

Top of the South Island Marine Biosecurity Partnership



**Operations Manual
Version 2.2
November 2011**

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1. Introduction

Purpose

The purpose of this manual is to provide member organisations of the Top of the South Marine Biosecurity Partnership with the core information needed to implement their agreed Strategy.

Structure of Manual

This manual has eleven sections as listed in the table of contents. Each section starts with its purpose and additional detail is provided as necessary. There are a number of appendices and these contain information that supports the sections of the manual. Where additional information is available but not critical to the manual, there are footnotes in the document, some with links to websites for further detail.

How to use this Manual

The manual contains details on proposed actions to be undertaken by the regional coordination team with the support of the partnership, namely the risk management framework, engagement plan, capability building system and the surveillance plan. The vector management plan for vessels outlines management actions for the partnership to consider and undertake.

In the event of the detection of a damaging organism in the Top of the South, then the incursion response plan would be followed. It summarises actions that need to be undertaken during an incursion and also provides the things that need to be considered when making decisions. Decisions guides are in the supporting appendices to aid in the decision making process to ensure all important information has been collected and is considered.

Document control

Version:

Version 1.1 August 2010 Created by Mincher Campbell as TOS Operational Strategy and Plans

Version 2.1 25 October 2011 Created by Peter Lawless of The Lawless Edge Ltd

Version 2.2 17 November 2011 Revised by management committee (8 Nov)

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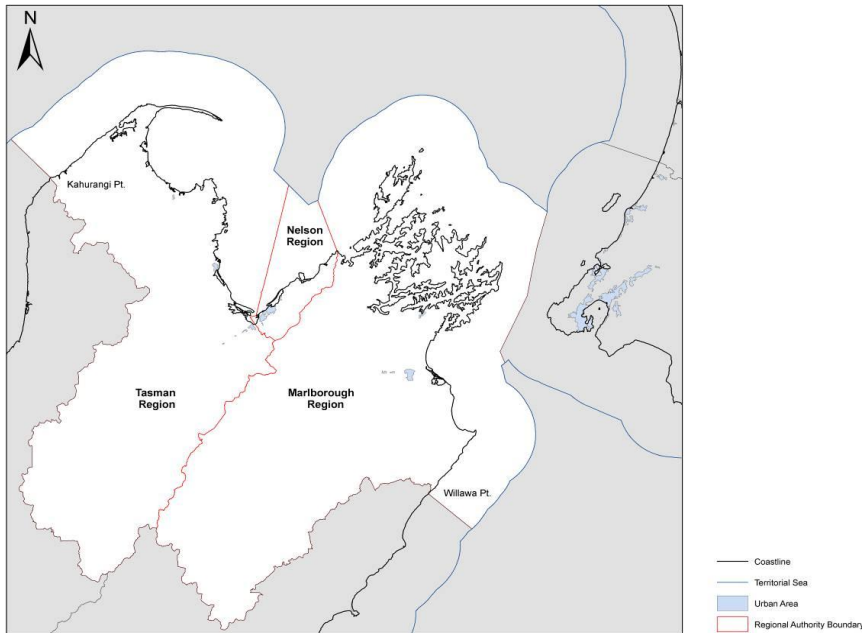
Updating:

- All suggestions for updating this manual will be made to Dave Rees Manager of the Coordination Team.
- All suggestions will be reported to the Management Committee by the Coordination Team together with recommendations for revisions at least twice per calendar year.
- The Management Committee will decide on any changes.
- A revised manual with the approved updates will be distributed as PDF files to the people listed above within one week of Management Committee decisions.

Scope

The Top of the South (“TOS”) is the area within the regional boundaries of the Tasman District Council, Nelson City Council and Marlborough District Council. Each of the three councils is a unitary authority and has the powers and functions of both district and regional councils. The council regions include the sea out to 12 nautical miles¹ which is known as the coastal marine area (“CMA”).

¹ Apart from Cook Strait where the boundary is closer to shore - refer to map above.



Geographic scope - The Top of the South is the coastal marine area within the regional boundaries of the Tasman District Council, Nelson City Council and Marlborough District Council and extending into the EEZ where required to deal with cross boundary issues or integration with national processes.

Inclusions - any activity that will reduce risks from harmful marine organisms in the Top of the South Island.

Exclusions - this manual does not replace any plan, procedure or process of MAF that deals with national border management or national responses but does include the creating readiness and capability in the region to support such activities. The manual also cannot override any statutory documents, plans and procedures of the partner organizations. The manual may, however, include actions to coordinate and harmonise such things.

Definitions and abbreviations

CMA - Coastal Marine Area; that part of the Territorial Sea falling within the boundaries of the Tasman, Nelson and Marlborough districts

DOC - the Department of Conservation.

MAF - the Ministry of Agriculture and Forestry (includes what was previously MAF Biosecurity New Zealand)

Management Committee - The funding partners plus an iwi representative. Tasman District Council, Nelson City Council, Marlborough District Council, MAF and a nominee of the Te Tau Ihu Customary Fisheries Forum

MDC - Marlborough District Council

NCC - Nelson City Council

Regional Coordination Team - Contractors from The Lawless Edge (Peter lawless, Dave Rees, Matt Molloy, Sterling Cathman & Simon Graves)

Partnership - The Top of the South Marine Biosecurity Partnership

Strategic Plan - the TOS Marine Biosecurity Strategic Plan revised and updated as at September 2011.

TDC - Tasman District Council

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For stakeholders and media contacts see Appendix 4

2. Risk Management Framework

2.1 Purpose

This section describes the risk management framework that underpins all implementation of the Top of the South Marine Biosecurity Strategic Plan.

2.2 Issues

- Risk analysis proposed by Cawthron was based on species, resource values and vectors. The issues with this are the cost of information gathering to populate the model and high levels of information uncertainty.
- The risk analysis work done by Mincher Campbell was based on expert opinion. While the results have utility they have not been usefully applied in subsequent work.

An analysis of past incursions gives a useful risk analysis as by definition these are the most probable vectors. The review of existing information on marine biosecurity in the top of the South Island, Morrissey and Millar 2008 (p39), states that of the 19 non-indigenous species found in Nelson 68% were most likely associated with hull fouling, 5% with ballast water, 5% with drifting plastic and 22% with hull fouling or ballast water.

Mincher Campbell concluded that vessels acting as vectors for marine risk organisms present the greatest risk to the region and are the highest priority for management. These included aquaculture and slow moving vessels. International vessels are an important vector for consideration as are abandoned vessels.

2.3 Solution

Integrate all action under a risk management approach that:

- Is practically useable at the regional level.
- Immediately reduces obvious risk for all high consequence high probability risks for which management approaches exist.
- Broadens the information base beyond local knowledge.
- Includes learning loops that allow initial risk reduction to be amplified.
- Is scalable and transferable for application elsewhere in NZ.

Proceed from working hypotheses and revise these on the basis of action research.

Current hypotheses are that:

- The current limiting factors are incomplete, disconnected processes and cultural and organisational barriers. Capacity and capability are also limiting factors.
- Some of the currently recognised risks can be substantially reduced by practical action.
- A structured approach to two-way communication and systemic analysis of information gathered will allow identification of barriers to risk reduction.
- Development and testing of a systems map will help identify and resolve bottlenecks.

The overall approach for the next two years is shown in Figure 1 below. Note that the whole approach focuses on risk reduction.

