THE DEVELOPMENT OF MARINE BIOSECURITY MANAGEMENT PLANS FOR NELSON-TASMAN, MARLBOROUGH, AND GISBORNE DISTRICT

1. INTRODUCTION

Invasive species can have severe impacts on biodiversity, the economy and human health (Ruiz et al. 1997). In addition to these impacts, the costs associated with managing invasive species are very high. The New Zealand Government's annual expenditure on eradication and sustained control of introduced mammals is estimated at NZ$50 million (Parkes & Murphy 2003). The costs to non-economic sectors (for instance, the natural environment and societal or cultural values), while not directly measurable in monetary terms, are also significant.

In New Zealand, biosecurity has traditionally focused on protecting the farming and forestry sectors from pests and/or diseases. However, the growth of New Zealand's aquaculture industry, and a greater public awareness of aquatic environments, has meant marine biosecurity has become more of a focus for Biosecurity New Zealand (BNZ) and regional councils and other marine stakeholders; e.g. recreational boaties and the aquaculture industry. Recent incursions of invasive aquatic species such as rock snot (*Didymosphenia geminate (Didymo)*), and the sea squirts (*Styela clava* and *Didemnum vexillum*) have highlighted the difficulties associated with managing aquatic pests, and have raised a number of important biosecurity issues at both the national and regional levels and, especially, at the national-regional interface.

We propose that Marine Biosecurity Management Plans (MBMPs) be prepared for three regions (Nelson-Tasman, Marlborough and Gisborne District) to provide a robust framework for the management of harmful marine organisms from overseas and other parts of New Zealand. The overall aim of the MBMPs is to improve marine biosecurity at a regional level throughout New Zealand, by better coordinating the activities of BNZ, regional councils and other marine stakeholders.

The MBMPs will:

(1) Establish key priorities for marine biosecurity management (defined here as the early detection, rapid response and ongoing management of established marine pests) in Nelson-Tasman, Marlborough and Gisborne District.

(2) Clarify the roles and responsibilities of BNZ, regional councils and other marine stakeholders for marine biosecurity activities at a regional level, based on the key priorities established under (1) above. This will ensure co-ordination of effort, clear lines of communication between interested parties, and efficient distribution of information.

(3) Based on the findings of (1) and (2) above, provide a set of recommended actions for biosecurity management in Nelson-Tasman, Marlborough and Gisborne District. The MBMPs will take into account the objectives of the Biosecurity Strategy and the interests of all relevant agencies and stakeholders, and will include a communications strategy.

(4) Provide examples for the systematic development of MBMPs in other regions in New Zealand.

2. METHOD

2.1 Establish key priorities

Regional Workshops will be conducted in Nelson-Tasman, Marlborough and Gisborne, with representatives from BNZ, regional councils and other key stakeholders (see Appendix 1). The Regional Workshops will build on the current knowledge of coastal values, existing and potential marine pests in each area including their biological and ecological characteristics, risk pathways (geographic routes) and vectors (mechanisms of spread such as hull fouling), potential economic and ecological threats, and any control and management methods that may be used against them.

The purpose of the Regional Workshops is to:

1. Identify significant coastal values in each region.
2. Establish the high-risk species and vectors in each region so that key priorities for biosecurity management can be established.

Values at risk

This is an information gathering exercise that requires the values at risk in each region to be evaluated. These values may vary between stakeholders, but all values will need to be identified and prioritised to ensure buy-in from all parties. On the basis of the regional workshops, we can recommend a tentative prioritisation of values based on an assigned monetary value for each. For non-monetary values, the significance would only be as an indication of relative priority compared to commercial values. Agencies can then adjust those relative values if they considered it appropriate and re-calculate the resulting priorities.

Values at risk include:

- Environmental/conservation
- Aquaculture
- Fisheries (finfish and shellfish)
- Recreational (fishing, boating, diving)
- Port/marina facilities
- Tourism
- Social
- Iwi

High risk species and invasion pathways

High-risk species include existing marine pests in each region, and those pests that have had significant impacts elsewhere and are capable of establishing in the Nelson/Tasman, Marlborough or Gisborne regions. For example, the northern Pacific seastar (*Asterias amurensis*) and the toxic dinoflagellate (*Gymnodinium catenatum*) are believed to have cost the Australian shipping, aquaculture and fishing industries millions of dollars annually (CSIRO 1999). Two ascidians (sea squirts) recently detected in Nelson-Tasman and Marlborough, *Didemnum vexillum* and *Styela clava*, are known pests on marine farms in Canada. These species are already starting to negatively impact the New Zealand mussel industry. Identifying existing and potential high-risk species based on their current impacts, or impacts elsewhere (particularly if they are a problem in similar environmental conditions to New Zealand), is a useful starting point for establishing the priorities of the MBMP including being prepared for a rapid response when new threats emerge.

