

**Joint SCC/SCFA National Taskforce on the
Prevention and Management of Marine Pest Incursions**

Report of the Taskforce

23 December 1999

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Glossary

ABWMAC	Australian Ballast Water Management Advisory Council
AQIS Action Plan	Plan developed and administered by AQIS to implement the proposed single national management regime to prevent the introduction and translocation of marine pests from vessels in Australian waters
AIMPAC	Australian Introduced Marine Pests Advisory Council
AFFA	Agriculture, Fisheries and Forestry – Australia
AQIS	Australian Quarantine and Inspection Service
Anti-foulant	Substance applied to the hull or other areas of a vessel to prevent attachment or fouling by aquatic organisms
ANZECC	Australian and New Zealand Environment and Conservation Council
ARMCANZ	Agriculture and Resource Management Council of Australia and New Zealand
ATC	Australian Transport Council
Australian Coastal Ballast Water Group	Specialist sub-group of ABWMAC addressing introduced marine pest issues relevant to coastal shipping
Australian first ports-of-call	Point of entry ports designated for the purpose of quarantine control for international shipping arriving in Australia
AUSVETPLAN	Australian Veterinary Emergency Plan - series of technical response plans that describe the proposed Australian approach to an exotic disease incursion
Ballast water	Water with its suspended matter taken on board a vessel to control the trim, list, draught, stability or stresses of a ship
Ballast water research and development levy	Statutory financial levy, paid by certain ships over 50 metres using Australian ports, to support research and development for ballast water management
Border controls	Quarantine actions taken to reduce the risk of importation and translocation of introduced marine pests at the point of entry into Australian waters
CCEAD	Consultative Committee on Emergency Animal Diseases
CCIMPE	Consultative Committee on Introduced Marine Pest Emergencies
Coastal shipping	Commercial vessels undertaking voyages between two or more ports within Australian waters
Coastcare	Community-based coastal protection program, under the <i>Coasts and Clean Seas</i> component of the Commonwealth Government's Natural Heritage Trust
Coasts and Clean Seas	Coastal and marine component of the Commonwealth Government's Natural Heritage Trust
Coastwest	Western Australian Government coastal protection program conducted in partnership with the Commonwealth Coastcare program
Community preparedness	Capacity of general community to monitor, report and otherwise respond to introduced marine pest incursions, enhanced through processes such as education and awareness programs
Contingency de-ballasting areas	Identified areas within the Australian EEZ where ships may discharge or exchange ballast water, irrespective of whether or not such ballast water contains marine pests
Cost-sharing arrangements	Agreement between identified stakeholders on contribution to costs incurred in responding to a declared introduced marine pest incursion emergency
CRC	Cooperative Research Centre
CRIMP	CSIRO Centre for Research on Introduced Marine Pests
CSIRO	Commonwealth Scientific and Industrial Research Organisation

Decision Support System (or DSS)	Scientifically -based risk assessment management tools for use by AQIS, the shipping industry, port authorities and other relevant government agencies to provide sound and objective risk assessments in relation to each vessel voyage and the likelihood of transfer of marine pests
DNRE	Victorian Department of Natural Resources and Environment
EA	Environment Australia
Early warning system	Mechanism used to provide an early indication of an introduced marine pest incursion eg. monitoring programs, species ‘trigger list’
Eligible costs	Costs of responding to an introduced marine pest incursion emergency that are eligible to be recovered under the agreed interim cost-sharing arrangements
EMPPlan	Australian Emergency Marine Pest Management Plan - a technical response plan outlining the Australian emergency response to marine pests incursions; linking policy, strategies, implementation, coordination and counter-disaster agency plans
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i> (Commonwealth) - to come into effect on 16/7/2000
Ex gratia payments	Payment given as an act of grace, without acceptance of liability
Global Environment Facility	Financial mechanism for global environment improvements, jointly implemented by the United Nations Development Program, United Nations Environment Program and the World Bank
‘high risk’	Species, habitats, facilities, activities or locations that present significant risk of pest introduction and spread
Haul -out	Removal of vessel from the water for inspection, maintenance treatment or modification eg. removal of hull foulants or coating with anti-foulants
Hull fouling	Marine organisms attached to vessels
IMO	International Maritime Organization
Incursion	Outbreak of an introduced marine species in an area of Australian waters not previously noted for concentrations of the invading species
Introduced marine pest	Exotic marine organism with capacity to create a hazard to human health, harm living resources and aquatic life, damage amenities and impair biological diversity
Introduced marine pest incursion emergency	An introduced marine pest incursion situation requiring an immediate response and highest priority for allocation of resources and action
Marine pathogen	Disease producing marine organism
MCFFA	Ministerial Council on Forestry, Fisheries and Agriculture
Mitigation	Measures to control and manage the impacts of introduced marine pests
National Research and Development (R&D) plan	Proposed plan for the research and development requirements of the National System for the Prevention and Management of Introduced Marine Pests
National shipping	See coastal shipping
National system	National System for the Prevention and Management of Introduced Marine Pests – overarching framework addressing all components of introduced marine pest prevention and management
NEPC	National Environment Protection Council
NEPM	National Environment Protection Measure
NIMP Coordination Group	National Introduced Marine Pests Coordination Group
NOAPH	National Office of Animal and Plant Health, AFFA
Port baseline surveys	National program of biological surveys to determine the baseline level introduced marine organisms around Australian ports
Port environmental management plans	Plan developed by port authorities on environmental protection measures relevant to port activities

Post-border controls	Quarantine actions taken to reduce the risk of translocation of introduced marine pests beyond the point of initial entry into Australian waters
Pre-border controls	Quarantine actions taken to reduce the risk of importation and translocation of introduced marine pests before the point of entry into Australian waters
R&D	Research and Development
RAG	Research Advisory Group – a specialist sub group of ABWMAC addressing research and development needs for vessel-based introductions of marine pests
Risk management	Management measures taken to minimise the risk of introduction or translocation and, if the border is breached, the threats and associated costs posed by incursions of introduced marine pests into the marine environment
SCARM	Standing Committee on Agriculture and Resource Management
SCC	Standing Committee on Conservation
SCFA	Standing Committee on Fisheries and Aquaculture
SCoT	Standing Committee on Transport
Sea chest	External compartment within vessel hull structure susceptible to intake of introduced marine species
Sediments	Matter settled out of ballast water within a ship
Ship	Any type of vessel whatsoever operating in the marine environment
Ship management plan	Plan used on board a vessel to minimise the introduction and spread of introduced marine species by ballast water
Single national management regime	National management system to prevent the introduction and translocation of marine pests from vessels in Australian waters – a component of the National System concerning vessel-based introductions of introduced marine pests
Stand down	Stage when a determination is made that a marine pest emergency no longer exists
Sterilisation	Use of agents such as chemicals to destroy marine pests on marine equipment or other pest vectors (see ‘treatment methods’ below)
Taskforce	Joint Standing Committee on Conservation (SCC)/Standing Committee on Fisheries and Aquaculture (SCFA) National Taskforce on the Prevention and Management of Marine Pest Incursions
TBT	Tributyltin – a marine anti-foulant
Translocation	Movement of indigenous or introduced species to waters beyond their natural or previous distributions
Treatment methods	Mechanical, physical, chemical, biological or other processes to inactivate or avoid the transfer of marine pests
Trigger list	List of introduced marine species that have a high potential to be pests and represent a high risk of introduction or translocation
Vector	Contaminated material or object capable of spreading the marine pest, eg. a ship
Vessel	A craft or structure for transport by water, including ships, yachts, oil-rig platforms, barges, hydrofoil boats, air-cushion vehicles, submersibles, floating craft and fixed or floating platforms
Weeds of national significance	Nationally endorsed list of invasive weed species that present the most serious socioeconomic and environmental problems in Australia
World Heritage areas	Sites with exceptional natural and/or cultural values which are inscribed for protection and conservation on the international World Heritage List

Executive Summary

THE TASKFORCE

The Joint Standing Committee on Conservation (SCC)/Standing Committee on Fisheries and Aquaculture (SCFA) National Taskforce on the Prevention and Management of Marine Pest Incursions (the Taskforce) was convened in August 1999, following decisions of the Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA) and the Australian and New Zealand Environment and Conservation Council (ANZECC). The Taskforce was to make recommendations by the end of 1999 on:

?? **immediate action** to establish a credible national ready response capability within current statutory arrangements and resources that includes:

- agreed emergency administrative procedures in the event of an outbreak of an introduced marine pest, including clearly defined agency roles, responsibilities and legal powers;
- early warning and prevention systems for a short list of introduced marine species that pose a major threat; and
- interim cost-sharing arrangements.

?? **longer term reform** to establish a permanent and comprehensive national system for the prevention and management of introduced marine pests, addressing:

- pre-border efforts to reduce the risk of importation of marine pests;
- border and post-border (including translocation) control systems for ballast water, hull fouling and other vectors;
- monitoring to detect new incursions or spread of existing introduced marine pests;
- emergency response to incursions; and
- mitigation/control of introduced marine pests already in Australia.

KEY PROBLEMS AND ISSUES

The threat of new incursions of introduced marine pests, or translocations of existing pests to new locations within Australia, is real and immediate. Areas that can be detrimentally affected by these pests include fisheries and aquaculture production, human health, shipping and ports, tourism, coastal amenity, and species and ecosystem health and diversity.

The Taskforce identified a number of problems, issues and challenges with the current management of introduced marine pests within Australia:

?? Inadequate national coordination of introduced marine pest management, leading to losses of efficiency and effectiveness in responses.

- ?? No comprehensive national policy framework to guide management and decision-making.
- ?? The need to develop cost-sharing arrangements for introduced marine pest prevention and management, involving both the public and private sectors.
- ?? Inadequate consultation arrangements that do not include the full range of stakeholders or address the complete range of issues.
- ?? The need for accelerated action to develop strategies to prevent the introduction of introduced marine pests by all vectors. This applies in particular for non-ballast water vectors, where development of prevention strategies lags behind those for ballast water.
- ?? Lack of strategies to prevent translocations of introduced marine pests in Australian waters.
- ?? An urgent requirement for the development of a coordinated national response framework for introduced marine pest incursions.
- ?? No coordinated national framework for taking action to control introduced marine pests that are already established in Australian waters, or that may become so in the future.
- ?? The need for better prioritisation and coordination of research and development spending on introduced marine pests.
- ?? A lack of information for decision making on introduced marine pests management, including good data on impacts of particular pest species, means by which particular pests are spread, and effective control options.
- ?? Inadequate monitoring programs for introduced marine pests.
- ?? Lack of public awareness of introduced marine pest issues.
- ?? Inadequate resources being devoted to training and education across all relevant management areas, including for government officials as well as industry and the general community.

Solutions and recommendations to address these problems that have been identified by the Taskforce are outlined below.

INTERIM ARRANGEMENTS TO IMPROVE READY RESPONSE CAPACITY

The Taskforce identified interim measures designed to improve the national capacity to respond efficiently and effectively to outbreaks of introduced marine species. They cover outbreaks of species not yet established in Australian waters and translocations of existing introduced marine pest species within Australia.

To a significant extent, these recommendations have been assisted by examination of procedures adopted and lessons learned from the recent outbreak of the black-striped mussel in Darwin.

There are elements of these arrangements that will require further development and consultation within and between jurisdictions.