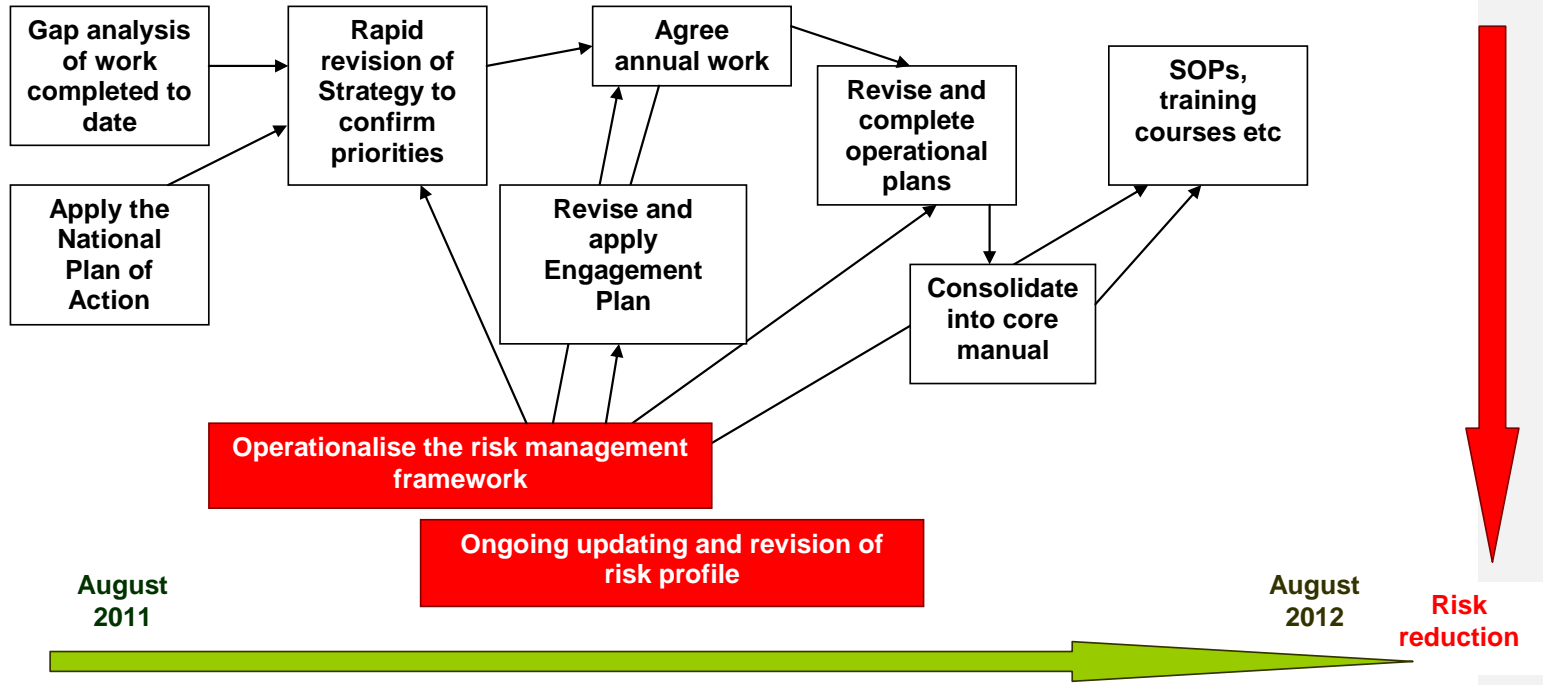


Figure 1 - Overall approach to risk reduction 2011 to 2013

The steps are to:

1. Engage immediately with the two top recognised risk industries (barges and marine farming) to identify and resolve barriers to risk reduction.
2. Map with system owners and operators how the current system is supposed to work.
3. Document how the systems actually work by using the engagement processes and manual development work as information gathering systems.
4. Create a logging system for all incidents and near misses.
5. Analyse the results and work further with system owners and operators to understand the system and how to improve it.
6. Resolve bottlenecks and look for improvement or new bottlenecks.
7. Document all relevant risk, systems and organisational information that becomes available to allow the current risk analysis to be further developed and populated.
8. Gather information from other places to identify current and emerging risks not yet recognised by local knowledge holders.
9. Firmly link all this to the engagement processes and development of systems and procedures.

The products of this approach will be:

1. A progressively more accurate systems map.
2. A register of broken systems and steps taken to fix them, named the systems fault register and present in Appendix 2.
3. A register of incidents and near misses (Appendix 3).
4. Fixed systems and recommendations to others with the power to act to fix systems.
5. A log based on the results of engagement which will allow the analysis of all conversations.
6. An integrated operations manual for the Management Committee.

3. Engagement Plan

3.1 Purpose

The purpose of this section is to create engagement processes to reduce marine biosecurity risk in the Top of the South region

3.2 Issues

- Individuals and organisations have differential capacity and responsibilities to reduce risk.
- The people and organisations that have the ability to institute change are poorly mapped.
- Entrenched behaviour is hard to change but will be a key to effective risk reduction.

3.3 Solution

Engagement will involve a two way transfer of information that supports the systemic¹ risk reduction process described in section 2. This will be structured to generate an organisational learning culture to support ongoing system improvement.

Our core propositions for engagement are that:

- Beneficial and sustained behaviour change will occur only when knowledge, incentives and capability are all present.
- Undertaking conversations will initiate systemic improvement.
- Conducting structured analysis of the information recorded in conversations will yield intelligence on actual system functioning (noting that this is necessary but not sufficient for risk reduction as it needs to be associated with information and data from other sources).
- Understanding system dynamics will allow identification of interventions that correct current system dis-function.

The approach will be structured to generate on-going dialogue with those with the capacity to act to reduce risk. The coordinators will gather and analyse information on risks, opportunities, systems, processes, and aspirations of regional knowledge holders and stakeholders.

¹ Systemic refers to all facets of the functioning or processes, people, and resources involved in managing marine biosecurity risk.

The engagement process will link to processes conducted with the Management Committee that will allow appropriate system analysis to be undertaken. The Coordinators will create learning loops with key informants to include them in the process of improving the marine biosecurity system to reduce risk. This process will be inclusive and direct, empowering stakeholders to become part of the solution.

3.4 Key messages

- ✓ We need co-operation and commitment from all interested parties.
- ✓ Some systems aren't working and our region is at risk.
- ✓ We need to protect our marine environment and our marine based economies.
- ✓ Behaviours need to change.
- ✓ We can do it!

3.5 Sequence for engagement

Effort will be sequenced on the basis of stakeholder's differential capacity to reduce risk and their preparedness to engage. The sequence for engagement will be:

- i. Management committee.
- ii. Rest of partnership, port companies, governing bodies, those accountable for parts of the systems (Chief Executives, middle and senior managers), harbour masters, MAF, DOC, NIWA, Cawthron Institute, tangata whenua iwi, and aquaculture industry.
- iii. Marine farms and barge operators as identified by the risk framework. Also Commercial fishers, commercial shipping, charter boats, tourism.
- iv. Contractors, marine maintenance, local marine industry
- v. Recreational, boaters, fishers, divers, residents, advocates and educators
- vi. Media

3.6 Media Management

Media statements and interaction with media involving the policies, responsibilities and profile of MAF will be made or approved by Lou Hunt.

Media statements and interaction involving the policies, responsibilities and profile of the Councils will be made or approved by Paul Sheldon, Dave Grueber or Lindsay Vaughan.

Media releases and interaction designed to raise public awareness of marine biosecurity risk and how to reduce it will be made by Peter Lawless, Sterling

Cathman or Simon Graves and approved by the appropriate person (e.g. MAF for national issues, Councils for local issues).

Contact details for local media are in Appendix 4.

3.7 Spokespeople:

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4. Capability Building System

4.1 Purpose

The purpose of this section is to identify the gaps in current TOS marine biosecurity activities and establish a coordinated approach to closing these gaps

Analysis of the results from the engagement plan will enable the gaps to be identified and filled. This will lead to enhanced local marine biosecurity capability.

4.2 Issues

Current issues preventing effective capability building are that:

- The level and nature of acceptable residual risk has not been established with the system owners and operators.
- There is no register and no analysis of incidents and near misses.
- The current system and its capability have not been analysed.
- The gaps have therefore not been documented.
- The capability required to achieve acceptable residual risk is therefore not known.

4.3 Solution

Develop an agreed capability building system to implement the Strategic Plan once the risk management work described in section 2 is sufficiently advanced.

The risk management work:

1. Will analyse and document the current system including its capability in risk reduction. This links into the engagement activities.
2. Identify and fix broken elements or refer them to levels where they can be resolved.
3. Allow analysis of risk types and pathways and enable an order of magnitude estimate to be made of the residual risk after fixes under item 1.
4. Provide sufficient information to structure a discussion with system owners and operators on types and levels of acceptable residual risk.

The capability building system will identify the actions and resources required to achieve the risk reduction required by the system owners and operators. This will allow an iterative discussion to match resource requirements and acceptable residual risk. Resource availability will be summarised in Appendix 4.

5. Surveillance Plan

5.1 Purpose

The purpose of this section is to create aligned surveillance of vectors and of the Coastal Marine Area (CMA) to identify incursions early.

The earlier a response occurs to an incursion by a marine risk organism, the more successful and less costly the desired outcome is likely to be. Early detection allows for rapid, informed incursion response decision making.

The purpose of surveillance in TOS is to identify, sample where appropriate and report:

- Known or suspected marine risk organism incursions, and
- Vessels and behaviour which are of concern as presenting a heightened marine biosecurity risk for example derelict vessels entering ToS without notification or approval.

5.2 Issues

- Limited official surveillance undertaken
- Findings often take time to reach official channels/notification
- Limited organism identification knowledge among wider marine community
- Multiple stakeholders in marine biosecurity not necessarily talking to each other or working collaboratively
- Vast untapped resource of marine users may be available to assist with passive surveillance

5.3 Solutions

This section links to the risk management framework and the engagement section. The main activities to be undertaken are:

- Undertake a surveillance review.
- Train and focus existing partners to identify and respond to marine risk organisms and high risk behaviour by vessel owners and operators. This is an ongoing process and will be undertaken as opportunities arise such as partnership meetings.
- Enlist and resource members of the TOS marine user community to assist with surveillance in the CMA.
- Work with the Marine Farming Association to promote a system of stock and equipment checking.
- Promote 0800 hot line and recreational reporting (MAF Pest and Disease Hotline 0800 80 99 66).

These activities can be undertaken by the coordination team while gathering information for the risk management framework. Mincher Campbell engaged with a number of agencies and people as part of the previous contract. These networks and links will be followed up and where possible, enhanced.

The actual process for this is further outlined in the action part of this section.