Invasive species introductions, intentional or unintentional, occur through a variety of pathways. Knowledge of existing and potential pathways is crucial to effectively managing the spread of invasive species. Potential pathways include ballast water, hull fouling, sea chests, released aquatic pets and plants, aquaculture equipment and product (e.g. hitchhiker parasites and diseases), and species released for biological control of existing pests. Shipping and the movement of marine farming equipment have been identified as important means of human-assisted transfer of harmful marine organisms around the globe (Lewis *et al.* 2003). The Nelson-Tasman and Marlborough region's intimate association with marine farming makes them particularly vulnerable to invasion by fouling organisms. Appendix 2 identifies preliminary pathways for invasive species into the Nelson-Tasman region; at the workshop we will further evaluate these and identify others of concern.

Hernando Acosta (PhD student, Auckland University of Technology) has developed a GIS-based marine biosecurity risk assessment model for Nelson-Tasman as a part of Cawthron's FRST-funded marine biosecurity research programme. His project aims to identify the points of introduction and secondary spread of potentially harmful species from international and regional pathways, describing them in terms of the marine biosecurity risks they pose to the region. Hernando's project will provide valuable information for the Nelson-Tasman MBMP in particular, and his results will therefore be integrated into the information requirements for the Nelson-Tasman plan (see Appendix 3 for a summary of Hernando's research). It will also be useful background for establishing information needs for the Marlborough and Gisborne workshops.

Prioritise marine biosecurity risks

After each of the three Regional Workshops, the knowledge on the coastal values, high risk species and pathways will be evaluated according to the risk framework proposed by Forrest *et*

al. 2006. In brief, this approach will establish the key priorities for biosecurity management in each region by comparing the unmanaged risks with the benefits from management. The priorities will be derived by identifying the significant values at risk, high risk species and vectors of introduction and spread, as well as gaps in current marine biosecurity activities. For example, Figures 1 and 2 show decision trees from Forrest *et al*. (2006) for evaluating whether and to what extent management of a marine pest might be desirable for a given high value area (Figure 1), and whether incursion response for existing and potential pests is likely to be worthwhile (Figure 2). The key priorities for biosecurity management will then be used as a basis for clarifying, with regard to these priorities, the roles and responsibilities of BNZ, regional councils and other key stakeholders (see section 2.3).

It is expected that the key priorities for each region will be somewhat preliminary owing to constraints on current knowledge on values, risk species, pathways and associated vectors hence the priorities will need to be revisited over time.

Figure 1. Decision tree for evaluating whether and to what extent pathway management might be desirable.