- ✍ The Taskforce recommends that the interim measures it proposes have a sunset of two years from when they are established. During this period, robust long-term

reforms that have been identified by the Taskforce in this report should be developed, negotiated and introduced. **(Recommendation 3.1)**

- ✍ The Taskforce recommends that jurisdictions provide resources that allow for the effective and timely implementation of the interim arrangements. **(Recommendation 3.2)**

Interim Coordination Arrangements

- ✍ The Taskforce recommends that the Ministerial Council on Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and the Australian Transport Council should jointly oversee the implementation of the interim arrangements, as well as the development of the integrated National System for the Prevention and Management of Introduced Marine Pests (see Recommendation 4.1). Other relevant Commonwealth and State/Northern Territory Ministers should also be kept closely informed regarding developments. **(Recommendation 3.3)**

- ✍ The Taskforce recommends that it be succeeded by a National Introduced Marine Pests Coordination Group, which should be given a mandate for two years to: oversee implementation of the interim arrangements; coordinate the development of the longer-term national system; and facilitate inter-governmental and stakeholder negotiations. It should report to the Ministerial Council on Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and the Australian Transport Council through their Standing Committees. The National Introduced Marine Pests Coordination Group should be given the authority to form small, time-limited working groups that may include expert or non-government membership. **(Recommendation 3.4)**

- ✍ Given the central role that is proposed for Agriculture, Forestry and Fisheries - Australia in the interim and long-term arrangements, the Taskforce recommends that the National Introduced Marine Pests Coordination Group should be chaired by a senior official of that Department. **(Recommendation 3.5)**

- ✍ To address the need for industry, environmental non-government organisations and other relevant stakeholder input on all vectors, the Taskforce recommends that the Australian Ballast Water Management Advisory Council be renamed and reconfigured as the Australian Introduced Marine Pests Advisory Council. It would act as a reference group to provide advice to the ministerial councils, through the National Introduced Marine Pests Coordination Group, on all aspects of prevention, emergency response and ongoing control and management of introduced marine pests. **(Recommendation 3.6)**

- ✍ The Taskforce recommends that the two existing working groups of the Australian Ballast Water Management Advisory Council — the Research Advisory Group and Australian Coastal Ballast Water Group — be brought under the new arrangements in Recommendation 3.6 above and reformed as necessary. **(Recommendation 3.7)**

Emergency Response and Early Warning Systems

- ✍ The Taskforce recommends that a national coordination mechanism for emergency responses to introduced marine pest outbreaks be established, operating through the National Office of Animal and Plant Health, within Agriculture, Fisheries and Forestry – Australia. This body should be known as the Consultative Committee on Introduced Marine Pest Emergencies. It would advise the National Introduced Marine Pests Coordination Group. **(Recommendation 3.8)**
- ✍ The Taskforce recommends that as part of the interim measures, the draft Australian Emergency Marine Pest Management Plan for emergency responses to introduced marine pests incursions be adopted and implemented, further developed and tested, by Commonwealth and State/Northern Territory jurisdictions. **(Recommendation 3.9)**

The Taskforce considers that the operation of the emergency response mechanism would be facilitated through the use of a short 'trigger list' of high-risk species, accompanied by criteria for the addition and deletion of species to and from the list. The trigger list species are those believed worthy of special preparedness in terms of detection and response actions.

- ✍ The Taskforce recommends that the interim trigger list of introduced marine pests provided in this report, and the accompanying criteria for adding or removing species, be adopted. These criteria will also provide guidance to jurisdictions in assessing whether or not to refer incursions of non-trigger list species to the Consultative Committee on Introduced Marine Pest Emergencies and assist it in recommending appropriate action. **(Recommendation 3.10)**
- ✍ The Taskforce recommends the incorporation of elements of an early warning system in the draft Australian Emergency Marine Pest Management Plan, including a single contact point within each jurisdiction for all reports of possible introduced marine pest incursions. These arrangements should come into effect on commencement of the interim arrangements. **(Recommendation 3.11)**
- ✍ The Taskforce recommends that all jurisdictions should collect data on reports of possible incursions of introduced marine pests, in accordance with the minimum data requirements given in the reporting forms in the draft Australian Emergency Marine Pest Management Plan. These arrangements should come into effect on commencement of the interim arrangements. **(Recommendation 3.12)**
- ✍ The Taskforce recommends that Agriculture, Fisheries and Forestry – Australia, with the assistance of Environment Australia, CSIRO Centre for Research on Introduced Marine Pests and State/Northern Territory governments, should compile a standard set of reference material to assist in the easy and rapid identification of introduced marine pests. In the first instance, priority should be given to collating information on trigger list species, which should be completed within three months of the commencement of the interim arrangements. This information should be based on existing reference material. **(Recommendation 3.13)**

✍ The Taskforce recommends that each jurisdiction collect and collate information on qualified personnel, material and businesses that could be quickly accessed for emergency responses to introduced marine pest outbreaks. The information should be accessible to other jurisdictions through the Consultative Committee on Introduced Marine Pest Emergencies. Jurisdictions should implement this action and provide a report to the National Introduced Marine Pests Coordination Group within three months of the interim arrangements entering into effect. **(Recommendation 3.14)**

There are gaps and overlaps in legal powers to address marine pest incursions, including overlaps between Commonwealth and State/Northern Territory laws. There is an urgent need to ensure that there are comprehensive legal powers in place to enable the full range of actions necessary to address marine pest outbreaks. Furthermore, where there are overlaps between jurisdictions' legislation, clarification is required of which legal powers should be used preferentially.

✍ As an interim measure, the Taskforce recommends that each jurisdiction clarifies the extent of its existing legal powers to act in the event of an introduced marine pest incursion emergency, using the scenarios included in this report as a guide. Results of these analyses should be conveyed to the National Introduced Marine Pests Coordination Group for its information and consideration within three months of the interim arrangements entering into effect. **(Recommendation 3.15)**

✍ The Taskforce recommends that (subject to the agreement to equitable interim cost-sharing arrangements) State and Northern Territory legal powers should be used in preference to Commonwealth powers to address introduced marine pest emergencies in State and Northern Territory waters, unless no comparable legal power exists at the State and Northern Territory level, or the use of Commonwealth statutes provides significant efficiency gains. **(Recommendation 3.16)**

The black-striped mussel incursion raised the issue of compensation for losses incurred as a result of actions taken by government as part of an emergency response, and the potential liability of governments and individuals in taking the action necessary to eradicate the outbreak. Experience from other areas, such as animal diseases, suggests that negotiation of compensation arrangements with stakeholders will be time-consuming and therefore is a longer-term option.

✍ The Taskforce recommends that as part of the interim arrangements, relevant stakeholders be informed that no special interim compensation arrangements will be put in place. Accordingly, stakeholders will need to make commercial decisions regarding insurance and risk management. **(Recommendation 3.17)**

The Taskforce also believe that a clear understanding is required on liability issues associated with government responses to an introduced marine pest emergency. Some relevant laws provide exemption for government officials from liability for 'reasonable actions'. However, the situation is unclear across all jurisdictions and requires assessment and may require legislative change, that cannot be completed immediately.

- ✍ The Taskforce recommends that jurisdictions seek immediate clarification of existing liability protection afforded to government officers and other individuals involved in responding to introduced marine pest emergencies in a reasonable and responsible manner. This information should be provided to the National Introduced Marine Pests Coordination Group for its information and consideration within three months of commencement of the interim arrangements. **(Recommendation 3.18)**

Cost-sharing for Emergency Responses

The black-striped mussel outbreak in Darwin highlighted the lack of an agreed cost-sharing formula for funding emergency responses to introduced marine pest incursions. The Taskforce considers that cost-sharing is a crucial component on which agreement is required in order to put in place both interim and long-term management arrangements. While longer-term cost-sharing arrangements involving consultation with stakeholders are likely to take some time to negotiate, the Taskforce believes that immediate agreement on interim arrangements is essential if jurisdictions are to agree to enter into cooperative emergency action.

- ✍ The Taskforce recommends that interim cost-sharing arrangements be established and operate on the basis of a 50% share from the Commonwealth and a 50% share collectively from the States and the Northern Territory. **(Recommendation 3.19)**
- ✍ The Taskforce recommends that the individual States and the Northern Territory contribution to the 50% share be calculated according to a simple per capita formula, in the absence of a durable purpose-devised formula for the proportional contribution from the States and the Northern Territory. **(Recommendation 3.20)**
- ✍ The Taskforce recommends that a \$5 million cap be introduced for the combined Commonwealth/State/Northern Territory contribution to declared introduced marine pest emergencies over the interim arrangements period. Any requirements for additional funding over this two year interim period should be referred back to the Ministerial Council on Forestry, Fisheries and Aquaculture for approval. **(Recommendation 3.21)**
- ✍ The Taskforce recommends that access to funding by agencies for this interim period should be by a simple arrangement that includes the following features:
 - ?? Funding would be available only for essential actions taken under a declared emergency situation, in response to new introductions or translocations of marine pests, and only after this proposed interim arrangement has been agreed.
 - ?? For the purposes of funding, the status of a declared emergency, introductions, translocations and essential action would be a matter for judgement by the Consultative Committee on Introduced Marine Pest Emergencies, based on guidelines for eligible costs as outlined in the draft Australian Emergency Marine Pest Management Plan.

- ?? The Consultative Committee on Introduced Marine Pest Emergencies would make its judgements explicit to all parties at the time of the emergency response, and confirm these in writing.
- ?? Funding would only be available for those costs that fall within the scope of ‘eligible costs’ as outlined in the draft Australian Emergency Marine Pest Management Plan. (These are modeled on those used for animal disease emergency responses.) Jurisdictions are encouraged to benchmark any areas of expenditure that will assist in determination of eligible costs in the event of a declared introduced marine pest emergency.
- ?? Cost-sharing would apply to costs of actions taken during the emergency phase of the response only, and would not apply to any expenses relating to actions taken after commencement of the stand-down stage of the emergency.
- ?? Final agreement on eligible costs for any emergency response will be taken by the Ministerial Council on Forestry, Fisheries and Aquaculture. This should generally follow the procedures adopted by the Agriculture and Resource Management Council of Australia and New Zealand for animal disease emergency responses.
- ?? The Consultative Committee on Introduced Marine Pest Emergencies should provide the Ministerial Council on Forestry, Fisheries and Aquaculture with updates of projected costs of incursions as actions proceed, in line with procedures that are generally used for animal disease emergencies, to allow progressive judgements on continuation of funding.
- ?? Formal approval for drawing down funds within the Commonwealth should lie with Agriculture, Fisheries and Forestry – Australia, which would take decisions following consultation with the Department of Finance and Administration. States and the Northern Territory would similarly need to make appropriate provisions within their jurisdictions.
- ?? Funding claims should be put forward in a single coordinated manner by each jurisdiction’s treasury, and include all relevant agencies’ claims.
- ?? These arrangements would be non-prejudicial to any existing financial arrangements between the Commonwealth and the States/Northern Territory.

(Recommendation 3.22)

~~RE~~ The Taskforce recommends that each jurisdiction immediately seeks appropriate funding arrangements to support the proposed interim cost-sharing arrangement for introduced marine pest emergencies. **(Recommendation 3.23)**

LONGER-TERM REFORM — THE NATIONAL SYSTEM FOR THE PREVENTION AND MANAGEMENT OF INTRODUCED MARINE PESTS

The Taskforce considered that there was a need to develop a more long-term and robust system to provide for an effective integrated national approach to the prevention and management of introduced marine pests.