5.4 Actions

Formal surveillance in the TOS region already occurs through MAF operated programs. Its Quarantine Officers inspect vessels arriving in the region direct from overseas¹ and it also operates a targeted surveillance program² which includes surveys of several ports in TOS every six months. The MAF surveillance purpose is early detection of new to NZ high risk marine organisms.

MAF also operate a free Exotic Pest and Disease hotline (0800 80 99 66) for members of the public to report suspicious organisms and the Marine Invasive Taxonomic Service (MITS)³, a centralised identification service for marine risk organism samples.

The partnership has an important role to play in surveillance. Partners, their staff and contractors have duties that can take them into the water or in contact with those involved in removing vessels from the water. Such resources include Quarantine Officers, Harbourmasters, marina supervisors, DoC managers, scientific staff and the Marine Farming Association. It is important that these people are considering marine biosecurity as part of their day to day work. There may be opportunities to include biosecurity activities in operational contracts.

In addition there is a vast marine user community which is also well placed to assist with marine biosecurity surveillance. This includes divers, fishermen, marine farmers, commercial vessel operators, recreational fishing & yachting groups, environmental groups, marina berth holders and coastal residents.

All these groups and people will be encouraged to support the partnerships surveillance activities and in addition to checking their own vessels & equipment to report any unusual or suspect marine organism.

The steps to implement these actions are to:

1. Confirm resources each partner or stakeholder can contribute in respect to marine biosecurity surveillance.
2. Further discuss with the Marine Farming Association whether it can establish a system where marine farmers report the identity and level of any infestation of their crops and equipment during stock inspections and harvest.

¹ See <http://www.biosecurity.govt.nz/regs/ships>

² See <http://www.marinebiosecurity.org.nz/>

³ See <http://www.biosecurity.govt.nz/biosec/pubs-news/pubs/biosecurity/issue-85/marine-invasive-taxonomic>

3. Encourage and facilitate surveillance by commercial and non-commercial marine users. This will complement work being undertaken in the engagement and risk management actions of this contract.
4. Encourage and facilitate dive clubs to identify and adopt a high risk area for surveys.
5. Follow up on catch checking by net/pot/dredge users.
6. Offer basic level training and materials to assist with the identification of marine risk organisms to groups in the TOS marine community involved in biosecurity surveillance and such additional training, coordination and assistance as is practicable.
7. Undertake a desktop surveillance review upon completion of the risk reduction framework, with regard to surveillance needs, priorities and opportunities.

6 Vector Management Plan for Vessels

6.1 Purpose

This plan details the management actions which the Partnership will take to reduce the risk of the introduction and spread of marine risk organisms in the TOS region as a result of vessel operations.

This plan relates to all vessels and marine equipment which:

- arrive in the TOS region from other New Zealand locations, and
- travel within the region.

Biosecurity risks presented by vessels arriving in the region directly from an international point of departure are managed by MAF and are outside the scope of this plan. This plan does, however, include vessels which having previously arrived in New Zealand, subsequently make passage from another New Zealand location to the region or from one location to another within it.

6.2 Issues

- Vessel traffic to and within the TOS region is very high. The bulk of the CMA waters are sheltered and many businesses which utilise vessels are based here. The region also has a very high rate of recreational vessel ownership and is a destination for water-borne visitors and their vessels.
- The TOS marine biosecurity risk management framework has identified slow moving vessels and aquaculture as the principal vectors for the introduction of marine risk organisms to the TOS CMA. The same vectors enable the spread of marine risk organisms within the region.
- Differing vessel classes present differing marine biosecurity risks and management challenges. These differences are highlighted in the risk assessment framework in section 2 of this manual with aquaculture and slow moving vessels presenting the highest perceived risk. In addition old and abandoned vessels that are brought to the TOS are an increasing concern.
- Willingness of stakeholders to undertake necessary work when it may impact on time and resources with little obvious return.
- Surveillance of vectors is more important than surveillance of organisms and the marine environment alone.

6.3 Solutions

- Constantly refine and check the risk management framework to ensure maximum value from work undertaken.
- Engage with vessel owners and operators and discuss marine biosecurity (see risk management framework and engagement plan sections of the manual).
- Investigate incentives for moored vessels.
- Identify gaps in the regulatory framework for vector management.

6.4 Actions

There is a lot of existing information on vessel movements in NZ. This document draws on a substantial volume of information already available. In particular it references information on vessel movements in New Zealand including the TOS region (Hayden et al. 2009), vectors, risks and TOS ports (Morrisey and Miller 2008), options for managing biosecurity risks from recreational vessel hubs (Piola and Forrest 2009).

The capacity to operate vessels in a way that reduces or eliminates marine biosecurity risks is limited to the owners and operators of those vessels. Others have the ability to influence such as harbourmasters and marina operators. Statutory powers to compel risk reducing behaviour are limited and can take time to implement, such as marina occupation agreements and Resource Management Act provisions.

The tools effectively available to the Partnership to motivate vessel operators to exhibit the desired behaviour are; economic gain, personal moral obligation and/or peer pressure. Legislative options exist but need to be made readily available. In general terms, economic gain is activated by changing the commercial environment the vessel is operated in while activating personal moral obligation and peer pressure are achieved through communication and engagement strategies.

The steps to implement these actions are to:

1. Establish a dialogue with organisations in other regions which can impact on marine biosecurity⁴ and jointly advocate the establishment of a network of biosecurity organisations to cover the whole of New Zealand.
2. Identify operators of inter-regional voyaging class vessels and operators of fleets of vessels operating within the region to discuss regional marine biosecurity as it pertains to their vessels individually
3. Engage the aquaculture industry with a view to broadening their environmental code of practice to include provisions which will reduce the risks presented by movements of their vessels, equipment and stock.

⁴ e.g. other marine biosecurity partnerships and the Fiordland Marine Guardians

4. Engage with the representatives of commercial maritime operators to encourage and assist them to develop a marine biosecurity related code of practice.
5. Engage with local and regional organisations representing yacht and launch owners to encourage and assist them to develop a marine biosecurity related code of practice. It is reported that the Marina Operators Association has done work in this area and this could form the basis for discussion locally.
6. Visit marinas over summer months checking the level of vessel fouling and discussing marine biosecurity with owners.
7. Engage with marina operators to have questions addressing marine biosecurity risks included on arrival declarations.
8. Discuss options for other vessel cleaning and anti-fouling requirements and incentives with marina and port operators and assist them to implement them where support exists.
9. Support the use of Council ownership functions to improve control of fouled vessels using Council owned facilities in the TOS.

7. Incursion Response Plan

7.1 Purpose

The purpose of this plan is to ensure that an agreed process is in place for the management of any incursion by a marine risk organism.

This plan is designed to be used as a guide to ensure that the important decisions and actions are approached in a consistent and agreed manner. It remains open to the lead agency in any response to consolidate steps or follow alternate steps to the same marine biosecurity outcomes.

7.2 Issues

- A number of incursions and near misses have occurred in the ToS and have not been well documented in the past.
- Leading an incursion response does not mean doing it alone. Current policy is that MAF is primarily responsible for responding to incursions that are new to New Zealand.
- Funding of incursion responses is difficult with most Councils not setting aside and funds for this but concentrating on vector management.
- Lead agency issues

7.3 Solutions

- Incorporate the CIMS structure into incursion response
- Clear roles and responsibilities outlined in the response plan which are pre-agreed by appropriate stakeholders. These can be based around the Pest Management National Plan of Action.
- Pre-agreed strategy for obtaining funding in the event of an incursion
- Central recording of incursions and near misses

7.4 Incursion response

Incursion notification

The collection and forwarding of samples of marine organisms which are suspicious may occur in a number of ways. In all cases the organism must be assessed by MITS. Receipt by a Regional Coordinator or management committee member of the authoritative identification of a marine risk organism found in TOS is the starting point for a response.

This notification is most often received from MAF and usually includes background material regarding the ecology of the organism, previous New Zealand responses and will often contain advice as to MAF's view on whether or not it proposes to lead a response.

Lead Agency

The lead agency for a response should be determined early and may require negotiation between the parties. Roles for managing pests are covered in the Top of the South Marine Biosecurity Strategic Plan and also in Table 4 of the Pest Management National Plan of Action⁵.

Where MAF are leading a response in TOS, the partnership's principal role is to provide practical assistance and local knowledge to assist the response.

Where the lead agency is another partner, the partnership takes a more direct role in managing the response but the ultimate responsibility and decision making power lies with the lead agency. Local led responses and activities can be based around the CIMS framework. CIMS or Co-ordinated Incident Management System⁶ is a national response framework that most emergency responders use in an event. CIMS clearly outlines roles and responsibilities and is further outlined in Appendix 5.

TOS action where MAF is the lead agency

As previously mentioned where MAF is leading the response then the partnerships principal role is support and assistance as requested. The regional coordination team will play a facilitation role in gathering information and advising the partnership of activities and decisions. The management committee may be required to meet and discuss proposed actions and also decide on what resources and staff are available to assist.

The resources available to the partnership are to be summarised in Appendix 4 along with partnership contact details.