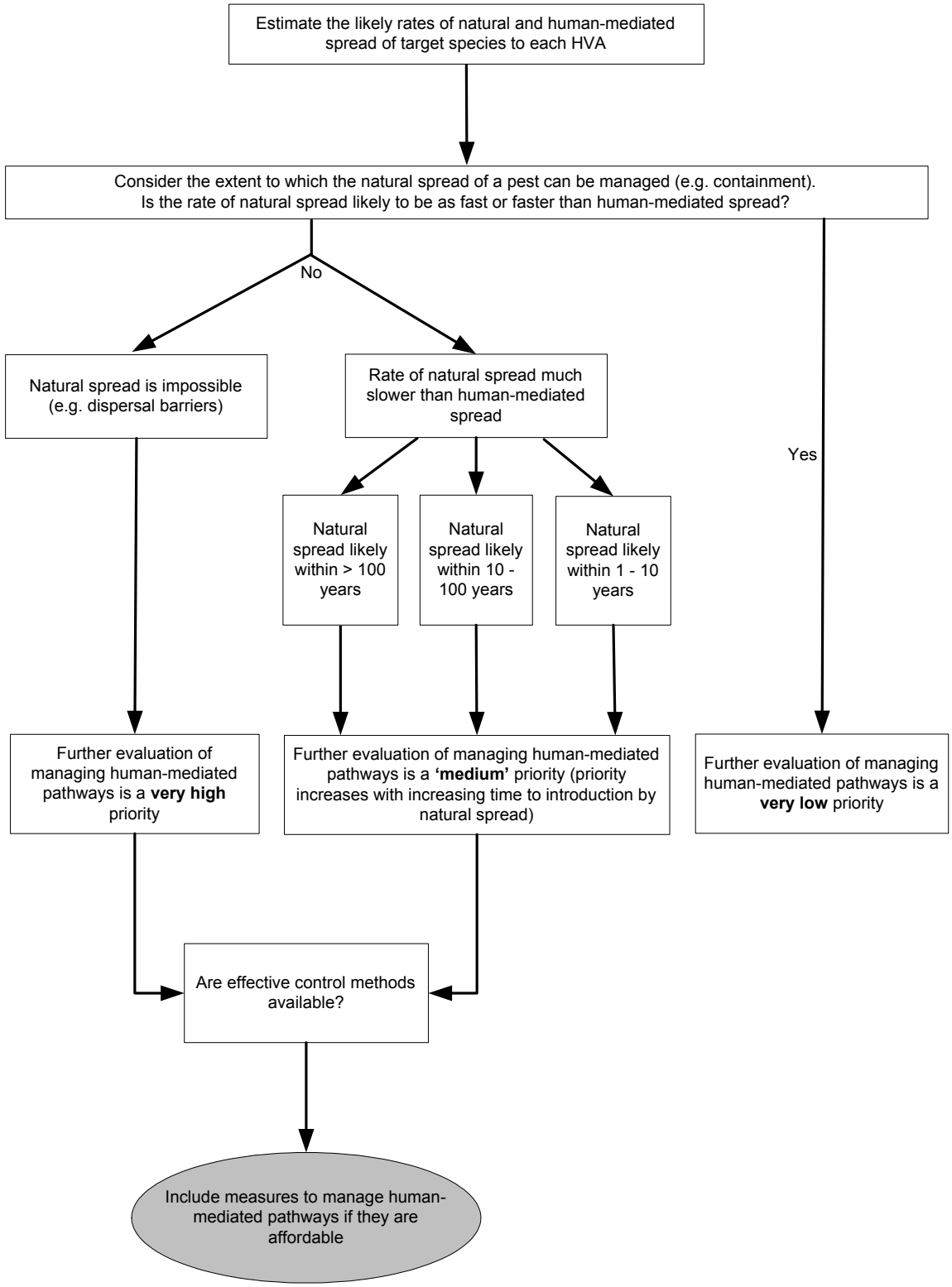
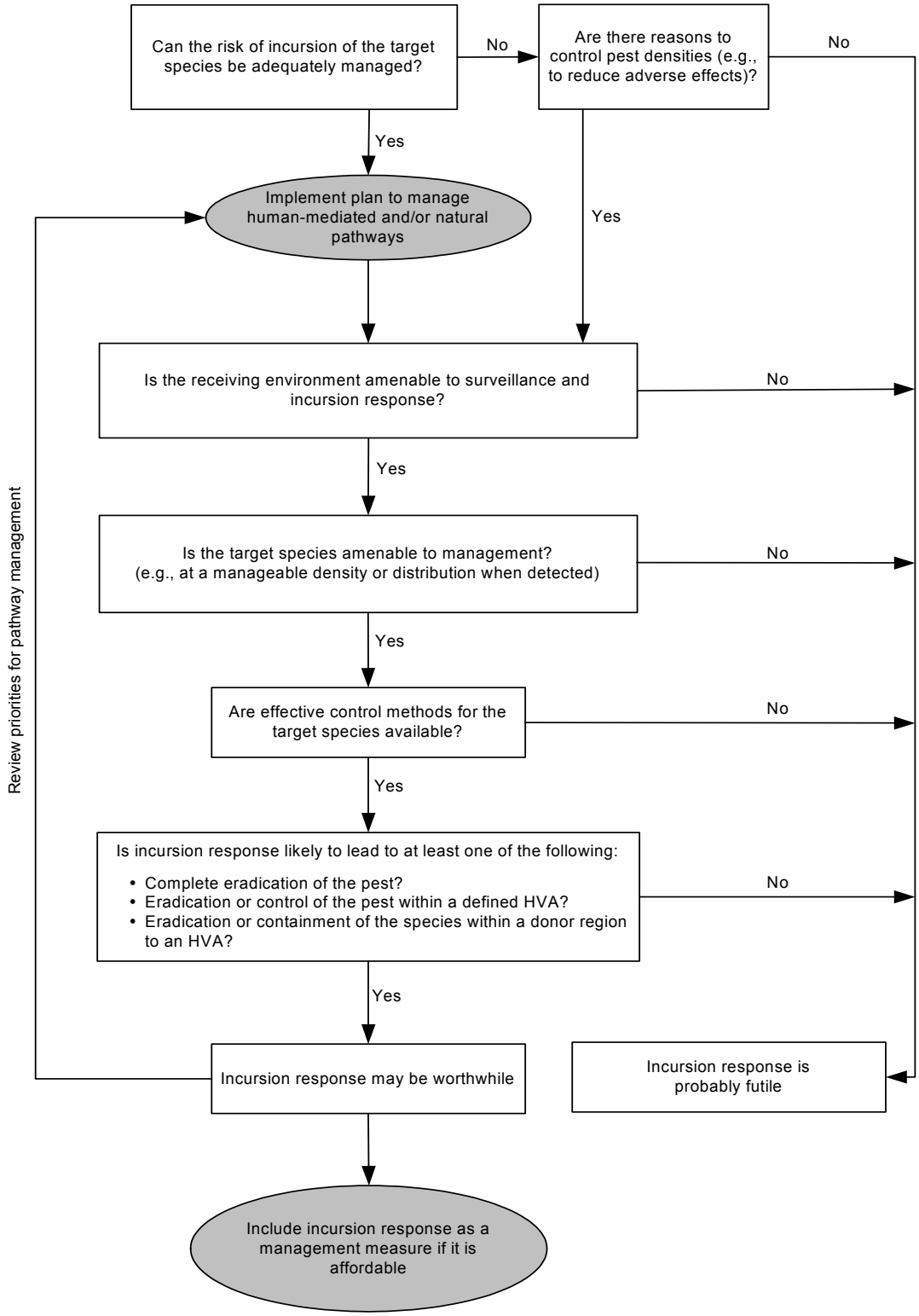