Overview of the National System

~~✍~~ The Taskforce recommends that the Ministerial Council on Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and the Australian Transport Council agree to establish a National System for the Prevention and Management of Introduced Marine Pests.
(Recommendation 4.1)

~~✍~~ The Taskforce recommends that the National System for the Prevention and Management of Introduced Marine Pests should include the following components:

- ?? **prevention** systems operating at the **pre-border, border and post-border** levels to reduce the risk of importation and translocation of introduced marine pests covering all vectors and sources;
- ?? coordinated **emergency response** to new incursions and translocations;
- ?? ongoing **control** of introduced marine pests already in Australia;
- ?? **monitoring** to assist in risk assessment, detection of new incursions or spread of existing introduced marine pests, and control programs;
- ?? **targeted research** to underpin policy and management initiatives;
- ?? a **community preparedness** program to ensure public participation in and support for the National System;
- ?? **education and training** to support operation of the National System;
- ?? a **clear division of responsibilities** between governments, agencies and stakeholders involved in introduced marine pests management;
- ?? explicit agreement on the **statutory framework** which will be used to enable action under the System's components and to regulate all relevant sectors; and
- ?? **secure funding arrangements** for each element of the National System, including contributions from relevant private sector beneficiaries and potential polluters.

(Recommendation 4.2)

Prevention, emergency response and control programs are the three core intervention phases of the National System. The other issues are cross-cutting, applying across these three primary areas of intervention.

National Policy Framework

✍ The Taskforce recommends that a single policy document be developed and agreed between the Commonwealth, State and Northern Territory Governments through the Ministerial Council on Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and Australian Transport Council, that clearly sets out all aspects of responsibilities for the National System for the Prevention and Management of Introduced Marine Pests and its components. This document should be prepared by the National Introduced Marine Pests Coordination Group and agreed and adopted by the three relevant Ministerial Councils, in consultation with stakeholders, by the end of the interim arrangements period. **(Recommendation 4.3)**

✍ The Taskforce recommends that the management agencies responsible for the various components of the National System should contribute to regular reports from the National Introduced Marine Pests Coordination Group to the Ministerial Councils on the status and performance of the National System's development, establishment and implementation, including reporting on progress against milestones outlined in this report. **(Recommendation 4.4)**

Timing for Development and Implementation

✍ The Taskforce recommends that the components of the National System for the Prevention and Management of Introduced Marine Pests be progressively developed and adopted within a two year timeframe. This will be consistent with the timeframe proposed for the sunset on the interim arrangements. **(Recommendation 4.5)**

Consultation Arrangements

✍ The Taskforce recommends that the National System include a consultative body that allows for effective government and non-government stakeholder advice and consultation on its implementation. A decision on the format and terms of reference of this body should be taken by relevant Ministerial Councils at the end of the interim arrangements period, based on advice from the National Introduced Marine Pests Coordination Group. **(Recommendation 4.6)**

International Policy for Prevention (Pre-Border)

✍ The Taskforce recommends that the Commonwealth Government continues to take a leadership role within the International Maritime Organisation in relation to the development of international approaches to minimise the translocation of marine species by all vectors related to shipping. **(Recommendation 4.7)**

~~///~~ The Taskforce recommends that the Commonwealth direct greater efforts at regional and bilateral approaches to accelerate international cooperation on management of introduced marine pests. **(Recommendation 4.8)**

Prevention of Introduction and Translocations Via Vessels

~~///~~ The Taskforce recommends that AQIS continue to take the lead agency role to develop and manage a single national management regime for preventing the introduction and translocation of introduced marine species from vessels in Australian waters, based on a risk management approach, as a component of the National System for the Prevention and Management of Introduced Marine Pests. **(Recommendation 4.9)**

~~///~~ The Taskforce recommends that as part of the National System, the Commonwealth, State and Northern Territory governments cooperate to develop a system(s) that allows for real-time monitoring and/or management of vessel movements and assessment of risks, in terms of their potential for translocation of introduced marine pests. **(Recommendation 4.10)**

AQIS has prepared a draft *Action Plan for Minimising the Risks to Australia from the Introduction and Translocation of Marine Pests by Vessels*. The draft AQIS Action Plan includes immediate actions (some of which will be provisional in nature) and longer-term actions. These actions recognise the complexity of arrangements and the staged approach that will be required to conclude a single national management regime for preventing the introduction and translocation of introduced marine species from vessels in Australian waters, ranging from international shipping at its first port-of-call, through to coastal shipping and inshore pleasure craft.

~~///~~ The Taskforce recommends that the draft *Action Plan for Minimising the Risks to Australia from the Introduction and Translocation of Marine Pests by Vessels* be finalised and then agreed and adopted by the Commonwealth and the States/Northern Territory, as an essential component of the National System for the Prevention and Management of Introduced Marine Pests. **(Recommendation 4.11)**

~~///~~ The Taskforce recommends that governments ensure that an alternative to tributyltin that is cost-effective, environmentally acceptable and safe, is available prior to imposing a unilateral ban on the application of tributyltin in Australia. **(Recommendation 4.12)**

~~///~~ The Taskforce recommends that the hull fouling issue be given a similar priority to that for ballast water. As part of this approach, the AQIS Decision Support System should be extended to handle hull fouling as soon as practicable. **(Recommendation 4.13)**

~~///~~ The Taskforce recommends that the interim trigger list and any other existing listings of introduced marine pests be consolidated and further developed, to form a single list of threatening introduced marine species that can be used for both risk management and emergency response purposes. **(Recommendation 4.14)**

The National Environment Protection Council has asked the Taskforce to provide it with advice on whether or not to scope a National Environment Protection Measure for ballast water.

✍ The Taskforce recommends that the National Environment Protection Council consider the appropriateness of scoping a National Environment Protection Measure for ballast water in the context of progress in implementation of the AQIS Action Plan over the next two years. The National Introduced Marine Pests Coordination Group should further advise the National Environment Protection Council on the need for a ballast water National Environment Protection Measure at the end of the two year timeframe. **(Recommendation 4.15)**

The Taskforce also recognised that ballast water and sediments and hull fouling were not the only means by which vessels could transport introduced marine pests.

✍ The Taskforce recommends that the AQIS Action Plan should explicitly pursue the management of vectors (other than ballast water and hull fouling) associated with vessels such as internal water systems, anchor chains, vessel lockers and ropes. **(Recommendation 4.16)**

In addition, there are non-vessel vectors for the introduction and translocation of introduced marine pests. A comprehensive National System must address all vectors, while setting priorities among them.

✍ The Taskforce recommends that a component of the National System should develop management options for minimising the risk of introduction and translocation of introduced marine pests posed by non-vessel vectors such as imported aquarium fish and imported fish and fish products. **(Recommendation 4.17)**

Emergency Response to New Incursions and Translocations

✍ The Taskforce recommends that the interim arrangements for emergency responses to incursions and translocations of introduced marine pests be refined over the interim period to form a permanent component of the National System for the Prevention and Management of Introduced Marine Pests. **(Recommendation 4.18)**

Pest Control Programs

To date there have not been extensive nationally coordinated efforts in the area of control or mitigation of established populations of introduced marine pests. A component of the National System should explicitly address the need for a more coordinated and effective approach to control of established exotic marine pests.

✍ The Taskforce recommends the development and implementation of plans to reduce, eliminate or prevent the impacts of introduced marine pests on the biodiversity and marine industries of Australia. Identification of species for which

these plans should be developed should occur through the National Introduced Marine Pests Coordination Group. **(Recommendation 4.19)**

✍ The Taskforce recommends that the Commonwealth Government explore the option of developing statutory plans to reduce, eliminate or prevent the impacts of introduced marine species on the biodiversity of Australia using Section 301A of the *Environment Protection and Biodiversity Conservation Act 1999*. This should be nationally coordinated by Environment Australia, as part of the National System. **(Recommendation 4.20)**

There are a number of issues that cut across the three key intervention phases mentioned above, that form the core of the National System. These cross-cutting issues are discussed below.

Statutory Framework

✍ The Taskforce recommends that a target date of six months from when the interim arrangements become established should be set for reaching agreement between the Commonwealth and the States and Northern Territory on identifying the combination of statutory powers to be used in the long-term National System for the Prevention and Management of Introduced Marine Pests. **(Recommendation 4.21)**

✍ The Taskforce recommends that environmental management plans, that address management of introduced marine pests and support the relevant components of the National System, are put in place for all ports. Instruments for best achieving this should be investigated by the National Introduced Marine Pests Coordination Group within the first twelve months of the interim arrangements. **(Recommendation 4.22)**

✍ The Taskforce recommends that liability issues for any agencies, companies and individuals — both government and non-government — that may be involved in an emergency response to an introduced marine pest incursion, be examined within all jurisdictions. This work should be completed within one year of the interim arrangements entering into effect. Based on this examination, as part of the development of the National System, the National Introduced Marine Pests Coordination Group should provide clear guidance on liability issues and the ensuing implications, for all likely participants in introduced marine pest management. **(Recommendation 4.23)**

Secure Funding Arrangements

✍ The Taskforce recommends that jurisdictions provide resources to allow the timely and effective development and implementation of the National System. **(Recommendation 4.24)**

✍ The Taskforce recommends that the Ministerial Council on Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and the Australian Transport Council, agree to give the National Introduced Marine Pests Coordination Group a mandate to develop and

recommend options for a continuing and secure national funding base to support the National System. **(Recommendation 4.25)**

- ✍ The Taskforce recommends that compensation issues should be examined, and if necessary, compensation arrangements be negotiated during the interim arrangements period, to cover actions taken as part of a marine pest emergency. Any areas not covered by this agreement, or where agreement cannot be reached, should continue under present arrangements as outlined in Section 3.2.7. **(Recommendation 4.26)**

Monitoring

- ✍ The Taskforce recommends staged completion of port baseline surveys for all Australian first ports of call and adoption of a targeted approach for surveying other ports and marinas, in accordance with priorities established under the AQIS Action Plan. **(Recommendation 4.27)**
- ✍ The Taskforce recommends that CSIRO Centre for Research on Introduced Marine Pests continue to develop sampling methodologies for locations that are a high risk for first-time marine pest introduction to Australia, with the aim of completing these methodologies within six months of the commencement of the interim arrangements. **(Recommendation 4.28)**
- ✍ The Taskforce recommends that a monitoring component be developed for the National System that is integrally linked to the prevention and emergency response components of the National System. The National Introduced Marine Pests Coordination Group should oversee development of this system, which should be ready for implementation within six months of the commencement of the interim arrangements. **(Recommendation 4.29)**

Targeted Research to Underpin Policy and Management

- ✍ The Taskforce recommends that a national plan for introduced marine pest research and development be prepared within two years, through the National Introduced Marine Pests Coordination Group. The national research and development plan should have work program elements that support all components of the National System for the Prevention and Management of Introduced Marine Pests. **(Recommendation 4.30)**
- ✍ The Taskforce recommends that both government and industry contribute to research and development funding for introduced marine pests and that the national plan for introduced marine pests research and development specifically address funding requirements and sources. **(Recommendation 4.31)**
- ✍ The Taskforce supports the establishment of a Cooperative Research Centre on Marine Bio-invasions, with CSIRO Centre for Research on Introduced Marine Pests taking the lead as the best delivery mechanism for some or all of introduced marine pests research. The Taskforce further recommends that both government and industry contribute funds to support the proposed Cooperative Research Centre on Marine Bio-invasions. **(Recommendation 4.32)**

Community Preparedness Program, Education and Training

- ✍ The Taskforce recommends that greater emphasis should be given to community awareness of introduced marine pest issues, and to targeting relevant community groups, such as fishers, divers, sailors and Coastcare groups, with the objective of mobilising them to monitor and report on possible marine pest outbreaks. Agriculture, Fisheries and Forestry – Australia, in consultation with Environment Australia and the States/Northern Territory, should coordinate a process that identifies priorities, costs and agency responsibilities for a coordinated national awareness program on introduced marine pests, to be agreed by the National Introduced Marine Pests Coordination Group within six months of the interim arrangements entering into effect. **(Recommendation 4.33)**

- ✍ The Taskforce recommends that all components of the National System include an education and training component and that resources are made available to support these. Preparation of modules that can be used or adapted for use across jurisdictions is recommended as the best means to ensure consistency of messages and is also likely to be more cost-efficient. **(Recommendation 4.34)**

Chapter 1: Introduction

1.1 THE NATIONAL TASKFORCE ON THE PREVENTION AND MANAGEMENT OF INTRODUCED MARINE PESTS

In response to growing concern about the potentially devastating impacts of introduced marine pests, the Australian and New Zealand Environment and Conservation Council (ANZECC) and the Ministerial Council on Forestry, Fisheries and Aquaculture (MCFFA) agreed to establish the National Taskforce on the Prevention and Management of Marine Pest Incursions.