TOS action where MAF is not the lead agency

In a TOS led response the critical questions being answered are:

- 1 Is the organism regionally significant? How? Why?
- 2 Can anything be done about it? What?
- 3 Will the proposed responses cure or control the problem? Will it recur?
- 4 What responses are feasible with the resources (including funding) available?

⁵ <http://www.biosecurity.govt.nz/files/biosec/consult/pest-management-final-print-version-022011.pdf>

⁶ http://workingonfire.org/ICS/materials/CIMS_BlueBook_new_draft1.pdf

The incursion response system documented in this plan is a two-phase process. Phase one shown in figure 3 outlines the initial collection of information, determination of lead agency and immediate actions. Phase two considers the long term response and management of the incursion, this is outlined in figure 4.

Incursion Response Phase One

The first phase of the response is to determine the nature and scope of the incursion and to take any interim action. Any immediate low-cost steps which have a good prospect of eliminating the incursion or controlling the organisms spread are implemented until second phase action can be taken. The incursion response prioritization tool (based on MAF's response system) located in Appendix 6 and the incursion response recommendation and decision guide located in Appendix 7 will assist in deciding on management options.

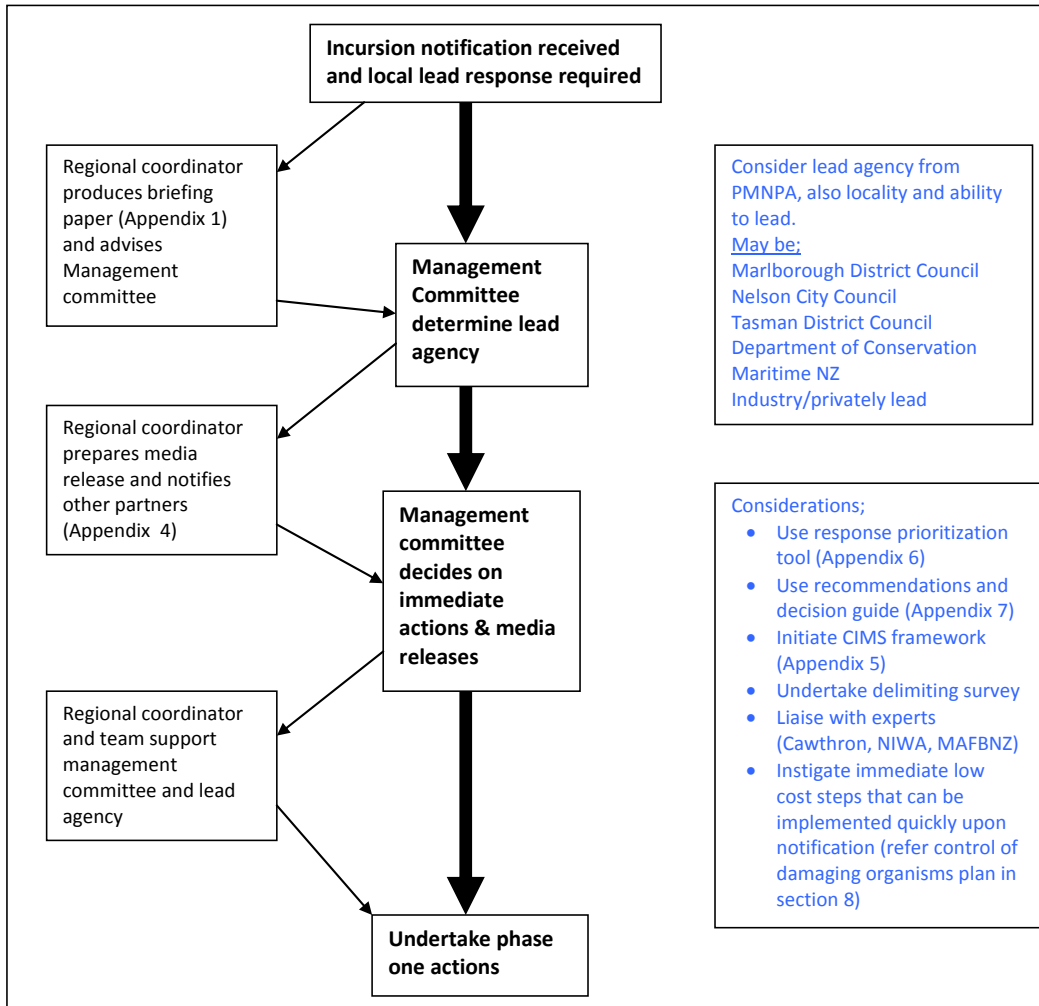


Figure 3. Flow Diagram of Phase one of Incursion Response

Incursion Response Phase two

The second phase in an incursion begins with the lead agency in consultation with the management committee considering the first phase completion report or updated briefing report. If further action is required and funded, the lead agency in consultation with the management committee are required to decide which of the recommendations or alternative options are to be pursued.

The lead agency or a Regional Coordinator on their behalf prepares and circulates a problem analysis and draft incident action plan (Appendix 1) detailing the response action including;

- What specific actions are to be undertaken and their expected outcomes
- Why those actions have been chosen over other options
- Who will undertake the actions
- Where the actions will occur
- How the actions will be carried out, and
- Estimated costs of actions.

Figure 4 below shows actions and considerations in phase two of an incursion.

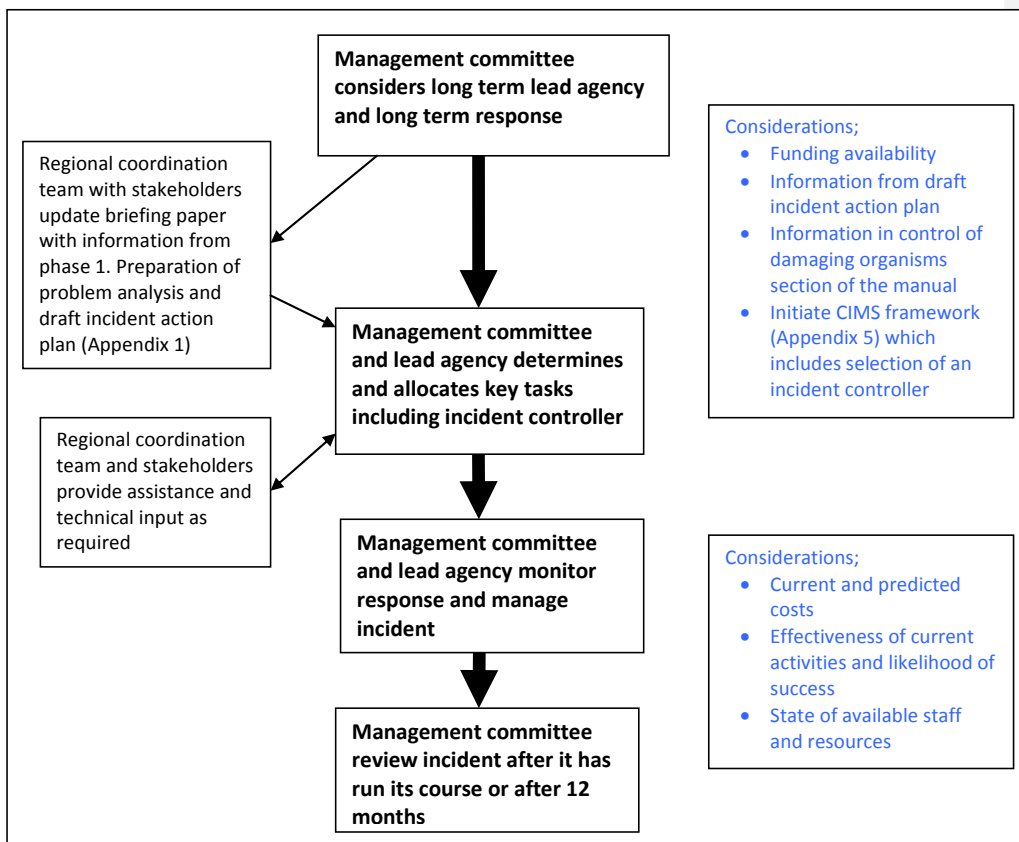


Figure 4. Flow Diagram of Phase two of Incursion Response

Where the scale of the response is expected to be large, complicated or costly, the plan could implement the MAF response model⁷ structure with roles allocated according to need, availability and skills.

⁷ <http://brkb.biosecurity.govt.nz/response-system/index.htm> Error! Reference source not found.

8. Control of Damaging Organisms Plan

8.1 Purpose

The purpose of this section is to effectively outline control and management options in the event that a damaging organism is detected or found to be established in the Top of the South.

8.2 Issues

A number of issues need to be considered when looking to control or manage a damaging organism;

- Control and management options available
- Resources immediately available and also long term availability
- Need for resource consents for some control options
- Legislative actions available
- Impact on the environment of control options and also the option not to control
- Disposal of waste from control activities

8.3 Solutions

There may be many or no options available for control of a damaging organism, however the following will be useful to assist;

- Keep a pool of information ready to assist in the event of an incursion.
- Include all appropriate control options including eradication, control to manageable levels, surveillance and do nothing.
- Have pre-approved processes for control options such as resource consent waiver or emergency provisions of legislation clearly spelt out.
- Make use of local and national technical support such as MAF, Cawthron, NIWA and other Regional Councils.