Estimate the likely rates of natural and human-mediated spread of target species to each HVA
Consider the extent to which the natural spread of a pest can be managed (e.g. containment). Is the rate of natural spread likely to be as fast or faster than human-mediated spread?
No
Yes
Natural spread is impossible (e.g. dispersal barriers)
Rate of natural spread much slower than human-mediated spread
Natural spread likely within > 100 years
Natural spread likely within 10 - 100 years
Natural spread likely within 1 - 10 years
Further evaluation of managing human-mediated pathways is a **very high** priority
Further evaluation of managing human-mediated pathways is a **'medium'** priority (priority increases with increasing time to introduction by natural spread)
Further evaluation of managing human-mediated pathways is a **very low** priority
Are effective control methods available?
Include measures to manage human-mediated pathways if they are affordable

Figure 2. Decision tree for considering whether incursion response for existing and potential pests is likely to be worthwhile (reproduced from Forrest *et al*. 2006).



2.2 Clarify roles and responsibilities

Next, a Roles and Responsibilities Workshop will be conducted with representatives from BNZ, regional councils and other key stakeholders. This workshop will aim to clarify the roles and responsibilities around each of the key priorities for biosecurity management in Nelson-Tasman, Marborough and Gisborne Districts, as determined under section 2.1 above. The workshop will draw on initiatives already being undertaken by BNZ, regional councils and marine stakeholders; e.g. the Central/Regional Biosecurity Forum and the Fiordland Biosecurity Plan (see Appendices 4 and 5).

It is anticipated that as a result of different priorities between regions, a wide range of management scenarios will be presented for discussion. This should provide a comprehensive set of examples for clarifying roles and responsibilities not only in Nelson-Tasman, Marborough and Gisborne Districts, but also for the development of MBMPs in other regions in New Zealand. If resources allow, approximate budgets will be estimated for the various management scenarios to give participants an idea of costs associated with intervention.

The main outcomes from the Roles and Responsibilities Workshop will be:

1. Agreement on the roles and responsibilities of BNZ, regional councils and other key stakeholders around each of the key priorities for biosecurity management in Nelson-Tasman, Marlborough and Gisborne District.
2. Agreement between organisations and stakeholders on the best way to ensure information flow is rapid and effective.

For this project to succeed it will be necessary to obtain the support and participation of BNZ, regional councils and other key stakeholders. Therefore, it is important to agree on a "responsibility map" for these organisations which, for each of the key priorities, describes (1) the roles and responsibilities of each organisation according to relevant legislation (2) how the decision to act or not to act would be made and (3) when and by whom decisions would be made. In addition, it will be important to agree on how resources, including money, special supplies and equipment would be provided, allocated and maintained.

BNZ has a clear mandate to:

1) Detect new pests and diseases,

2) Conduct baseline monitoring programmes,

3) Respond to detections of new species,

4) Manage pests of national importance.

BNZ takes responsibility for new incursions into New Zealand (even if no funding is available to act). Moreover, they have wide-ranging powers in the case of an incursion to prevent the spread of an invasive species e.g. closing ports, restricting shipping movements, destruction of infected material, etc.

At the regional scale, the Biosecurity Act (1993) places certain rights and responsibilities on regional councils. Every regional council has, in relation to its region, power to monitor pests,

pest agents, and unwanted organisms to determine whether or not they are present and, if present, conduct a monitoring programme. Councils can also provide for the assessment and management of pests by preparing pest management plans and can declare and implement small-scale management programmes.

A key focus of the MBMPs will be to clarify responsibilities for (1) managing incursions for species that are not necessarily new to New Zealand, but are new to the region and (2) species that are established but are not in the region, and pose a risk to nationally significant values within or beyond the region. Good decision-making will also require well defined lines of communication between the organisations concerned.

The development of an effective communication strategy will be another focus of the Roles and Responsibilities Workshop, so that information can be effectively collected and disseminated to other marine stakeholders.

2.4 Recommendations

Findings from the Regional Workshops, and the Roles and Responsibilities Workshop will be further analysed to develop MBMPs for Nelson-Tasman, Marlborough and Gisborne Districts.

The information in each MBMP will include (1) identification of values at risk from invasive species (2) identification of the high-risk species, invasion pathways and associated vectors (3) prioritised actions for enhancing marine biosecurity management (4) agreed roles and responsibilities of the organisations concerned including clear lines of communication between organisations and (5) a communication strategy.