The Taskforce was instructed to report to the Ministerial Councils, through their respective standing committees, before the end of 1999, with recommendations both for interim improvements and for longer-term reforms to the national arrangements for the prevention and management of introduced marine pests.

The National Environment Protection Council (NEPC) also asked that the Taskforce report to it on the potential role of a National Environment Protection Measure (NEPM) for ballast water.

The Taskforce was convened in August 1999. Its membership and terms of reference are at [Appendix A](#).

In September 1999 the Taskforce prepared and distributed a non-government stakeholder consultation paper in order to elicit views from stakeholder groups, including industry. A summary of the views from respondents is at [Appendix B](#).

The outcomes of two workshops were also used by the Taskforce in preparing this report. These were the *Black-striped Mussel Debriefing Workshop* (Environment Australia, Darwin, 27–28 August 1999) and *Harmonizing Australia's Ballast Water Arrangements* (Australian Quarantine and Inspection Service (AQIS), 15–16 September 1999). Reports of these workshops can be obtained from Environment Australia and AQIS respectively.

The Taskforce confined its deliberations to introduced, rather than native, and marine, rather than freshwater, pests. The terms introduced, exotic, non-native, non-indigenous and alien species are used interchangeably. The Taskforce focussed on pest species rather than pathogens and parasites, but recognises that the findings and recommendations made in this report may also have application to the future management of marine pathogens and parasites.

1.2 AN OUTLINE OF THE SCOPE AND NATURE OF THE INTRODUCED MARINE PEST PROBLEM

The Taskforce identified some core principles that provide the basic context for the examination of introduced marine pest management:

- ?? Management of introduced marine pests is an essential and integral component of ecologically sustainable ocean management, including the protection of native marine plants and animals.
- ?? Not all introduced organisms become pests, however all feral exotic species are undesirable in Australian waters.
- ?? A long-term commitment is essential for effective management of introduced marine pests.
- ?? Successful management of introduced marine pests requires an effective legislative, educational and coordination framework that provides for the participation of all levels of government, managers of public and private sector activities, service industries and the community.
- ?? Managers of private and public sector activities have a duty of care to ensure that their activities do not cause unacceptable damage to the ocean, which extends to introduced marine pests management.
- ?? Risk management to reduce the likelihood of introduction and translocations of marine pests is preferable to relying on control of newly established populations.
- ?? Where prevention fails, eradication is desirable and may be achievable and managers should strive for early intervention as the most cost-effective approach.
- ?? Resources need to be focused on high priority species, locations and vectors.
- ?? Any management actions must be practical, economically and technically sound and socially acceptable.
- ?? The cost of management of introduced marine pests should be apportioned across both the public and private sectors, reflecting their roles as both contributors to the problem and likely beneficiaries of management action.
- ?? Government contribution to introduced marine pest management is appropriate where it produces a public benefit through activities that are technically sound and for which the economic, environmental and social benefits outweigh the costs.
- ?? A scientific approach should be taken to introduced marine pest management, including risk assessment and analysis of potential impacts.

The rest of this Section provides additional background to these points.

The nature of Australia's marine ecosystems lays them open to invasion and consequent modification by introduced marine species. Australia has around 60,000 km of coastline including offshore islands. Australia is amongst the world's twelve most biologically diverse countries, with up to 80% of our southern and 10% of our northern marine species found only in Australia. In some cases introduced marine species establish by out-competing and displacing native species. In some cases they become so abundant that they cause significant economic, ecological and health impacts and become pests.

There are more than 250 known introduced marine species in Australian coastal waters and the number is rising as surveys are conducted. Depending on the criteria used, Port Phillip Bay alone has between 99 and 178 introduced species. Current knowledge suggests that perhaps around one in six introduced marine species reaches

pest status. Those that do may have environmental, economic and social impacts, including on fisheries and aquaculture production; human health; tourism; and coastal amenity. An indication of some of the introduced marine pests already found in Australia, and their impacts, is at [Appendix C](#).

Environmental impacts of introduced marine pests can have significant long-term consequences and include: reduced biodiversity through predation, competition and alteration to ecosystems; genetic changes to native and introduced populations; and physical changes to the environment including increased eutrophication of coastal waters.

The potential economic impact of introduced marine pests is also very serious. This was clearly illustrated by the recent outbreak of the black-striped mussel in Darwin, which cost more than \$2 million to control. Establishment of this species could have resulted in significant economic damage. For example, it had the potential to decimate the pearling industry (valued at around \$225 million in 1998), and also to require substantial continuing mitigation costs as a fouling organism of vessels, water outlet pipes and so on. A similar pest species that has become established in the Great Lakes of North America, the zebra mussel, has an annual control cost estimated at US\$30 million. A 1994 report prepared for AQIS suggested that controlling the spread of toxic dinoflagellates through improved ballast water controls could reap benefits in the order of \$200 million (measured in terms of community 'willingness to pay' for the benefits arising from improved controls).

Australia's status as an island continent and maritime trading nation necessarily exposes us to many vectors for the introduction of marine species.

Over ninety-five percent of our imports and exports are carried by shipping, which must use ballast water for stability and safety while travelling to and within Australian waters. Furthermore, the quality of our environment attracts recreational and charter yachts that tour the world and may carry exotic species on their hulls, equipment or internal water systems.

A range of other carriers exist, such as drilling platforms, refugee boats, barges and fishing vessels. In addition to the more obvious vectors such as ballast water and hull fouling, others such as vessels' chains, nets, gear, sea chests and water systems add to the complexity of the management problem.

There are other potential sources of introduced marine pests apart from vessels. Imports such as seafood, aquarium species and mariculture feedstock can also act as vectors for the introduction of undesirable species.

Introduction of marine species is only part of the problem. Once here, marine pests can move around the coastline through the same means that brought them here as well as through other vectors such as by coastal shipping and boating, attachment to fishing gear, floating logs, larval dispersal and so on. For example, the recent establishment of the northern Pacific seastar in Port Philip Bay in Victoria is suspected to be a result of translocation from the Derwent Estuary in Tasmania.

Regulatory efforts to date have largely concentrated on international shipping ballast water (see Chapter 2). Nevertheless, it is clear that an effective national system for the prevention and management of introduced marine pests must address all vectors, while setting priorities among them. Equivalent priority should be given to preventing introductions of marine pests into Australia and translocations within our waters.

It will be necessary for Australia to continue to allow goods and vessels into the country that may carry exotic marine species. For example, our national economic performance depends on the continuation of an efficient and competitive shipping sector. Consequently, the risk of introducing and translocating species can be minimised but cannot be reduced to zero. Rather, all vectors must be actively risk-managed to reduce the likelihood of introduction and translocation to acceptable levels.

Even with improved management programs, there will continue to be new introductions and translocation of marine pests into and around Australia. Therefore, effective strategies for emergency response, eradication, control and mitigation of marine pest outbreaks must be included as integral components of a national approach to introduced marine pest management.

It is often assumed that reducing established introduced marine pest populations is near impossible. And while this is largely the case for well established populations, in some cases eradication, or at least some form of control, may be possible, especially if the introduction is detected early (see Section 2.7). Plans have or are being established to control established populations of terrestrial pests and weeds and aquatic pests such as carp. General principles of pest management are applicable to introduced marine pests and provide a useful starting point for the development of more coordinated and effective control programs.

The preceding paragraphs indicate that there are both public good and private sector aspects to the actual and potential costs of marine pest introductions. Also, there are different potential sources of these introductions. Adoption of concepts such as polluter pays and beneficiary pays for introduced marine pest management, highlights a range of potential polluters and beneficiaries (eg shipping, aquaculture) and incorporates a public good element relating to environmental degradation, loss of amenity and so on. The logical conclusion from this is that the cost of management of introduced marine pests should be apportioned across both the public and private sectors, reflecting their roles as both contributors to the problem and likely beneficiaries of management action.

Chapter 2: Summary of Current Situation

2.1 OVERVIEW

For many years Australia has taken steps to manage introduced marine pests, including border control, monitoring, responding to incursions and management of established pests. There is also a substantial research and development program operating, particularly through AQIS's Strategic Research and Development Ballast Water Program and the CSIRO Centre for Research on Introduced Marine Pests (CRIMP). Existing programs are in place at the national level and within all States and the Northern Territory. Programs and projects continue to be developed and implemented, with a number of new initiatives currently either being put in place or in development.

Nevertheless, despite these activities, new incursions continue and some existing pest species are extending their range. There are gaps and deficiencies in management efforts, with some vectors for pest introduction and transfer receiving greater attention than others and a distinct lack of coordination at the national level across the range of activities. This not only enhances the risk of future introductions or translocations, but also leads to inefficiencies, whereby the national benefit from individual programs and projects is not necessarily being maximised.

It is also worthwhile noting that the primary management agency for introduced marine pest issues varies across the States/Northern Territory. In some jurisdictions it lies with fisheries agencies, and in others in environment departments. Different departments again, including transport agencies, may have principal carriage of ballast water issues within the States/Northern Territory.

The main emphasis to date at the national level has been on the management of ballast water in international commercial shipping. On a global comparison, Australia is considered to have a well-developed strategic approach to managing ballast water. Recent scientific evidence suggests that other vectors such as hull fouling and recreational boating are also important and should be given similar priority. (For example, the recent outbreak of black-striped mussel was thought most likely to have arrived as a hull or other fouler on a private yacht.)

In addition, for the purposes of regulating introduced marine pests, an artificial distinction has been made between the management and regulation of international and national shipping. To effectively manage vessel-based risks for introduced marine pests, both coastal and international shipping must be addressed. The shipping industry has shown concerns that it does not want shippers to face different regulatory frameworks around the country.

To date there has been little mandatory regulation of introduced marine species and their vectors, although arrangements by way of guidelines and other agreements have been in place for ballast water since 1990. The exception is the mandatory requirement for international shipping to report ballast water management arrangements that was introduced in 1999. Verification of this reporting will come

into effect in 2000. Mandatory ballast water management arrangements for international shipping will come into effect by 1 July 2001.

At this stage there has been no decision to introduce further regulation on a national basis for other vectors. For example, hull fouling on international vessels is not regulated, and there is no national mandatory regulation of coastal vessels. That is, the predominant feature of the management framework for introduced marine pests is voluntary action to meet guidelines, where they exist. However, the level of voluntary compliance is difficult to monitor. For small vessels, given that their movements are largely unregulated, education, promotion of codes of practice and the like is expected to be a more effective solution than reliance on mandatory regulation.