The control of damaging organisms plan will reference available control and management options in the event of the detection of a damaging organism. Information on key damaging organisms is in Appendix 8. Information on control and management options is also in Appendix 8.

9. Performance Measurement Plan

9.1 Purpose

The purpose of this section is to identify how we will know we are being successful and to inform decisions on how to do better.

9.2 Issues

1. Outcome measurement is of limited value as we can only easily measure failure to contain risk.
2. Very limited resources are available for measurement.

9.3 Solution

The approach is to keep the focus firmly on systemic improvement that reduces risk in marine biosecurity and to utilise information automatically generated by core risk reduction systems.

The TOS Strategic Plan identified the following priority actions:

1. Establish a monitoring framework to include the following indicators: systems mapped, bottlenecks and breakages identified and corrective action implemented.
2. Measure and review the progress of this strategic plan every year in September.
3. Report on performance.

Application of the systems described in sections 2 and 3 of this manual will automatically generate the information required for item 1 above.

A specific report summarising progress against the agreed work plan will be produced in September each year.

Item 3 can be reported on using the surveillance information in sections 5 and 6 of this manual. This can be extended to the systems performance once the first gap analysis in section 4 of this manual has been completed.

Comment [MSOffice1]: To be finalised after discussion with Lou Hunt - MAF

10. Glossary

Anchor warp; a line attaching an anchor to a vessel or marine structure

Biosecurity; the exclusion, eradication or effective management of the risks posed by pests and diseases to the economy, the environment and human health

Coastal marine area; that part of the Territorial Sea falling within the boundaries of the Tasman, Nelson and Marlborough districts

Coordinated Incident Management System; a set of standardised management rules common to New Zealand emergency service providers

Flotsam; floating marine debris

MAF; Ministry of Agriculture and Forestry is responsible for leading a fully integrated, transparent and efficient biosecurity system for the country

Marine risk organism; an organism which is not confirmed as native to New Zealand and which presents a risk to New Zealand's biosecurity

Mauri; the life force of places and things

Motile; (of an organism) capable of moving itself from one place to another

Pathway; a route along which a damaging organism could travel

Qualitative; (measurement or assessment) based on the qualities of the thing being measured or assessed rather than quantities

Sessile; (of an organism) sedentary, fixed in one place

Territorial Sea; that area of sea within 12 nautical miles low-water mark except where it takes a straight line across the mouth of bays less than 24 nautical miles across

Top of the South; the area of land and sea within the boundaries of the Tasman, Nelson and Marlborough districts

Vector; a thing that can transport damaging organisms into, within or out of the CMA

Wairua; spirit, inherent essence

Abbreviations / acronyms

CIMS	Coordinated Incident Management System
CMA	Coastal Marine Area
ECOP	Environmental Code of Practice
MAFBNZ	MAF Biosecurity New Zealand
MCL	Mincher Campbell Ltd
RMA	Resource Management Act
STOMP	Stop the Spread of Marine Pests (National marine biosecurity partnership)
TOS	Top of the South
the partnership	Top of the South Marine Biosecurity Partnership
the strategic plan	Top of the South Marine Biosecurity Strategic Plan

11. Bibliography

Hayden B, Unwin M, Roulston H, Peacock L, Floerl O, Kospartov M, Seaward K (2009). *Vessel Movements within New Zealand*. MAF Biosecurity New Zealand Technical Paper No: 2005/..... 251 p.

Inglis G, Hurren H, Gust G, Oldman J, Fitridge I, Roerl O, Hayden B (2005). *Surveillance design for early detection of exotic marine organisms in New Zealand*. Biosecurity New Zealand Technical paper No. 2005-17. 40 p.

Ministry of Agriculture & Forestry (2011). *Pest Management National Plan of Action*. MAF Biosecurity New Zealand. February 2011. 38p.

Ministry of Civil Defence & Emergency Management (2005). *The New Zealand Coordinated Incident Management System [CIMS]*. 2005. 69p.

Morrisey D, Miller S (2008). *Review of existing information on marine biosecurity in the top of the South Island*. MAF Biosecurity New Zealand Technical Paper No: 2009/02. 87 p.

Pannell A, Coutts A, (2007). *Treatment methods used to manage *Didemnum vexillum* in New Zealand*. Prepared for MAF Biosecurity NZ and NZ Marine Farmers Association. 43p.

Piola R, Forest B (2009). *Options for Managing Biosecurity Risks from recreational Vessel Hubs*. Prepared for Nelson City Council. Cawthron Report No. 1591. 45 p.

Sinner J, Forest B, O'Brien M, Piola R, Roberts B (2009). *Fiordland Marine Biosecurity Risk management: Operational Plan Recommendations 2009/10 - 2013/14*. Prepared for MAFBNZ and Guardians of Fiordland. June 2009. 80 p.

The Lawless Edge (2011). *Top of the South Island Marine Biosecurity Strategic Plan*. Prepared for Top of the South Marine Biosecurity partnership. Updated September 2011. 38p.

<http://www.biosecurity.govt.nz/files/pests/surv-mgmt/surv/atlas-of-biosecurity-surveillance.pdf>

12. Appendices

1. Forms/templates for reporting

- Incursion briefing template
- Problem analysis template
- Draft Incident Action Plan template

2. Broken and fixed systems register

3. Incursion and near miss register

4. Partnership details and media contacts

- Full list and contact details of all partnership/stakeholders, including proposed summary of resources available
- Media contacts

5. CIMS framework

- CIMS framework
- Example of how CIMS can work in TOS

6. Response Prioritisation Tool

7. Incursion response decision and recommendation guide

8. Damaging organisms and control/management options

- Pictures of damaging organisms with electronic link to further information
- Table summarising options

9. Health & safety

10. Manual/Plan review

Appendix 1. Forms/templates for reporting

Appendix 1. Incursion briefing template

To: Partnership Management Committee
From: Regional Coordinators
Date:
Subject: Marine biosecurity incursion

Introduction

Information available at present

1. Organism
2. Circumstances of find
3. Location of find / description of affected area
4. Suspected vector
5. Life cycle implications (time of year, weather implications)
6. Habitat in the area
7. Hydrography in the area
8. Likelihood of spread
7. Pest status in NZ and overseas
8. Options for immediate treatment
9. Options for medium to long term treatment

Recommendations

Appendix 1. Forms/templates for reporting

Appendix 1. Problem Analysis & Incident Action Plan Template

The Problem Analysis Template (PAT) defines what the problem or issue is and what information is currently available. In addition it considers solutions to the problems.

The Incident Action Plan (IAP) describes response goals, operational objectives and support activities. Essentially it is a proposed plan of action and strategy for the incident. IAPs may be written once or routinely updated as more information is made available. The IAP will be developed by the management committee with support from the regional coordination team and the TOS partners as required.

Problem Analysis Template

To: Partnership Management Committee
From: Regional Coordinators and/or
Date:
Subject: Marine biosecurity incursion

What is the problem?

Is supporting data or information available?

What is causing the problem?

Can the problem be controlled or fixed?

Are solutions readily available for control?

Appendix 1. Forms/templates for reporting

Incident Action Plan Template

Incident Name:
Incident Controller or Lead Agency:
Plan prepared by:
Date:
Location:

Situation Summary

Incident Response Objective

Plan of action/Strategy

Critical Elements (*note what must happen, when it is required and who is responsible*)

Resource needs (*note who will provide what and when they will do it*)

Information Flow (*who needs to know and who has information we need*)

Communications Plan (*Technical e.g. Frequencies, cell phone numbers*)

Appendix 2. System Fault Register

Interviewer	Conversation Number	Organisation	Fault	Proposed Fix	Actual fix	Related faults	Efficacy of fix

This table will be populated with details from the ongoing engagement process.