A key role of the MBMPs will be the early detection of target pests so that the relevant agencies have the ability to respond rapidly with practical and cost-effective tools. The earlier and faster a management operation against a potentially harmful species can be decided upon and carried out, the more likely it is to succeed. Thus it is important not only to develop a response plan, but to regularly test it (e.g. simulation exercises), thereby ensuring that staff members of participating organisations become thoroughly familiar with current methods of managing potential invasions and with their respective roles in the process.

The intention would be to assist BNZ and regional councils to fulfil their roles and responsibilities in a more co-operative and seamless fashion. The basic structure of the MBMPs will be based around Forrest et al (2006) and BNZ's existing risk management frameworks, but might also incorporate comparable management frameworks such as the national Civil Defence Emergency Management Plan.

A communication strategy aimed at other marine stakeholders (e.g. fishers, divers and tourists) will also be developed for each region. These will inform stakeholders about the threat of harmful marine organisms in each region, and of relevant aspects of the MBMPs. Another objective of the communication strategy is to gain the support and participation of these groups to ensure the ongoing development of MBMPs and effective marine biosecurity management at a regional level in the future.

3. TIMETABLE

TASKS	DATE
Prepare project proposal	Sep 06
Meeting with Tasman/Nelson Councils	Oct 06
Meeting with Marlborough District Council	Oct 06
Meeting with Gisborne District Council	Oct 06
Meeting with Biosecurity New Zealand	Oct 06
Receive project funding	Nov/Dec 06
PHASE 1:	
Regional Workshop preparation	Dec 06
Conduct Tasman/Nelson Regional Workshop	Jan/Feb 07
Conduct Marlborough Regional Workshop	Jan/Feb 07
Conduct Gisborne Regional Workshop	Jan/Feb 07
Analyse and report on results from 1st workshops	Apr 07
PHASE 2:	
Conduct Roles & Responsibilities workshop	Jun/Jul 07
PHASE 3:	
Analyse results from 2nd workshop and prepare recommendations for regional MBMPs	Sep 07

4. BUDGET

PHASE 1	
NELSON-TASMAN REGIONAL WORKSHOP	$14,600
MARLBOROUGH WORKSHOP REGIONAL WORKSHOP	$14,600
GISBORNE WORKSHOP REGIONAL WORKSHOP	$16,400
REPORT WRITE-UP	$10,500
SUBTOTAL	$56,100

PHASE 2	
ROLES AND RESPONSIBILITIES WORKSHOP	$30,950

PHASE 3	
FINAL REPORT AND RECOMMENDATIONS	$46,700

TOTAL	**$133,750**

5. REFERENCES

CSIRO (1999). Introduced Marine Pests. C. M. Research. Australia.

Forrest, B. M., Taylor, M. D. & Sinner, J. 2006. Setting priorities for the management of marine pests using a risk-based decision support framework: rationale and key considerations. In*: Ecological Studies Vol. 186; Biological Invasions in New Zealand*, Springer-Verlag. R. B. Allen and W. G. Lee (Eds). pp 389-405.

Lewis, P. N., Hewitt, C. L., Riddle, M. & McMinn, A. 2003. Marine introductions in the Southern Ocean: an unrecognised hazard to biodiversity. *Marine Pollution Bulletin 46(2)*: 213-223.

Parkes, J. & Murphy, E. 2003. Management of Introduced Mammals in New Zealand. *New Zealand Journal of Zoology 30*: 335-359.

Ruiz, G. M., Carlton, J. T., Grozholz, E. D. & Hines, A. H. 1997. Global invasions of marine and estuarine habitats by non-indigenous species: mechanisms, extent and consequences. *American Zoologist 37*: 621-632.

APPENDIX 1:

Workshop participants

Participating groups for each workshop would fall into four main categories:

1. Those with statutory roles and responsibilities under the Biosecurity Act 1993. These include:
   - BNZ – lead agency responsible for marine and terrestrial biosecurity
   - Territorial Authorities and Regional Councils who have responsibilities within the coastal marine area.
     - Tasman District Council
     - Nelson City Council
     - Marlborough District Council
     - Gisborne District Council

2. Those with responsibilities or rights under other relevant acts, treaties, conventions and consents.

   - Dept of Conservation (DOC)
   - District Health Boards
   - Maritime Transport Division (Ministry of Transport)
   - Iwi
     - Te Tau Ihu o Te Waka a Maui (Top of the South)
     - Ngate Konohi (Gisborne)

3. Organisations or industries having a direct economic involvement in marine biosecurity.

National organisations or industries

- Stevedoring Services Limited (SSL)
- PNL Shipping Services Manager/Harbourmaster
- Shipping Industry Representative and/or shippers (i.e. Logging companies)
- Recreational fishers
- Commercial fishers
- Aquaculture industry
- Tourist organisations

Nelson/Tasman :

- Port Nelson Ltd
- Port Nelson Environment Consultative Committee Biosecurity Working Group