Unlike the situation for the management of animal and plant pest and disease outbreaks, there is no established national coordination mechanism for emergency marine pest incursion responses. To manage the outbreak of black-striped mussel in Darwin in April 1999, ad hoc arrangements were needed to coordinate activity between the Northern Territory and the Commonwealth and the States. No coordination arrangement or contingency planning had been established within the Commonwealth in readiness for such an outbreak.

In addition, no cost-sharing arrangements exist between the Commonwealth, States and Northern Territory that would give jurisdictions certainty as to how financial exposure would be managed. In the case of the black-striped mussel, the Northern Territory incurred costs in the order of \$2 million with no assurance at the time that other jurisdictions would offset that expenditure, despite the obvious national importance of eradicating the mussel.

The long-term management of established introduced marine pests has received little nationally coordinated attention. Efforts have been made on a case by case basis within the States/Northern Territory to control marine pest outbreaks (see Section 2.7), with some funding support from Environment Australia's *Coasts and Clean Seas* initiative under the Natural Heritage Trust. There has been no national program of mitigation or control for established introduced marine pests that would parallel the approach taken to, say, weeds of national significance.

2.2 CURRENT POLICY CONTEXT

There are various policy documents and reports at the national level that are relevant to the prevention and management of introduced marine pests. However, while individually these have merit, together they provide a confusing, overlapping and incomplete policy response to the issue. The Taskforce considers that it would be beneficial to produce a single comprehensive policy document that outlines national responsibilities for introduced marine pest management (see Section 4.1.1).

The following are examples of relevant policy documents that more or less have acceptance at the national level.

Australia's Oceans Policy (1998) recognises the need for a more durable nationally coordinated and fully functional incursion response system for marine pests and that a single national management regime, applying to both Commonwealth and State waters, is required in order to address ballast water effectively.

The *Interim Australian Strategy to Prevent Marine Pest Incursions* (1999), adopted in October 1999 as a working document by the Australian Ballast Water Management Advisory Council, focuses on minimizing the risk of further introductions of harmful aquatic organisms and pathogens from overseas. It also seeks to address the risks of translocation of these organisms between Australian ports through coastal shipping. This Strategy updates the *Australian Ballast Water Management Strategy* of 1995.

The Nairn Report *Australian Quarantine – a Shared Responsibility* and the Government's response to this report (1997), included a number of recommendations relating to border controls, pest surveillance and incursion management. It also identified the principle of the continuum of quarantine across pre-border, border and post-border components.

The report of the National Taskforce on Imported Fish and Fish Products *A Report into the Implications arising from Aquatic Animal Imports* (1996) discusses the potential risks from imports of aquatic fish, as does the AQIS report *Import Risk Analysis on Live Ornamental Finfish* (1999).

The strategy *Working Together To Reduce Impacts From Shipping: ANZECC strategy to protect the marine environment* (1996) outlines actions designed to minimise the environmental impacts of shipping (including recreational boating) activities. It includes objectives and actions relating to management of contaminated ballast water and sediments, hull fouling and anti-fouling practices.

Australia's Marine Science and Technology Plan (1999) recognises the need for research to support implementation of a single national management regime for ballast water, a marine pest incursion management program, and to develop environmentally friendly anti-fouling technologies.

The *National Policy for the Translocation of Live Aquatic Organisms: issues, principles and guidelines for implementation* (1999) of MCFFA, provides a risk assessment framework that is of assistance in minimising risk of harmful outcomes from the translocation of aquatic species. For example, it provides guidance on means to minimise the risk of translocation of unwanted associated species (eg introduced marine pests) when moving aquaculture species.

The 1997 report of the Standing Committee on Agriculture and Resource Management (SCARM) Task Force on Managing Incursions of Exotic Pests, Weeds and Diseases contains a number of recommendations relevant to the issue of introduced marine pests.

2.3 PREVENTION: PRE-BORDER

The potential negative impact of introduced marine pests is recognised internationally as an important global issue requiring coordinated and cooperative action. In response, the International Maritime Organization (IMO) has developed international guidelines for ballast water management. These include provisions for a ship management plan for each international vessel, and a model ballast water data capture form for pre-border communication of information from ship to shore.

The Marine Environment Protection Committee of the IMO commenced drafting binding ballast water management arrangements for international shipping in 1997. These are now expected to be agreed by the IMO no earlier than 2001–02. Australia will continue to press the IMO for mandatory international ballast water arrangements at the earliest possible date.

In September 1999, the Commonwealth Minister for Agriculture, Fisheries and Forestry announced that Australia will unilaterally introduce mandatory ballast water management arrangements by July 2001 for international shipping entering Australian waters.

The IMO is also considering an international convention that would ban the use of the hull anti-foulant, tributyltin (TBT). While widely used and effective as an anti-foulant, TBT has been shown to be toxic and persistent in the environment. Australia will continue to pursue an international ban on the use of TBT through the IMO which would require the development of alternative anti-foulants that are cost-effective and safe.

The Australian Government has committed to banning the use of TBT by 2006 on vessels being repainted in Australian docks (noting Defence operational requirements), unless the IMO sets an earlier date for such a ban. Nevertheless, regard needs to be given to the need for safe and effective alternatives to TBT to be developed and made available within this timeframe to avoid the ban having the serious consequential impact of increasing the risk of introductions of marine pests via hull fouling.

The need for cooperative international effort on introduced marine pests has also been recognised through other fora at the bilateral, regional and multilateral level, including the Convention on Biological Diversity.

2.4 PREVENTION OF INTRODUCTIONS AT THE BORDER

2.4.1 Commonwealth and State/Northern Territory Roles

National border control issues relating to both the direct and indirect importation of aquatic organisms (disease, pest status, etc) are the responsibility of the AQIS, under the *Quarantine Act 1908*.

Some State/Northern Territory Government agencies are increasingly playing a significant role in border control of unintentionally introduced marine species. For example, at present the Northern Territory Government inspects and certifies all vessels arriving from overseas destinations prior to their entry into marinas in Darwin Harbour.

As Governments and agencies have expanded their activities in this area there has developed a significant lack of clarity as to the roles and responsibilities of the levels of government and the agencies. Coordinated Commonwealth, State and Northern Territory responses are required to address the risks posed by international and coastal shipping to introduce or translocate harmful aquatic organisms and pathogens to Australia's marine and coastal environment. Industry and the private sector also have an important role in ensuring effective and comprehensive action on this matter.

2.4.2 Ballast Water and Sediments

With regard to introduced marine pests, AQIS's emphasis to date has been on the management of shipping, particularly of ballast water and sediments. Recently, as the importance of translocation of species between Australian ports and hull fouling have become more apparent, AQIS has extended its attention into this field.

Australia has already implemented a series of management measures for ballast water (Box 1).

An advisory committee with an independent chair and membership drawn from non-government interests and Commonwealth and State agencies — the Australian Ballast Water Management Advisory Council (ABWMAC) — has provided advice on ballast water management issues since 1995 to AQIS and the Minister responsible for AQIS. Recently ABWMAC has extended its area of advice to domestic translocation and other vessel vectors such as hull fouling.

AQIS will manage Australia's July 2001 imposition of ballast water management arrangements on international shipping through the implementation of its Decision Support System (DSS), which is being developed jointly with key industry stakeholders. The DSS will provide a sophisticated risk assessment tool to allow authorities to manage ballast water discharges from international and, in the future, coastal vessels more effectively. Exchange verification testing, a maritime awareness program and a national list of high-risk introduced marine species are key components of the DSS approach.

AQIS has been developing a single national management regime for ballast water, that will cover ballast water discharge in Australian waters by both international and national vessels. As part of the work of the Taskforce, AQIS has now extended this to develop a single national management regime for preventing the introduction and translocation of introduced marine species from vessels in Australian waters (see Section 4.2.2).

Box 1: Chronology of actions to manage ballast water discharge issues (1990 – 1999)

1990	Australian Ballast Water Management Guidelines for international shipping introduced (AQIS)
1993	International Maritime Organisation adopts international ballast water management guidelines based on the Australian model
1995	Interim Australian Ballast Water Management Advisory Council (ABWMAC) formed
1995	Australian Ballast Water Management Strategy approved (ABWMAC)
1995	Formation of the Research Advisory Group of ABWMAC (ABWMAC)
1996	Coastal Voyage Ballast Water Management Guidelines developed (Australian Coastal Ballast Water Group of ABWMAC)
1998	Trial of Coastal Voyage Ballast Water Management Guidelines (Three Port Trial) (Environment Australia and ABWMAC)
1998	Ballast Water Research and Development Levy introduced (AQIS)
1999	Revised Australian Ballast Water Management Guidelines for international shipping (AQIS)
1999	Introduction of mandatory reporting for ballast water discharges for international shipping (with verification to come into effect on 1 January 2000) (AQIS)
1999	Launch of Maritime Awareness Campaign for international vessels (AQIS)
1999	Minister for Agriculture, Fisheries and Forestry announces mandatory ballast water arrangements for international shipping by 1 July 2001
1999	<i>Interim Australian Strategy to Prevent Marine Pest Incursions</i> adopted (ABWMAC)

A national list of high-risk marine species has been developed by ABWMAC and is contributing to risk assessment procedures, policy development, operational management and research and development prioritisation for ballast water border control. It also assists in identifying priorities for preventing translocation between Australian ports. However, it has been developed with reference solely to ballast water and there is presently no nationally agreed list of high-risk marine species that can be used to assist risk assessment for all vectors.

Under current Commonwealth Government policy, costs for providing, through AQIS, infrastructure and industry-specific services in relation to ballast water and other marine craft management have to be recovered. The Commonwealth provides some funding for non-recoverable costs.

A research and development funding levy under the *Ballast Water Research and Development Funding Levy Act 1998* and the *Ballast Water Research and Development Funding Levy Collection Act 1998* will continue until July 2000 or until

\$2 million has been collected. These funds supplement a \$1 million grant from the *Coasts and Clean Seas* initiative under the Natural Heritage Trust. The funds sourced from the industry levy are used for research and development into the management of ballast water only.

2.4.3 Hull Fouling

Recent work both in Australia and New Zealand suggests that hull fouling is a significant source of introduced marine pests. This threat has been recognised by the Sydney Olympics Waterways Working Committee, who are examining strategies to minimise the risk of introductions of introduced marine pests via hull fouling from the many vessels expected to visit Sydney during the 2000 Olympic Games. AQIS is also considering risk management arrangements for the first port of call for these vessels, which in many cases will be in northern Australia.

Hull fouling presents particular practical and operational challenges that have not yet been fully analysed on a national basis. Accordingly, national policy and regulation is rudimentary. While the level of international knowledge of this vector is less than for ballast water, anecdotal evidence suggests that hull fouling is likely to be more of a problem for smaller vessels rather than for the larger international commercial ships which currently use proven anti-foulants. Important hull fouling threats may arise from vessels as varied as recreational and charter yachts, refugee boats, smaller commercial vessels and miscellaneous coastal craft. Also relevant to this issue is the pending ban on the use of TBT and the search for practical and effective alternative anti-foulants.

The AQIS DSS, primarily developed for ballast water management, has been designed with the flexibility to allow the addition of risk assessment modules for other vectors. In particular, AQIS has indicated that a hull fouling risk assessment module can be added when sufficient basic data are available. A target date has been set for this of mid-2001 (see Section 4.2.2.1).