Appendix 3. Incursion and Near Miss Register

Date	Pest	Council Area	Event	Outcome
Late 90's	Undaria	Nelson	Old long liner from Suva via Wellington was towed into Port Nelson because it was a cheap mooring site while they decided whether to keep the vessel or scrap it. Swing moorings were then unregulated and free. There was also possibly, a local connection with the area. Undaria, which was probably picked up in Wellington, got into Nelson Haven and has become established on artificial structures. Fortunately it's not spreading because it gets caught in the sandy bottom and has nothing to hold onto. It is lightly distributed through Tasman and Golden Bays, mostly on mussel farms outside Nelson Haven. However is widespread in The Marlborough Sounds.	For Undaria a code of practice was agreed with Marine Farmers. However it's not clear how effective this is.
2003	Undaria, poss. Didemnum	Nelson	A barge was beached and scraped by its owner on the shingle bank on Vickerman St. in Nelson. Undaria had been spotted on the hull from a distance.	The owner had the error of his ways pointed out to him and the barge was moved, probably out of Nelson.
2004	Didemnum Vexillum 'and other stuff'	Marlborough	Came from Tauranga on The Steel Mariner, a logging barge, to Shakespeare Bay in the Sounds (deepwater mooring in Picton). It is thought to have spread from the SM to salmon farms to mussel farms to other mussel farms and spread around ToS.	It cost MDC lots of money as they tried to eradicate it - \$200,000 - need detail from Dave Grueber. Also cost Marine Farmers \$500,000. Cawthron did a report on the event. In the end the vessel was towed out to Cook Strait and sunk

2005ish	Styella	Nelson	Styella found on the hull of a ship out of Lyttleton. Nb. This was a commercial vessel i.e. not slow moving.	It is not clear as to how Styella got into Nelson Haven. It could have been this incident. Also, although it is doubtful, because they are fastidiously cleaned, it could have been transmitted by 2 naval vessels here for the Nelson centenary just after Styella was discovered in Auckland, their home port.
2008	Styella	Tasman	A fishing vessel, the Hemnestral, had been sitting in Port Lyttleton for three years before moving to Port Tarakohe in 2010. During a special survey of the port (because of a proposed expansion of the marina), a solitary Styella stalk was found and removed.	The vessel remained in Tarakohe.
2008	Brown mussels	Nelson	The Ocean Patriot was an oil rig which came from South Africa to NZ in c. 2005 where it drilled off Canterbury, Wairapapa and Taranaki, it was due to move to Australia but the Victorian government required it to be biofouled, To avoid very rough weather, it was brought into Tasman Bay for cleaning, initially beyond the 12 mile limit but subsequently moved into NCC's territorial waters MAF were aware of its movements but had no legal authority to act.	The owners were taken to court but due to a legal technicality the action failed (NCC lawyer left it too long and fell outside permitted timescale). However, MAF and the oil industry are being more proactive as a result. The oil industry produced guidelines on cleaning rigs. Stakeholders met and actions were agreed - not sure what has actually happened (see PDF of a PowerPoint presentation by Lindsay Vaughan in June 2008 on Box.Net). The oil industry is good at informing NCC now. The oil industry body in NZ is PEPANZ (Petrol Exploration and Production Association of New Zealand). AWE is an Australian oil exploration company and is the main company operating in the area; Paul Sheldon has a good working relationship with Dennis Washer, the Chief Operating Officer. The oil Co. in question paid for a brown mussel clean up in Tasman Bay, i.e. dredging at a cost of hundreds of thousands of dollars.

August/ September 2011	Undaria	Tasman	The Santa Monica towed by the Hemnestral from Wellington. Had been in Port Wellington for five years. Was removed from Wellington seemingly without full permission but was accepted into Tarakohe with conditions.	On inspection by a diver the biosecurity risk turned out to be less than was first thought and wrapping was deemed not necessary. The vessel remains in Tarakohe and will be moved to Nelson in October for cleaning.
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Notes:

A total of 7 incidents across the Top of the South in 12 years.

There was probably a similar number of incidents in Nelson over the same time period that didn't come to anything.

It was noted that a sharper system could identify more incidents - the more you look the more you find.

Appendix 4. Partnership Details and Media contacts

Partnership Details

Partners	Contact Person	Phone	Address	Resources
Cawthron Institute	Jim Sinner	03 548 2319	Private Bag 2, Nelson 7042	
Department of Conservation	Andrew Baxter	03 546 9335	Private Bag 5, Nelson 7042	
MAF	Lou Hunt	04 894 0436	PO Box 2526, Wellington 6140	
Marine Farming Assn	Graeme Coates	03 578 5044	PO Box 86, Blenheim 7240	
Marlborough District Council	Dave Grueber	03 520 7400	PO Box 443, Blenheim 7240	
Ministry of Fisheries	Steve Beatson Richard Fraser	03 548 1069	Private Bag 14, Nelson 7042	
Ministry of Fisheries	Bob Johnston	04 819 4600	PO Box 1020, Wellington 6140	
National Institute of Water and Atmospheric Research	Don Morrisey	03 548 1715	PO Box 893, Nelson 7040	
Nelson City Council	Paul Sheldon Arthur Nelson Paul MacArthur	03 546 0200	PO Box 645, Nelson 7040	
Port Marlborough Ltd	Steve McKeown	03 520 3399	PO Box 111, Picton 7250	
Port Nelson Ltd	Thomas Marchant	03 548 2099	PO Box 844, Nelson 7040	
Tasman District Council	Lindsay Vaughan Jim Frater	03 543 8400	Private Bag 4, Richmond 7050	
Te Tau Ihu Customary Fisheries Forum	Tama Ruruku	03 576 5267	Private Bag, D'Urville Island	

Additional Contacts

Organisation	Contact Person	Phone	Address	Resources
Harbour Master - Nelson	Dave Duncan			
Harbour Master - Tasman				
Harbour Master - Marlborough				

It is proposed that information is collected from partners as to what they can reasonably contribute for surveillance or in the event of an incursion of a damaging organism in the TOS. Resources may be manpower, time and technical support such as GIS and maps. Alternatively there may be access to boats, divers and treatment equipment. During the engagement process information on what other organisations (not official partners) may be able to contribute will also be collected and noted.

Regional Coordination Team	Contact Person	Phone	Address	Resources
Team Leader	Peter Lawless	021 894 636	P O Box 303, NELSON	
Team Manager	Dave Rees	021 238 4042		
Team Member	Matt Molloy	022 444 4662		
Team Member	Sterling Cathman	027 667 6745		
Team Member	Simon Graves	021 105 5860		

Local media contacts

This list of media contacts is also the base list for local media releases

Name	Job Title	Outlet	Email	Fax	Phone
Les Whiteside	Editor	Blenheim Sun	les@blenheimsun.co.nz	03 577 7863	03 577 7868
Jo Ann Firestone	Programme Director	Fresh FM, Nelson	joann@freshfm.net	03 546 9892	03 546 9891
Marg Braggin	Editor	Golden Bay Weekly	gbweekly@ihug.co.nz	03 525 8679	03 525 8699
Simon Bloomberg	Editor	Leader, Nelson	simonb@nelsonmail.co.nz	03 546 2705	03 546 9005
Duty Reporter	Duty Reporter	Marlborough Express (The)	mailbox@marlexpress.co.nz	03 577 2953	03 577 2950
Anna Wallis	Deputy Editor	Marlborough Midweek	awallis@marlexpress.co.nz	03 577 2953	03 577 2950
Pete Jackson	Journalist	MediaWorks Radio Marlborough	pjackson@mediaworks.co.nz	03 579 0493	03 984 3400
Christine Hatton	General Manager	MediaWorks Radio Nelson	chatton@mediaworks.co.nz	03 546 9427	03 989 3500
Alan Clarke	Deputy Editor	Nelson Mail	alanc@nelsonmail.co.nz	03 546 2802	03 548 7079
Paul McIntyre	Editor	Nelson Mail	paulm@nelsonmail.co.nz	03 546 2802	03 548 7079
Jacquetta Bell	Manager	Nelson Media Agency	jacq@nelsonmedia.co.nz	03 546 9661	03 546 9668
Thelma Sowman	Station Manager	Radionetwork Marlborough	thelmasowman@radionetwork.co.nz	03 578 0981	03 578 0129
Joya Devine	Chief Reporter	Radionetwork Nelson	nsnews@newstalkzb.co.nz	03 546 2580	03 546 2554
Geoff Moffett	Regional Correspondent	Radio NZ (Nelson)	geoff.moffett@radionz.co.nz	03 545 6541	03 545 6538
Lance Dodd	Editor	Saturday Express, Blenheim	lanced@marlexpress.co.nz	03 577 2953	03 577 2950

Appendix 5. CIMS Framework

CIMS Framework

The purpose of Coordinated Incident Management System (CIMS) is to provide structure and coordination in the management of incidents. It improves efficiency and effectiveness in management response. The CIMS framework;

- Provides a seamless management system between responding agencies & services.
- Provides for integration for incident control and coordination.
- Ensures all agencies/services work to the same type of system.
- Ensures the system will work at all times, regardless of the size and scope of the incident.
- Allows individual agencies to retain their individual command structures and identity.

