed every few years to monitor changes in biodiversity.

Targeted surveillance for high-risk exotic species is undertaken in areas most at risk of invasion.

The public surveillance network provides additional monitoring in a broad range of areas. The network aims to raise awareness about invasive marine species among those using the marine environment.

Incursion response

MFish has an incursion response protocol, which is due to be refined in the light of research results. The protocol directs MFish's response to incursions of marine pests. A central part of incursion response is the process of risk assessment undertaken by the Chief Technical Officer for marine biosecurity. This risk assessment aims to enable objective decisions to be made on the appropriate response to any new incursion.

[9] Cranfield et al 1998

Eradicating introduced marine species is very difficult—but it is an emerging area of science. Tools are presently limited, but we are gradually developing an incursion response toolbox as New Zealand and international research progresses. As mentioned, the focus has to be on preventing incursions rather than mopping up when new species arrive.

Pest management and domestic translocation

We know of at least 148 exotic marine species in New Zealand. Some pose problems, while others have a production value (e.g. Pacific Oyster). As on land, it is preferable to eradicate or control unwanted exotic species and manage valuable ones so they don't damage the natural environment.

The most commonly known exotic marine species is Undaria (Undaria pinnatifida) or Japanese kelp. Undaria is a difficult organism to manage, and there are conflicting views on its effect and potential value. A precautionary approach is desirable in such instances. To this end, some resources have been allocated for work to control the further spread of Undaria to areas of high value. The Department of Conservation has also been undertaking eradication work in Bluff and Big Glory Bay and Half Moon at Stewart Island.

Research

Relative to the terrestrial environment, there is very little information about marine biosecurity as with the whole marine environment. The management focus is to take a precautionary approach, but significant effort has to be put into addressing some of the critical information gaps.

In July 2000 MFish received funding under the Biodiversity Strategy package to develop information and management systems to enhance New Zealand's biosecurity. The marine biosecurity programme aims to increase knowledge of potentially invasive species and of marine biodiversity in areas most at risk from invasion, as well as supporting the development of our compliance, surveillance and response capabilities.