While it is clear from the above that ballast water management in Australia for international shipping is relatively advanced by world standards, translocation by ballast water and the prevention of introduction and translocation of marine pests by hull fouling and other vectors for all vessels lags relative to ballast water.

2.5 PREVENTION OF TRANSLOCATION (POST-BORDER)

The Taskforce acknowledges that prevention and minimisation of incursions at the border is desirable, but that subsequent management post-border, if the border is breached, is also required.

2.5.1 Ballast Water and Sediments

In 1996, AQIS through ABWMAC proposed the development and trial of voluntary Coastal Voyage Ballast Water Management Guidelines. These comprise uniform guidelines to protect the marine environment from the translocation, by coastal

shipping, of organisms which may have been initially introduced in international ships' ballast water and sediments.

The first stage of implementation of these Guidelines was undertaken by developing nationally consistent procedures for managing coastal ballast water. In 1998 port and ship management plans, reporting procedures and other procedures were successfully trialed to assess their suitability between the three ports of Devonport, Melbourne and Adelaide. This is known as the 'Three Ports Trial' (see Box 2). The trial provided useful practical guidance on implementation of the Guidelines and means for moving forward with the development and implementation of coastal ballast water management systems.

Box 2: The Three Ports Trial: testing the Coastal Voyage Ballast Water Management Guidelines

Model procedures were developed based on vessels reporting details of their management of ballast water used in domestic coastal voyages (as opposed to international voyages). The procedures were trialed on vessels operating between Adelaide, Devonport and Melbourne.

Key aspects of the model procedures are:

- the use of AQIS's existing ballast water reporting arrangements for international shipping;
- a single contact and decision making point in each port (the ballast water officer); and
- a model risk assessment methodology and port ballast water management plans to determine the level of risk associated with discharging ballast water.

Current constraints on implementing these procedures effectively include:

- the need for continuous operation (24 hours a day);
- the complexities (especially time constraints) of safe and efficient ballasting operations;
- the need to identify treatment and management options for high-risk vessels; and
- development and acceptance of stakeholder's responsibilities (principally States/Northern Territory and port authorities) for management of arrangements.

The trial was limited by its simplistic methodology; in particular a short timeframe reduced the opportunities to apply the procedures to bulk carriers (which carry the most ballast water). However the Three Port Trial clearly demonstrated that it is currently possible to exercise at least a rudimentary form of domestic ballast water control and hence reduce the risk of translocating introduced marine pests.

2.5.2 Hull Fouling/Other Pathways

The recent study by CRIMP of the introduced species of Port Phillip Bay, Victoria, pointed to the importance of hull fouling as a vector for domestic translocations of introduced marine pests. Section 2.4 discussed deficiencies in current systems for minimising the risk of introductions via vectors such as hull fouling. These limitations also apply to initiatives to counter domestic translocations via hull fouling and other vectors. There are only a few programs existing at present to address this issue; examples are discussed below.

The Victorian Department of Natural Resources and Environment (DNRE) is managing two projects in Victoria that are relevant to translocation issues nationally. The projects target major pests like the northern Pacific seastar *Asterias amurensis* and Undaria seaweed *Undaria pinnatifida*. One project will develop 'sterilisation' techniques and a mandatory code of practice for sterilising mariculture equipment that marine farmers move from Port Phillip Bay to Westernport Bay. The other will develop voluntary operating practices designed to encourage small vessel operators and port managers to help prevent marine pests spreading to and between local ports.

In addition, the *National Policy for the Translocation of Live Aquatic Organisms* (see Section 2.2) has some relevance to the introduced marine pests translocation issue.

2.6 EMERGENCY RESPONSE

As already noted, there are no national contingency plans in place for an emergency management response to new incursions or translocations of introduced marine pests. Consequently, the response to the black-striped mussel incursion in Darwin in April 1999 required the development of an ad hoc arrangement both within the Northern Territory and for national coordination.

Despite the lack of national contingency response plans for introduced marine pests, the response principles for emergency situations are well-developed in other areas. The method used for the black-striped mussel incursion successfully followed generic emergency management structures and practices, thereby demonstrating that this approach was applicable to emergency responses for introduced marine pest outbreaks.

2.7 MITIGATION/CONTROL OF EXISTING PESTS

There are only a small number of known management options for control or eradication of introduced marine pests. Workshops and meetings held by CRIMP have examined options for control and management of incursions for species such as the European shore crab *Carcinus maenas*, northern Pacific seastar and Undaria seaweed.

Control and eradication efforts to date have centred around physical removal and in one instance chemical treatment (see below for examples). These actions have

operated on a case-by-case and species-by-species basis. There is no coordinated national framework for control of established introduced marine pests, that determines priorities for research and mitigation action, either on a species or a site basis.

Divers from the government, CRIMP and the community removed up to 20,000 *Undaria* seaweed plants over two years from Tinderbox Marine Reserve in Tasmania. These efforts slowed the spread of the seaweed in the Reserve, but failed to prevent it spreading to other areas. Results indicated that physical removal of the plant is likely to be successful only if undertaken very early in the plant's growing cycle before it spores or has the opportunity to spread through natural movement.

In Port Phillip Bay, Victoria, DNRE undertook a bay-wide survey to determine the extent of northern Pacific seastar incursions. The Department also trialed community dive surveys and removal, trapping and marine farm reporting. Dive surveys and routine monitoring of mussel ropes by farmers proved to be the most effective methods for collecting the seastars. Control actions have not prevented the spread of the northern Pacific seastar, which is now found in its millions in Port Phillip Bay, although many areas remain unaffected.

Following surveys to determine the extent of broccoli weed *Codium fragile tomentosoides* and habitats at risk, Coast Action/Coastcare volunteers weeded the Newhaven and San Remo foreshores in Westernport Bay, Victoria. This action curbed infestations in the inter-tidal, but not in the sub-tidal zones. It appears that weeding programs may be useful to contain small-scale outbreaks, but other controls (such as biological controls) would be required to eradicate broccoli weed.

The Department of Primary Industries and Resources South Australia used a combination of divers and dredges to remove an infestation of New Zealand green-lipped mussel *Perna canaliculus* in the Port Adelaide River. Follow up dive surveys indicated that this was a single inoculation of the pest, which has not established or spread. The Department produced information leaflets to alert the community to possible future outbreaks.

The most expensive control action taken to date against an introduced marine pest, was the effort to eradicate the black-striped mussel from marinas in Darwin. This involved a multi-faceted approach including, use of chemicals, physical inspections of hauled-out vessels, divers, locking of marina gates, restrictions on vessel movements, site surveys and communications campaigns. Factors that appear to have been instrumental in the success of the action include: political and public support; access to adequate resources; and the capacity to confine the eradication effort to a locked marina, rather than having to work in an open aquatic environment. Perhaps less predictable lessons that arose included difficulties in accessing chemicals, divers and other resources in a timely fashion and in sufficient quantities, and occupational health and safety issues arising from the challenge of working in a marine environment.

2.8 MONITORING

Monitoring is an activity that is relevant across the spectrum of management stages for introduced marine pests — from prevention to emergency response and pest control. This section outlines some current monitoring activities relevant to these areas.

Currently, management agencies discover information regarding the presence of introduced marine pests through organised, targeted sampling or ad hoc reporting that falls outside of any formal process.

2.8.1 Port Baseline Surveys

Port baseline surveys provide an assessment of what kind of and how many marine pests have been introduced to Australian waters. This enables each port to be categorised as high or low risk, or somewhere in between. This information is essential to the AQIS DSS risk assessment tool.

AQIS and CRIMP have partially funded a number of surveys with 20 out of 65 ports of first call (international shipping ports) surveyed using a nationally accepted protocol developed for ABWMAC by CRIMP. (See Box 3 for more information on CRIMP.)

Plans are underway to commence baseline surveys in Port of Brisbane and Gladstone Port shortly. Ports Corporation of Queensland has already completed surveys of a number of ports within their management and Weipa has recently been surveyed.

In some ports (eg Bunbury, Western Australia; Devonport, Tasmania; and Newcastle, New South Wales), baseline surveys have been followed up with further surveys targeting a particular pest or in one case phytoplankton.

Box 3: CSIRO Centre for Research on Introduced Marine Pests (CRIMP)

In 1994 the Commonwealth Department of Industry, Science and Technology provided funding to establish a national Centre for Research on Introduced Marine Pests (CRIMP) within CSIRO Marine Division. The objectives of the Centre are:

- ?? To develop and promote implementation of tools for earlier warning, better prediction, and more effective assessment of risks and costs of marine pest species introduced to Australia.
- ?? To develop new methods or improve existing measures to control the spread and minimise the impacts of introduced marine species.

Accordingly, major areas of research include analysing risks and impacts, understanding invasion processes (including surveying ports), examining pest management techniques and assessing vectors for introduction and translocation. CRIMP has played a central role in the development of an improved understanding of the introduced marine pest problem and management options.

The Taskforce recognises that specialist taxonomic expertise, which is in limited supply, is needed to enable quick and accurate identification of marine species found during port baseline surveys and to provide the basis for environment management plans for each port.

There are many ports other than ‘first ports’ as well as private ports and marinas. As part of the proposed Decision Support System, these will need to be surveyed or else they may be assessed as ‘high risk’ ports, depending on what other information is available for risk assessment.

The need for ongoing monitoring programs and the funding of these, as well as the initial port baseline surveys is considered in Chapter 4. However, it is worthwhile noting that, based on actual costs and future estimates, port baseline surveys cost from around \$70,000 to in excess of \$250,000, depending on the size of the port and the diversity of species found there. It is estimated that completing port baseline surveys for all Australian first ports of call will cost in the vicinity of \$8 million.

2.8.2 State/Northern Territory Government Agency Monitoring

The States and Northern Territory have undertaken a number of surveys to detect introduced marine pests. The following are some examples.

Victoria has conducted and is conducting extensive marine pests survey work in Port Phillip Bay. A survey has been completed in Westernport Bay, following a recent outbreak of broccoli weed in the Bay. In addition, DNRE currently imposes contract requirements that obliges contractors to report sightings of target pest species.

The Northern Territory Department of Primary Industry and Fisheries is monitoring foreign vessels and sites within Darwin Harbour following the black-striped mussel outbreak and is planning a program of large-scale monitoring.

Queensland Environmental Protection Agency and ports have been monitoring marinas and ports following the black-striped mussel outbreak.

Fisheries Western Australia (WA) is also monitoring anchorages and ports following the black-striped mussel outbreak and is trialing black-striped mussel monitoring devices adapted to Western Australian conditions. Fisheries WA has developed a marine pest monitoring program but to date has not secured funding to implement it.

New South Wales Fisheries and CRIMP recently surveyed the Port of Eden in an ongoing project to monitor Mediterranean fanworm *Sabella spallanzani* and toxic dinoflagellates.

2.8.3 Community Input

The Taskforce considers community awareness to be an integral tool in managing introduced marine pests. There is a significant potential to involve community volunteers, especially divers, in marine pest surveys and monitoring activities.

Informed anecdotal evidence suggests that detection of introduced marine species is most commonly by non-specialist community action. To date, however, few such initiatives have been implemented.

In Western Australia a joint Department of Conservation and Land Management/Coastwest/Coastcare project will establish a community-based coastal monitoring program through a “train the trainers” scheme. This will use manuals and a CD-ROM. The program includes reporting sightings of introduced marine pests. In addition, a Fisheries WA project will produce identification materials for community groups such as divers and schools.

In 1998 a joint CRIMP/AQIS/Environment Australia community-monitoring project collated a useful database of awareness information and defined the needs of formal community monitoring programs. This identified the need for a structured management context to provide meaningful responses to community input including feedback to community participants.