The CIMS framework is built around four major components;

Control	-the management of the incident
Planning & Intelligence	-the collection and analysis of incident information and planning of response activities
Operations	-the direction of an agency's resources in combating the incident
Logistics	-the provision of facilities, services and material needed to combat the incident

The CIMS structure is generally represented as shown in figure5

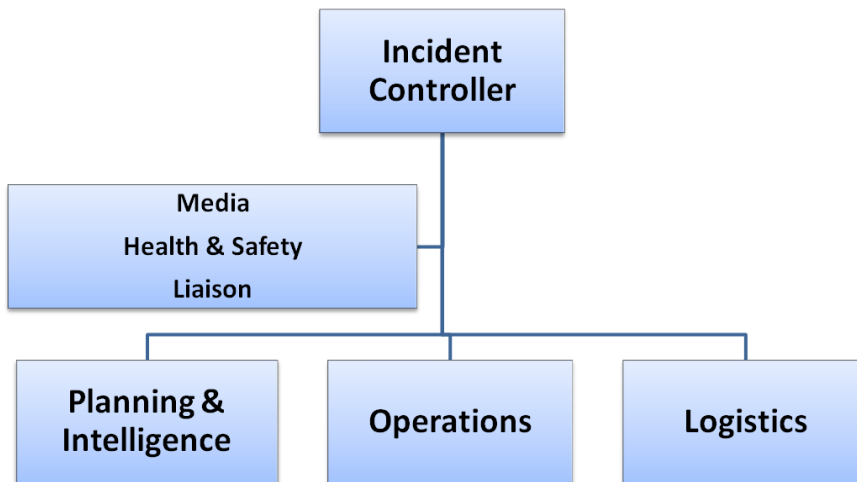


Figure 5: CIMS Structure

Definitions of the key roles and positions

Role/position	Description
Incident Controller	Responsible for the overall direction of response activities and is the person in charge at the incident. As the incident grows some functions can be delegated
Information/media	Handles all media and community relations
Health & Safety	Monitors safety conditions and develops health & safety measures
Liaison	On scene contact for other agencies
Planning & Intelligence	Collection, analysis and dissemination of information and the development of plans for the resolution of an incident
Operations	Responsible for carrying out response activities and determining resources required
Logistics	The acquisition and provision of human and physical resources, facilities, services and materials

Other terms referred to in;

- Incident Action Plan (IAP) An IAP outlines the desired outcome or objective for the management of an incident. It describes the strategies to be employed.

- Emergency Operations Centre An established or temporary facility where the response to an incident is run from. Councils already have these facilities identified for other emergency responses such as oil spills and natural disasters.

Example of how CIMS can work in TOS

Figure 6 is a flow diagram of an example of how CIMS structure can be implemented in the TOS in the event of an incursion. In this example a damaging organism is detected in Port Nelson and has been confirmed by MAFBNZ. The organism is not new to New Zealand but has not been found in the TOS in the past. The organism has the potential to affect the port, recreational users and marine farms. The lead agency is determined to be Nelson City Council (NCC).

NCC appoint an incident controller to manage the incident. The incident controller with support from the management committee may be able to handle all the CIMS duties outlined in figure 5. If the incursion requires an escalated response the additional roles can be delegated to other agencies.

Figure 6 shows where other agencies could support the NCC in this example.

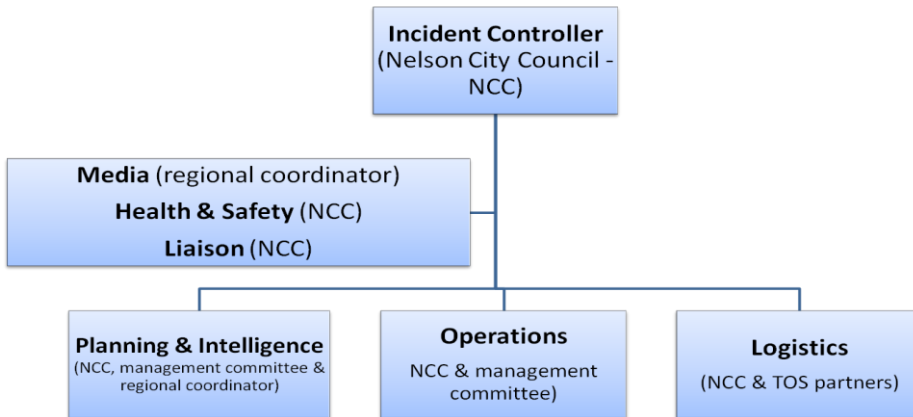


Figure 6: Example of how CIMS framework can be used in TOS

NCC would provide the emergency operations centre (EOC), which may for example use the harbourmasters facilities. Port Nelson may choose to provide additional facilities and will certainly need to be involved as staff will need to access different parts of the port environment during the response.

The management committee would support NCC with planning & intelligence activities and also operational requirements. The wider partnership will provide logistics in the form of manpower and experience mostly, but some partners will have physical resources that will be invaluable in a response such as boats, divers, communication equipment and laboratory services. Funding issues will have to be resolved at the time of the response if no prearranged agreements are in place.

Appendix 6. Response Prioritisation Tool

Response prioritisation tool

Regional Coordinator: Date: Risk organism:

Key:

most likely fit
less likely
not applicable

IMPORTANCE OF RISK ORGANISM				
	Priority 1: High importance	Priority 2: Medium importance	Priority 3: Low importance	Comments: Key factors influencing importance/ priority rating
Economic Impact	Likely to have significant impacts for trade (or stops trade) or production in industries with medium-large contribution to TOS economy	Likely to have small impacts for trade or production in industries with relatively large contribution to TOS economy or large impacts to trade or production in industries with relatively small contribution to TOS economy	Likely to have small or no impacts for trade or production in industries with relatively small contribution to TOS economy	
Environmental Impact	Likely to have impacts for iconic species or locations or severe ecological disturbance affecting biodiversity or conservation values	Possible but unknown impacts for iconic species or locations, or likelihood of small-scale ecological disturbance	Not likely to impact iconic species or locations, ecological disturbance unlikely	
Health Impact	Likely to kill or negatively impact human health on a significant scale	Likely to moderately impact human health on a moderate scale	Small or no human health impacts likely	
Socio-cultural Impact	Likely to have significant impacts on Maori, TOS identity or way of life, animal welfare, or culturally important amenity values	Likely to have medium impacts on Maori, TOS identity or way of life, animal welfare, or culturally important amenity values	Small or no significant socio-cultural impacts likely	

COMPLEXITY OF RESPONSE				
	Lower complexity	Medium complexity	Higher complexity	Comments: Key factors influencing complexity rating
What is the current distribution of the organism in TOS?	Distribution is known and limited	Distribution is unknown but probably limited	Distribution is widespread, or unknown but probably widespread throughout TOS	
What is the ability of the organism to spread and establish?	Low invasive potential	Unknown	High or significant based on overseas experience or TOS-specific analysis	
To what degree do the methods exist for detection?	Surveillance systems can achieve high sensitivity and specificity	Surveillance systems can achieve satisfactory sensitivity and specificity	Sensitivity or specificity of surveillance systems likely to be problematic	
To what degree will vector controls slow the spread or contain the organism?	Controls are likely to contain or significantly slow spread	Control systems can probably contain or slow spread, but we don't know how much	Control systems unlikely to contain or slow spread	
Do the methods exist to control the organism?	Effective methods exist for eliminating organism populations	Effective methods exist for control/contain populations and may achieve local elimination	Effective methods for control or elimination do not exist or control/elimination would be difficult to achieve	
What level/skill of human resource is required?/ Are they accessible?	Taking action would require easily accessible technical/operational skills/expertise	Required technical/operational skills/expertise is generally available, but some critical resource may be difficult or take time to access. This could affect or delay taking action	Getting access to critical technical/operational skills/experience to support taking action will present a major challenge	
Are the tools/equipment required for taking action available/accessibile?	Tools and equipment required for taking action are ready to go, or should be easy to access	We should be able to access the tools and equipment required for taking action, but it may take some time	Getting access to the tools and equipment required for taking action is likely to present a major challenge and this may affect or delay a response	

Barriers to success / opportunities to effectively managing the risks posed by the organism				
	Low	Medium	Significant	COMMENTS: Key factors influencing barriers / opportunities rating
What is the existing regulatory status?	New Organisms, Prohibited Organisms, Notifiable Organisms, Genetically Modified Organisms, Illegal imports with high prosecution potential, unauthorised goods	Unwanted organisms, regulated pests, risk goods	Non-regulated pests	
Stakeholder concern / support	Stakeholders/specific interest groups are unlikely to oppose attempts at control. Stakeholders are likely to support taking action or may be willing to contribute	There may be some concern about attempts at control. The stakeholder community is likely to be divided, but some specific interest groups may have high expectations about taking action	Stakeholders/specific interest groups are likely to strongly oppose attempts at control	
Public concern / support	Attempts at control are unlikely to cause wider public concern. The public are likely to support taking action	There is likely to be some public concern about attempts at control	There is likely to be high public concern around attempts at control	
Are there any legislative barriers to taking action? eg.RMA, HSNO	There are no legislative barriers	There are legislative barriers but these can be resolved	Legislative barriers will affect the outcome or delay the response	
Is the organism associated with a controllable pathway?	The organism is clearly associated with an identifiable pathway and there are likely to be actions we can take to mitigate the risk of future events	The organism-pathway association is likely to be random (e.g. hitchhiker), but mitigation measures are likely to exist that could reduce the risk of future events	The likely pathway of entry cannot be easily identified and/or it would be difficult to take action to mitigate the risk of future events (e.g. organisms blown in on the wind)	

DECISION ON PRIORITY:	(Consider overall importance and complexity and barriers/opportunities)
KEY FACTORS INFLUENCING DECISION:	
CHALLENGES:	
OPPORTUNITIES / BARRIERS TO SUCCESS:	