Marlborough

- Port Marlborough NZ Ltd

Gisborne

- Eastland Port Limited
- Gisborne Commercial Fisherman's Association
- Te Tai Nui Ltd
- Mount Maunganui Seafoods Ltd
- Gisborne Tatapouri Sports Fishing Club
- East Coast Marine Users Association
- Gisborne Surf Casting Club
- Gisborne Underwater Club

4. Public interest groups and non-governmental organisations (NGOs) with a direct concern for the coastal marine area:

National public interest groups and NGOs

- New Zealand Forest and Bird Society

Nelson/Tasman

- Friends of Nelson Haven & Tasman Bay

Marlborough

- Myths and Legends Ecotours

Gisborne

- Earth Centre

APPENDIX 2:

Current pathways for marine pests to/from Port Nelson				
Pathway	Exposure	Existing management	Residual risk	Information sources
Ship's ballast water and sediments	High	Mid-ocean ballast exchange.	Moderate	MFish Ballast database. Port Co.and Customs shipping data. Cawthron's Shipping Explorer risk model.
Ship's hull fouling	High	Dry dock cleaning and anti-fouling.	Low-Moderate	No specific information available. Port Co.and Customs shipping data. MFish Ballast database. Cawthron's Shipping Explorer risk model.
Ship's sea chests	High	Dry dock cleaning and anti-fouling. Some cathodic & heat treatment systems (e.g. Pacifica Shipping).	High	No specific information available. Port Co.and Customs shipping data. MFish Ballast database. Cawthron's Shipping Explorer risk model.
Ship's anchors, chains and lockers	Moderate	Possible rinsing prior to departure from source ports.	Moderate	No specific information available. Port Co.and Customs shipping data. MFish Ballast database. Cawthron's Shipping Explorer risk model.
Recreational vessel hull fouling	High	Hull de-fouling, maintenance and anti-fouling	Moderate-High	Port Co., Marina and Slipway Co. data. MFish project on Undaria pathways.
Hull fouling on active slow moving vessels (e.g. barges on regular routes)	Low	Hull de-fouling, maintenance and anti-fouling	Moderate	Port Co. and Barge Co. data.
Hull fouling on inactive slow moving vessels (e.g. platforms; stationary barges).	Low	Hull de-fouling, maintenance and anti-fouling	High	Port Co. and Barge Co. data.
Fishing and other (e.g. recreational) vessel bilge water	Low	None	Low-Moderate	No specific information available. Port Co. and Fishing Co. data.
Fishing vessel and other general (e.g. Port Co. vessels) hull fouling	Moderate	Hull de-fouling, slip maintenance and anti-fouling	Moderate-High	Port Co., Fishing Co. and Slipway Co. data.
Fishing vessel nets, bait and equipment	Low-Moderate	Land based treatment (e.g. air drying).	Low-Moderate (parasites)	Fishing Co. data.
In water hull de-fouling and wharfside scraping	Moderate	None	High	No specific information available. Hull de-fouling Co.
Slipway effluent	High	Sump/filtration - under construction.	Moderate	Port Co. and Slipway Co. data.
Aquaculture transfers, vessels and associated equipment	Low	Transfer Codes of Practice. Golden Bay Undaria Management Plan. General maintenance and antifouling.	Low-Moderate	Port Co. and Aquaculture Co. data
Dredging/construction (disturbance)	High	None	Moderate	Port Co. data, monitoring/research
Prepared by Cawthron Institute for Port Nelson Biosecurity Subcommittee November 2002				

APPENDIX 3:

SUMMARY OF HERNANDO ACOSTA'S MARINE BIOSECURITY RISK ASSESSMENT MODEL FOR THE TASMAN-GOLDEN BAY REGION

The main objective of this project is to develop a risk assessment model for marine invaders in the Tasman-Golden Bay region. It is anticipated that this model will be used by managers and scientists as part of the initial step in the development of a Marine Biosecurity Management Plan in this area.

The project has been developed following three consecutive steps. The first step has been the identification of different invasion pathways in the area. Then, these pathways have been characterised using main components and processes as modelling units. Finally, the models of the pathways have been designed and implemented.

At least 12 invasion pathways have been identified in the study area so far. Invasion pathways in the region can be divided into two general categories: Natural and Human-mediated. Natural pathways are limited to natural dispersion of organism by waves and currents. Human-mediated pathways are formed by two main groups: Shipping (which can be commercial and recreational) and Non-shipping. A total of 6 Non-shipping pathways have been identified in the study area, with aquaculture and the seafood industry being the most important ones. However, as most of the pathways overlap with each other, the importance of other pathways (e.g. research, public aquaria) in the spread of invaders in the area cannot be underestimated.

The recreational boating pathway has been chosen as the focus of the project. This pathway has been characterised into 3-components: 1) Vessels 2) Recreational routes and 3) Subregions. The locations of marine structures (e.g. marinas, wharves) are those areas usually visited by recreational boaties, hence structures have been used as the modelling units for the Subregions component.