Additional community awareness and monitoring projects are shown in Box 4. These projects should be used to commence the design of a national community-monitoring program for introduced marine pests that could form part of the long-term national management arrangements.

Box 4: Examples of monitoring and awareness projects

Tasmania: through the Fishing Industry Training Board marine farms are trialing traps to monitor northern Pacific seastar and European shore crab. Results due in approximately six months.

New South Wales: the University of Wollongong will seek community involvement in *Caulerpa* spp. monitoring and eradication activities. Preliminary results due in approximately one year.

Western Australia: Fisheries WA is developing identification materials for twelve to thirteen major pests that will encourage target groups such as divers and schools to report sightings. Results due in approximately six months.

National: CRIMP will develop a protocol and associated detection kit to standardise monitoring methods and will involve community groups in Tasmania, the Northern Territory and Western Australia in trials. Results due in approximately two years.

National: CRIMP will manage a national project on behalf of lead agencies in each State/Northern Territory that will consolidate national data holdings on introduced marine pests and make them available to coastal managers and the community via the Internet. Expected to be completed in approximately two years.

Chapter 3: Interim Arrangements for Immediate Implementation

This chapter proposes interim actions and measures that the Taskforce recommends be implemented immediately. They should operate with a two year sunset period. The sunset requirement will provide a timeframe and an incentive for the permanent arrangements to be established. Successful elements of the interim arrangements could be maintained in the permanent arrangements.

~~✍~~ The Taskforce recommends that the interim measures it proposes have a sunset of two years from when they are established. During this period, robust long-term reforms that have been identified by the Taskforce in this report should be developed, negotiated and introduced. **(Recommendation 3.1)**

The date of establishment should be the date at which all jurisdictions have agreed to the interim arrangements, including cost-sharing arrangements (see Sections 3.2 and 3.3). Nevertheless, the Taskforce considers that work should continue on progressing the management of introduced marine pests as outlined in this report, to the extent practicable, on the assumption that this agreement will be forthcoming.

On 19 November 1999, the Chair of the Taskforce wrote to ANZECC and MCFFA Ministers, seeking in principle endorsement of a range of proposed interim measures, which are included here.

The proposed interim measures mainly target improved coordination of emergency responses to introduced marine pest incursions, including interim cost-sharing arrangements.

~~✍~~ The Taskforce recommends that jurisdictions provide resources that allow for the effective and timely implementation of the interim arrangements. **(Recommendation 3.2)**

The proposals set out in this Chapter are in addition to any consistent developments that are in hand in agencies across governments.

3.1 INTERIM COORDINATION ARRANGEMENTS

High-level policy guidance is necessary to oversee and give direction to the implementation of the interim arrangements and to the development of the long-term reforms. Given the inter-governmental and cross-portfolio nature of the issues, the Taskforce is of the view that this should involve Commonwealth, State and Northern Territory Ministers, in consultation with relevant stakeholders.

The Taskforce notes the close interest that Commonwealth, State and Northern Territory Ministers across a range of portfolios have shown in all aspects of the introduced marine pest issues. The Taskforce suggests that arrangements in the past have not given all relevant key ministers an opportunity to play a central role in the development of policy and management practices.

The Taskforce proposes interim national coordination arrangements as shown diagrammatically at Figure 1 and elaborated in Recommendations 3.3 to 3.7.

~~///~~ The Taskforce recommends that the Ministerial Council on Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and the Australian Transport Council should jointly oversee the implementation of the interim arrangements, as well as the development of the integrated National System for the Prevention and Management of Introduced Marine Pests (see Recommendation 4.1). Other relevant Commonwealth and State/Northern Territory Ministers should also be kept closely informed regarding developments. **(Recommendation 3.3)**

~~///~~ The Taskforce recommends that it be succeeded by a National Introduced Marine Pests Coordination Group, which should be given a mandate for two years to: oversee implementation of the interim arrangements; coordinate the development of the longer-term national system; and facilitate inter-governmental and stakeholder negotiations. It should report to the Ministerial Council on Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and the Australian Transport Council through their Standing Committees. The National Introduced Marine Pests Coordination Group should be given the authority to form small, time-limited working groups that may include expert or non-government membership. **(Recommendation 3.4)**

~~///~~ Given the central role that is proposed for Agriculture, Forestry and Fisheries – Australia in the interim and long-term arrangements, the Taskforce recommends that the National Introduced Marine Pests Coordination Group should be chaired by a senior official of that Department. **(Recommendation 3.5)**

Other members should include a representative from: each of the States/Northern Territory, each of the three Ministerial Councils to which the National Introduced Marine Pests (NIMP) Coordination Group reports, CRIMP, Environment Australia, AQIS, the Australian Introduced Marine Pests Advisory Council (AIMPAC — see below), and the Consultative Committee on Introduced Marine Pest Emergencies (CCIMPE — see Section 3.2). Representatives from AIMPAC and CCIMPE should be government officials.

The NIMP Coordination Group should operate until the end of the interim arrangements. At that stage the national coordination arrangements should be reviewed by the three Ministerial Councils to determine the need for, and composition of, further policy coordination mechanisms for introduced marine pests.

A non-government consultative mechanism is also required in order to progress the implementation of the interim arrangements, as well as to oversee and further develop the long-term reforms.

The Taskforce recognizes the valuable contribution that ABWMAC has made in pursuing its terms of reference relating to the management of ballast water. However, the Taskforce considers that ABWMAC does not have the appropriate reporting

structure or terms of reference to undertake the more comprehensive role relating to all vectors that is now required, both for the interim arrangements and for the development and implementation of long-term reforms. Nevertheless, a consultative body modelled on ABWMAC, with revised terms of reference and reporting lines and reconsideration of membership would provide a suitable replacement that could pick up the work of ABWMAC as well as providing advice to the NIMP Coordination Group on a range of other introduced marine pest issues.

~~///~~ To address the need for industry, environmental non-government organisation and other relevant stakeholder input on all vectors, the Taskforce recommends that the Australian Ballast Water Management Advisory Council be renamed and reconfigured as the Australian Introduced Marine Pests Advisory Council. It would act as a reference group to provide advice to the Ministerial Councils, through the National Introduced Marine Pests Coordination Group, on all aspects of prevention, emergency response and ongoing control and management of introduced marine pests. **(Recommendation 3.6)**

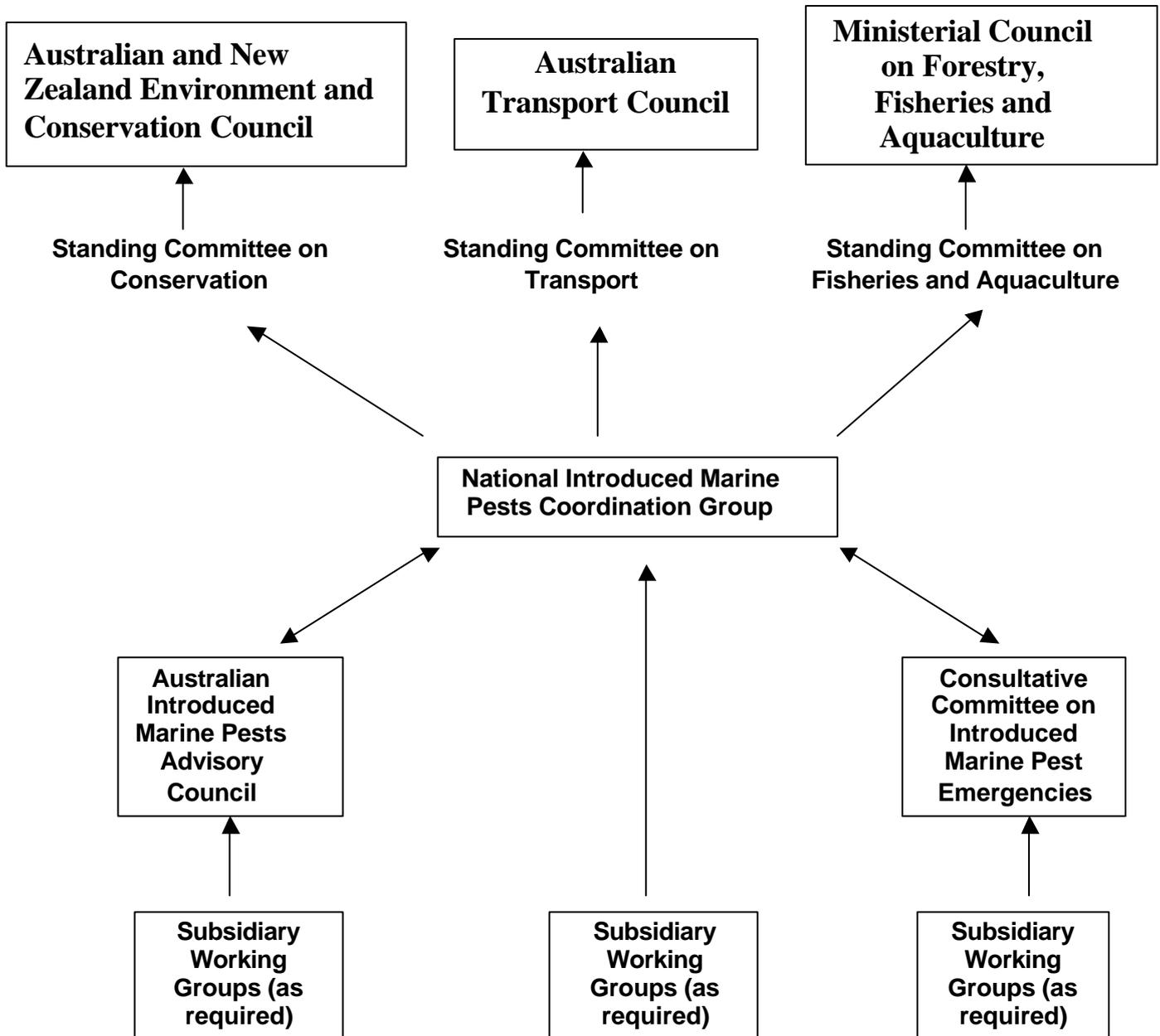
While noting the proposal that AIMPAC provide advice through the NIMP Coordination Group, the Taskforce considers that AIMPAC should be able to provide advice directly to the range of government agencies, Ministerial Councils and Ministers that are interested in its work. The Taskforce believes that it would be inappropriate for the NIMP Coordination Group to act as a filter for any advice received from AIMPAC. Consequently, the NIMP Coordination Group should provide any advice received from AIMPAC to Ministerial Councils without amendment, notwithstanding that it can make its own observations on this advice.

AIMPAC should have a representative membership drawn from both Commonwealth and State/Northern Territory government and non-government bodies, with an independent Chair. AIMPAC non-government membership should include representatives from relevant industries such as shipping, ports, fishing and aquaculture, as well as environment and conservation interests, and science and research interests. Agriculture, Forestry and Fisheries – Australia (AFFA) should provide the secretariat.

AFFA should take the lead in establishing the NIMP Coordination Group and AIMPAC, in consultation with the three relevant Ministerial Councils.

~~///~~ The Taskforce recommends that the two existing working groups of the Australian Ballast Water Management Advisory Council — the Research Advisory Group and Australian Coastal Ballast Water Group — be brought under the new arrangements in Recommendation 3.6 above and reformed as necessary. **(Recommendation 3.7)**

Figure 1: Interim coordination arrangements to oversee development of the National System for the Prevention and Management of Introduced Marine Pests



3.2 EMERGENCY PREPAREDNESS AND RESPONSE FRAMEWORK

The black-striped mussel incursion in Darwin highlighted a number of areas where there were deficiencies in existing operational coordination and emergency response arrangements. Without improved systems, the likelihood of successful emergency responses to new incursions is substantially diminished.