Appendix 7. Incursion response decision and recommendation guide

Incursion Response Decision and Recommendation Guide

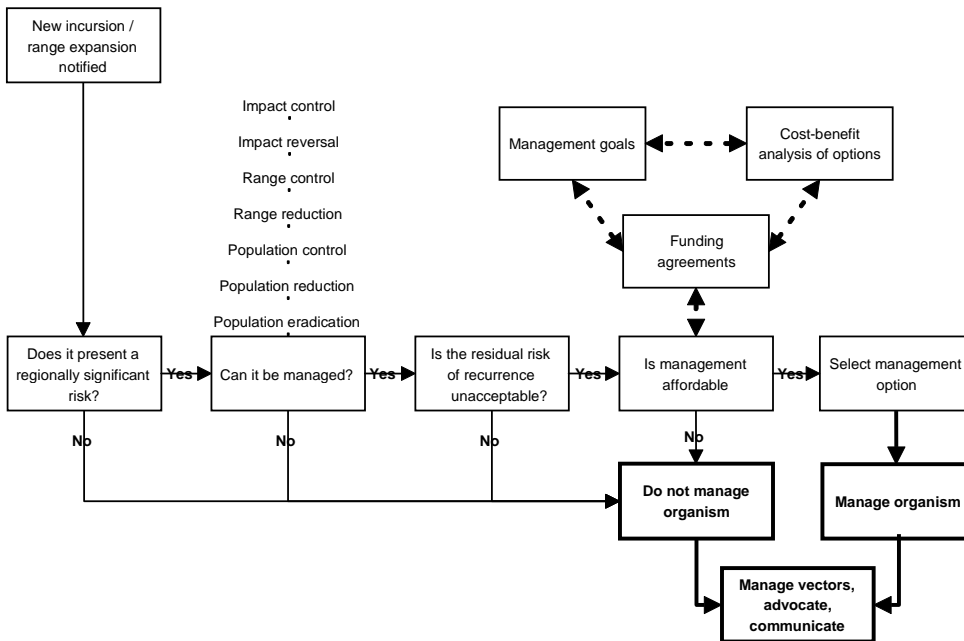


Figure 7 - Considerations for recommendations and decisions regarding incursion responses

Notes on use of the recommendation / decision guide

Figure 7 is designed to assist those making recommendations and decisions regarding actions to be taken in response to incursions.

In all cases where Yes/No branches occur in the diagram, the default answer is “Yes” (i.e. uncertainty in the answer should weigh towards leading the user along the “Yes” path.)

New incursion / range expansion notified

Range expansion relates only to an expansion of the range of a marine risk organism (which is already in TOS) into a new part of the region where expansion into that area significantly alters the impact of that organism on the region.

Does it present a regionally significant risk?

Check to ensure that the organism is likely to have sufficient impact that a response is required. In some cases the answer will be immediately obvious but in others it may not be answerable with certainty even after a 1st-phase response is complete. Where the answer is not known with certainty users should note this and assume that it is regionally significant until proved otherwise.

A risk prioritisation tool (adapted from the MAFBNZ tool of the same name) is provided at Appendix 6 to assist with determining whether or not the risk is regionally significant.

Can it be managed?

Users should consider the technical feasibility of the full range of options for management of the organism ranging from controlling its impacts on one or more regional values through to complete eradication. The location or proximity of suitable habitat is an important consideration at this stage, as is the nature of that habitat.

The biology of the organism may lend itself to particular treatment technologies or approaches that are known to be effective; it is unwise to spend time and resources on untested treatment regimes (see section 8 Control of Damaging organisms Plan).

Is the residual risk of recurrence unacceptable?

Users should consider the risk that after treatment the organism will re-establish itself by re-growth or re-introduction. The life-cycle of the organism should be considered and the likelihood that the organism has already reproduced and what the likelihood is of it successfully expanding its range. Delimiting surveys should be designed with this in mind and be far reaching enough to establish this if possible.

The potential for the organism to be transported into the area again by the same or similar vector needs to be carefully considered. If this is likely, or the vector is unmanageable, then high-cost options such as eradication may be difficult to justify, this analysis will also feed into the cost-benefit considerations in the following step.

Is management affordable?

Users should undertake a cost-benefit analysis of each option against the management goals. Funding agreements are unlikely to be in place prior to the cost-benefit analysis being available in which case recommendations will require estimates of cost provided for each option.

Manage vectors, advocate, communicate

Whether the action is taken to manage the organism or not, influencing marine users' behaviour to reduce the risk of re-infection or the potential impacts of the organism are fundamental aims of the strategic plan. In either case, the final part of an incursion response is to ensure that the partners take account of the incursion and its response.

Appendix 8. Damaging Organisms & Control/Management Options

While any exotic organism entering our marine waters poses significant risk, MAF is focused on six specific unwanted marine organisms.

This is based on a high likelihood of arrival, their potential for significant spread, and their history of invasiveness overseas.

Those on the six most unwanted list are:

- [Chinese mitten crab, *Eriocheir sinensis*](#)
- [Mediterranean fanworm, *Sabella spallanzanii*](#)
- [Northern Pacific seastar, *Asterias amurensis*](#)
- [European shore crab, *Carcinus maenas*](#)
- [Asian clam, *Potamocorbula amurensis*](#)
- [Caulerpa taxifolia \(a marine aquarium weed\).](#)

Appropriate technical information can be viewed at the following MAF website;

<http://www.biosecurity.govt.nz/pests/salt-freshwater/saltwater>

Chinese mitten crab (*Eriocheir sinensis*)



Chinese mitten crab

Legal Status: Unwanted Organism - MFish

Status in New Zealand: Not in New Zealand

Organism: Water snails, crabs, shellfish, starfish, and other aquatic

Mediterranean fanworm (*Sabella spallanzanii*)



Mediterranean fanworm

Legal Status: Unwanted Organism - MFish

Status in New Zealand: Established

Organism: Water snails, crabs, shellfish, starfish, and other aquatic

Northern Pacific Sea Star (*Asterias amurensis*)



Northern Pacific Sea Star

Legal Status: Unwanted Organism - MFish

Status in New Zealand: Not in New Zealand

Organism: Water snails, crabs, shellfish, starfish, and other aquatic

European shore crab (*Carcinus maenas*)



European shore crab

Legal Status: Unwanted Organism - MFish

Status in New Zealand: Not in New Zealand

Organism: Water snails, crabs, shellfish, starfish, and other aquatic

Asian clam (*Potamocorbula amurensis*)



Asian clam

Legal Status: Unwanted Organism - MFish

Status in New Zealand: Not in New Zealand

Organism: Water snails, crabs, shellfish, starfish, and other aquatic

Caulerpa seaweed (*Caulerpa taxifolia*)



Caulerpa seaweed

Legal Status: Unwanted Organism - MFish

Status in New Zealand: Controlled

Organism: Marine and freshwater plants

Control and Management Options

Before using any treatment or management options a delimiting survey will need to be undertaken to assess the size of the treatment area.

Control Option	Pro's	Con's
Removal by hand	-Easy to organise and train staff	-Labour intensive -Diver health & safety
Desiccation	-Relatively easy to do for small items -Short and long term suitability	-Must be removed from water and stored on land
Plastic wrapping	-Relatively cost effective -Can remain in place for long periods of time -Short and long term suitability -Can be used on jetties, vessels and wharf piles	-Mostly done in the water -Can take time to wrap all affected items/areas -Immediate availability of plastic
Geotextile fabric wrapping	-Benefits as above	-As above and difficult to fully enclose and seal edges
Hot water/steam	-Can be used on small areas	-Labour intensive -Diver health & safety -Availability of equipment

Chemicals (chlorine, copper sulphate, acetic acid, ammonia, lime)	-Various chemical options available -Best used if item removed from water -Has been successful in the past	-Chemical treatment needs to be contained -Resource consents may be required -Health & safety issues for applicators
Diver operated suction	-Good for algae -Divers can be trained	-Incomplete removal -Collection of removed material -Very labour intensive
Alteration of salinity	-Good for organisms sensitive to salinity changes	-Would have to immerse entire structure or change salinity in entire area of treatment

Most of this information was summarised from the MAF Biosecurity NZ publication “Review of existing information on marine biosecurity in the top of the South Island”, prepared by Morrisey/Miller (NIWA), May 2008. Additional information was found in the MAF Biosecurity publication “Treatment methods used to manage *Didemnum vexillum* in New Zealand” prepared by Pannel (Marlborough Mussel Company) & Coutts (Cawthron), March 2007.

Both documents are fully referenced in the Bibliography section of this manual.

Appendix 9. Health & Safety

It is expected that in the event of an incursion of a damaging organism that the Health & Safety policies of the lead agency will be used. This should include hazard identification, incident reporting and subcontracting.

Site specific polices can be developed by the partnership as required.

Appendix 10. Manual/Plan Review

During the early phases of this contract the Manual will be updated as key information and strategies are identified and/or modified. The first review will be undertaken in May 2012 with a full review in August 2012.

It is recommended that certain parts of the Manual be tested to ensure usability. It would be appropriate for the incursion section of the manual to be tested with a mock exercise. This could be a desk top exercise or a mock incursion where facilities such as an emergency operations centre are mobilised.