The components of the recreational boating pathway have in turn been characterised based on their role in the spread of invasive species within the region. Vessels have been divided into moored and trailer vessels because of their differences in hull fouling risk. Recreational routes have been characterised based on the frequency of use of recreational boating pathways. Similarly, structures have been characterised based on the type, location and usage frequency. This characterisation has been used to risk rank Subregions in the study area.

Based on the Failure Mode and Effect Analysis technique, which is widely used in industrial reliability and risk assessment projects, a Risk Priority Number (RPN) has been calculated for each Subregion. The RPN has been defined as the product of the terms Probability of Infection, Connectivity and Detectability. Probability of Infection refers to the likelihood of invasion for a particular Subregion. Connectivity is a spread factor that

defines how well-connected that particular Subregion is to the other Subregions. Detectability defines how likely an infection will be detected in the Subregion. Probability of Infection and Detectability have been estimated using data from regional councils and expert opinion. Connectivity has been estimated using data collected for this study on the pathways in the study area. The final output of this approach is a RPN list for the marine structures (Subregions).

The main benefit of the RPN modelling approach is that it is generates a comparative number based on currently available information. This provides biosecurity managers with a tool for the rational prioritization of risks in the study area such as locations for targeting surveillance and control activities, and for identifying knowledge gaps and research needs.

The RPN modelling approach can be applied in other regions of the country. It can be applied to other human-mediated pathways enabling comparisons between pathways, and with predictions of natural spread; e.g. oceanographic modelling.

This PhD project is being undertaken at the Auckland University of Technology, and is supported by the Cawthron Institute and funding from the New Zealand Foundation for Science, Research and Technology.

APPENDIX 4:

CENTRAL/REGIONAL BIOSECURITY FORUM

[From: http://www.biosecurity.govt.nz/bio-strategy/strategic-unit/forums/central-regional-tor.htm]

Purpose of the Central/Regional Biosecurity Forum (

1. The purpose of the Biosecurity Central/Regional Government (BCR) Forum is two-fold:

- Improve coordination and collaboration across central and regional government biosecurity agencies; and
- Provide support to the Director General of Ministry of Agriculture and Forestry (MAF) that enables effective end-to-end management of the biosecurity system.

The forum will have a clear focus on matters at the boundaries of central and regional government responsibility.

2. The Director General of MAF has no direct control over the biosecurity activities of regional councils. Collegial relationships and cooperation across central and regional government agencies are fundamental to effective end-to-end management of the biosecurity system.

3. The ability of government as a whole to achieve its desired biosecurity outcomes can be strengthened through quality and common direction-setting, clear arrangements (accountabilities, roles, responsibilities and funding), better information flow and positive collaboration across central and regional government agencies.

4. The BCR forum will principally operate on a top down basis. It will set a work programme that addresses matters of key interest to its membership. That work programme will be coordinated/ managed by a technical working group.

Responsibilities

5. The BCR forum will focus on strategic issues including:

- contributing to development of strategic direction for biosecurity, including identifying significant and emerging issues, specifying outcomes, establishing priorities, identifying research needs, and advising on resource requirements;
- contributing to monitoring and improving biosecurity system performance, with particular focus on components that directly impact on regional government accountabilities;
- monitoring the performance of key central/regional government initiatives (such as the National Pest Plant Accord);

- identifying other key opportunities to improve coordination and alignment of work programmes across central and regional government;
- identifying opportunities to improve or jointly develop capability, including opportunities to leverage off existing agency capabilities;
- ensuring there are clear accountabilities, roles, responsibilities and funding arrangements across central and regional government, including any purchase of biosecurity services from regional councils;
- identifying issues and improvements to the regulatory framework for biosecurity, where these facilitate the pest management activities of regional councils (e.g., provisions under the Biosecurity Act) or the Crown's biosecurity activities (e.g., meeting provisions in the Resource Management Act to facilitate incursion response);
- ensuring the biosecurity system appears seamless to the public and delivers clear and consistent messages; and

Accountabilities

6. The Director General of MAF will provide the leadership and coordination necessary to ensure effective biosecurity outcomes in the regions (i.e. ensure the legislative framework facilitates regional scale management, ensure accountabilities, roles, responsibilities and funding arrangements are clear etc.) As the chief executive is accountable for end-to-end biosecurity, the Director General of MAF will:

- ensure the effective operation of the forum;
- provide advice on behalf of the forum to relevant Ministers (this will not restrict any other chief executive from providing independent advice to their Minister or Mayor);
- ensure information is provided and exchanged openly; and
- ensure delivery of the biosecurity programme in line with agreed strategy.

7. The chief executives of the Ministry of Fisheries (MFish), the Ministry of Health (MoH), Land Information New Zealand (LINZ), the Department of Conservation (DOC) and regional councils will support the Director General of MAF. They will do this by contributing to the formulation of strategic goals for the biosecurity system, monitoring of systems performance against the outcomes specified, and work together to achieve the purpose of the forum.

8. The Director General of MAF may also purchase certain biosecurity services from the other central and regional government agencies.

Membership

9. The BCR forum will comprise the chief executives of MAF, MoH, MFish, LINZ, DOC and all regional council chief executives by way of general invitation. Chief executives may delegate a nominee to attend the forum in their absence.

Frequency and Reporting

10. The BCR forum will meet at least twice every year in the context of the Chief Executives Environment Forum, and will report back to all chief executives during the Chief Executives Environment Forum.

Secretariat

11. The secretariat for the BCR forum will be provided by the Biosecurity Strategic Unit.

12. All papers will be circulated at least one week prior to meetings. All agencies will have an opportunity to comment on substantive papers before they are circulated.

APPENDIX 5:

FIORDLAND BIOSECURITY PLAN

[From: Biosecurity. 2005. A publication of Biosecurity New Zealand. 1 November 2005 *Issue 63*]

A partnership to protect Fiordland's marine environment

Biosecurity New Zealand is working in partnership with the other government agencies and the Fiordland Marine Guardians to protect Fiordland's unique marine environment from invasions of plants or animals.[1]

Invasive species could be introduced into Fiordland's waters on fouled boat hulls, fishing gear, dive gear, or other equipment. Efforts to improve Fiordland's biosecurity are part of the new, community-initiated Fiordland Marine Area and management regime. This initiative recognises that invasive species could be detrimental to Fiordland's special marine environment.

Fiordland's unique marine environment is created by the combination of high mountains, heavy rainfall and rainforest. Rain washes through the leaf litter on the forest floors and into the fiords, staining the surface waters a dark tea colour. The stained fresh water floats on top of the heavier seawater, creating a layer about three metres deep across much of the fiords. The huge reduction in light caused by this layer enables deep sea species like red and black corals and seapens to live at much shallower depths than normal.

Remarkably, Fiordland's rock wall communities are as diverse as coral reefs. Towards the fiord entrances, waves mix the fresh water with salt water and sea life begins to change. Here, seaweeds and a variety of organisms make up a diverse and productive coastal community.

Fiordland's vast size and seemingly robust nature do not fully protect it from the impacts of increased human access. In 1995, some concerned locals, prompted by changes they saw occurring in Fiordland, formed a community group (the Guardians) with the following vision: "That the quality of Fiordland's marine environment and fisheries… be maintained or improved for future generations to use and enjoy."

Members of the Guardians included commercial and recreational fishers, environmentalists, charter boat and

[1] In 1995 a community group formed called the Guardians of Fiordland's Fisheries and Marine Environment. This group proposed an integrated approach to managing Fiordland's fisheries and marine environment. The Fiordland Marine Management Act 2005 renamed the group the "Fiordland Marine Guardians" and formally established the group as a statutory body.

tourism operators, scientists, community representatives and tangata whenua.

The Guardians consulted with a wide range of people who work and play in Fiordland about how management of Fiordland's marine resources might be improved. The Guardians then proposed a package of management changes designed to ensure the sustainability of Fiordland fisheries and better care of the marine environment.

In April 2005, the Fiordland Marine Management Act established the Fiordland (Te Moana o Atawhenua) Marine Area and a set out a management regime to bring the Guardians' vision for Fiordland into reality. The management regime entails a collaborative approach to management involving the Guardians, the Department of Conservation, the Ministry for the Environment, Environment Southland, and Biosecurity New Zealand.

The new approach to managing Fiordland's marine environment allows for both sustainable use and protection, with measures tailored to Fiordland's different habitats and needs. The measures are the result of a "gifts and gains" style of negotiation between groups that resulted, for instance, in commercial, customary, and recreational fishers voluntarily agreeing to stop fishing in certain areas. The Guardians selected these areas for the value of their habitats and marine life. These areas now form eight new marine reserves.

To address the risk of invasive species being introduced and establishing in Fiordland, the Guardians called for the development and implementation of a biosecurity plan. Biosecurity New Zealand secured funds from the Government to develop a biosecurity plan in collaboration with the Guardians and other Government agencies. Further funding will be required to implement the plan once it has been agreed.

Everyone who visits Fiordland can help protect this special part of New Zealand by doing the following:

- Clean your vessel's hull before entering the Fiordland Marine Area.
- Dispose of everything removed from the hull onto land.
- Clean fishing gear, dive gear, kayaks, and any other equipment that will enter the water before coming to Fiordland.
- If you suspect you have seen a plant or animal that is new to Fiordland, please phone 0800 80 99 66.

For more information about marine reserves in Fiordland, contact:

DOC Visitor Centre, Lakefront Drive, Te Anau, 03 249 7921.

For copies of marine recreational fishing rules and other fishing information, contact:

Ministry of Fisheries on 0800 4 RULES (0800 478 537).

The material for this article was adapted from a publication prepared by Biosecurity New Zealand, the Department of Conservation, Environment Southland, the Fiordland Marine Guardians, and the Ministry for the Environment.

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