The Taskforce examined the response initiated to address the black-striped mussel outbreak and compared this to coordination mechanisms and the supporting

infrastructure utilised for other emergency events, particularly in the area of animal disease outbreaks. It was found that there were many similarities in the fundamental principles underlying these different emergency responses.

The following recommendations reflect this and draw on existing arrangements in order to provide an interim system that will improve the capacity to verify and respond to new outbreaks of introduced marine pests. The aim is to provide a framework that enhances the capacity to respond in the interim, until more robust, long-term arrangements are developed.

3.2.1 National Coordination Arrangements

The Taskforce considered that the most efficient and effective interim arrangement for managing operational emergency responses to new incursions of introduced marine pests would be to establish similar arrangements to those already in place for animal disease outbreaks. These arrangements are based on proven methodologies for emergency management. A comparable model is the Consultative Committee on Emergency Animal Diseases that currently operates for animal diseases (Box 5).

Box 5: Responding to animal health emergencies — the role of CCEAD and the AFFA National Offices

The Consultative Committee on Emergency Animal Diseases (CCEAD) is a forum of the Commonwealth Chief Veterinary Officer, Chief Veterinary Officers of each State/Territory and a representative from the CSIRO Animal Health Laboratory. The members are supported during meetings by their own technical advisers, as required.

CCEAD provides a communication, discussion and peer support network for any given animal health emergency issue. It does not run the response, with action States remaining in control of their respective operations. The Commonwealth may provide technical expertise or assist in negotiation of issues.

The National Office of Animal and Plant Health is part of AFFA and provides the Secretariat for CCEAD. It also provides AFFA with expertise and a focus during emergency management operations and undertakes response planning, for example through the development of comprehensive response plans such as AUSVETPLAN.

~~✎~~ The Taskforce recommends that a national coordination mechanism for emergency responses to introduced marine pest outbreaks be established, operating through the National Office of Animal and Plant Health, within Agriculture, Fisheries and Forestry – Australia. This body should be known as the Consultative Committee on Introduced Marine Pest Emergencies. It would advise the National Introduced Marine Pests Coordination Group. **(Recommendation 3.8)**

CCIMPE should have in place procedures for urgently considering and responding to possible outbreaks of introduced marine pests. These would include agreeing on the verification of an outbreak and the national action that was appropriate to attempt to eradicate, control or mitigate the outbreak. CCIMPE should also provide technical advice on whether the conditions for release of emergency response assistance and funds, under any interim cost-sharing arrangements, were met.

Additional details on the proposal for CCIMPE are given in Box 6.

Box 6: The Consultative Committee on Introduced Marine Pest Emergencies (CCIMPE)

It is recommended that CCIMPE operates as follows:

Terms of Reference

- ?? Consult on outbreaks of introduced marine pests on the trigger list (see Section 3.2.3), determine whether an incident meets the criteria of a marine pest emergency and advise on appropriate action.
- ?? Consult on outbreaks of introduced marine pests not included on the trigger list, determine whether an incident meets the criteria of a marine pest emergency, declare emergencies, and advise on appropriate action.
- ?? Provide technical advice on whether the conditions for release of emergency response assistance and funds, under any interim Commonwealth and State/Northern Territory cost-sharing arrangements for combating outbreaks are met (see Section 3.3).
- ?? Advise when the emergency is over and make recommendations on possible post-emergency action.
- ?? Assist in reviewing introduced marine pests for inclusion on the trigger list.

Membership

- ?? One officer from each of the AFFA National Office of Animal and Plant Health (Chair), AQIS, Environment Australia, each State/Northern Territory and the Director of CRIMP.
- ?? The body should call upon other appropriate expertise to assist it in its deliberations as required.

Other

- ?? The coordination body would convene at short notice as required, preferably by teleconference.
- ?? Secretariat support for CCIMPE would be provided by the Commonwealth, from within the AFFA National Office of Animal and Plant Health.

The Taskforce considers that the focus of CCIMPE should be on responding to new marine pest incursions and translocations. CCIMPE could also be well placed to provide advice on pest control programs for established populations of marine pests that were no longer being treated as new incursions or translocations. However, the

Taskforce considers that responsibility for this aspect of the longer-term response to marine pests would be better handled in a program area where there is the potential to access program funds and the capacity to use an established statutory framework (see Section 4.2.5).

3.2.2 Model Protocol for Emergency Responses

The key principles of emergency preparedness can be simply defined as knowing what you can do, knowing what tools you have to do it with, and whether what you plan to do will work. To assist in this process, the Taskforce has developed a draft Australian Emergency Marine Pest Management Plan (EMPPlan — [Appendix D](#)).

The draft EMPPlan outlines recommended reporting lines, verification processes and response actions for jurisdictions to adopt and implement. It has been modelled on proven approaches used for other emergencies, including in the area of aquatic animal disease outbreaks, and on work undertaken by the Victorian Government and others.

While there are similarities with emergency management in the area of animal disease, it is important to acknowledge the differences when responding to marine pest incursions. There is a need to better define how an emergency response is triggered and define clear criteria for when a response is to take place, what constitutes the response, and when you pass from emergency response into ongoing monitoring and control programs. In many cases the emergency response may be minor, and you may move quickly into ongoing control programs.

An important part of both developing the interim arrangements and assuring overall preparedness is the testing of proposed response mechanisms contained in the draft EMPPlan, through training and simulation exercises.

~~✍~~ The Taskforce recommends that as part of the interim measures, the draft Australian Emergency Marine Pest Management Plan for emergency responses to introduced marine pests incursions be adopted and implemented, further developed and tested, by Commonwealth and State/Northern Territory jurisdictions. (**Recommendation 3.9**)

3.2.3 Trigger List of Introduced Marine Pest Species

The operation of the emergency response mechanism would be facilitated through the immediate development of an agreed interim ‘trigger list’ of introduced marine species that are or have the potential to be marine pests. The list should focus on those species that are: believed to represent the highest risk of introduction and/or translocation; likely to become established in Australian waters; and have the potential to cause significant environmental, economic and/or social harm.

It is likely that unforeseen threatening species will emerge. For example, prior to the Darwin outbreak, the black-striped mussel was not on any Australian list of species of concern such as ABWMAC’s list. The Taskforce recognises that, given the lack of hard information on many species and their potential impact on the Australian environment, considerable latitude will need to be given to expert judgement in these

processes. Consequently, simple criteria for assessing potential invasiveness of species should be developed.

~~✍~~ The Taskforce recommends that the interim trigger list of introduced marine pests provided in this report, and the accompanying criteria for adding or removing species, be adopted. These criteria will also provide guidance to jurisdictions in assessing whether or not to refer incursions of non-trigger list species to the Consultative Committee on Introduced Marine Pest Emergencies and assist it in recommending appropriate action. **(Recommendation 3.10)**

A draft interim list and criteria are at Appendix E. These should be adopted and implemented, further developed and tested, during the period of the interim arrangements.

Reports of incursions or translocations of trigger list species will be transmitted to the CCIMPE for advice on coordinated national action. However, the Taskforce wishes to stress that emergency action need not be limited to those pests included on the interim trigger list. CCIMPE should be able to recommend emergency action for an incursion of any species that warrants such a response, using the listing criteria and other relevant information as a guide.

The draft interim trigger list is currently limited to marine and estuarine species, however, the Taskforce noted the need for further examination of the potential for expanding the list to include freshwater species at a future date.

3.2.4 Early Warning Systems

An important part of emergency preparedness is having in place systems that allow for the early detection of possible introduced marine pest outbreaks and rapid referral of outbreaks into the interim emergency response arrangements. The aforementioned trigger list forms part of this process. The next step is an improved system to capture reports of possible incursions, verify them and report them through the appropriate channels to ensure speedy action.

The draft EMPPlan (Appendix D) also includes elements relating to early warning and verification systems for possible introduced marine pest outbreaks. This includes the nomination of a single contact officer within each jurisdiction, who is the initial contact point for reports of possible incursions and initiates action to verify outbreaks. This officer should have a reporting line to the nominated CCIMPE representative for each jurisdiction, to ensure timely and effective action on outbreaks.

~~✍~~ The Taskforce recommends the incorporation of elements of an early warning system in the draft Australian Emergency Marine Pest Management Plan, including a single contact point within each jurisdiction for all reports of possible introduced marine pest incursions. These arrangements should come into effect on commencement of the interim arrangements. **(Recommendation 3.11)**

In order to allow comparison of trends and to assist in ongoing planning of monitoring action for introduced marine pests, all jurisdictions should be collecting a minimum

set of data on reports of possible incursions of introduced marine pests. In the interim, it is recommended that these data will remain at the State/Northern Territory level, with the intent of developing national collation, analysis and reporting in the longer term.

~~///~~ The Taskforce recommends that all jurisdictions should collect data on reports of possible incursions of introduced marine pests, in accordance with the minimum data requirements given in the reporting forms in the draft Australian Emergency Marine Pest Management Plan. These arrangements should come into effect on commencement of the interim arrangements. **(Recommendation 3.12)**

3.2.5 Information Material on Introduced Marine Pests

Standard reference material would assist the States/Northern Territory in the quick and easy identification and verification of possible introduced marine pest incursions. Speedy confirmation of the species involved in any possible pest incursion is of course, a key factor in initiating a speedy and effective field response. As an interim measure, a standard set of existing material for the trigger list species should be compiled and provided to relevant agencies in each jurisdiction.

~~///~~ The Taskforce recommends that Agriculture, Fisheries and Forestry – Australia, with the assistance of Environment Australia, CSIRO Centre for Research on Introduced Marine Pests and State/Northern Territory governments, should compile a standard set of reference material to assist in the easy and rapid identification of introduced marine pests. In the first instance, priority should be given to collating information on trigger list species, which should be completed within three months of the commencement of the interim arrangements. This information should be based on existing reference material. **(Recommendation 3.13)**

Information is also critical in allowing for a rapid and effective response to incursions.

~~///~~ The Taskforce recommends that each jurisdiction collect and collate information on qualified personnel, material and businesses that could be quickly accessed for emergency responses to introduced marine pest outbreaks. The information should be accessible to other jurisdictions through the Consultative Committee on Introduced Marine Pest Emergencies. Jurisdictions should implement this action and provide a report to the National Introduced Marine Pests Coordination Group within three months of the interim arrangements entering into effect. **(Recommendation 3.14)**

3.2.6 Legal Powers

The black-striped mussel incursion response required the Northern Territory to rapidly pass amendments to legislation, to provide the necessary powers to carry out the wide range of activities needed to tackle the pest outbreak. It is unlikely that a similar legislative response could be undertaken in all jurisdictions if a similar need arose.

This incursion also raised questions relating to gaps and overlaps in powers, including between Commonwealth and Northern Territory laws.

The Taskforce has identified an urgent need to ensure that there are in place comprehensive legal powers to enable action to address introduced marine pest outbreaks, and to clarify which legal powers should be used preferentially where there are overlaps between jurisdictions' legislation.

~~As~~ As an interim measure, the Taskforce recommends that each jurisdiction clarifies the extent of its existing legal powers to act in the event of an introduced marine pest incursion emergency, using the scenarios included in this report as a guide. Results of these analyses should be conveyed to the National Introduced Marine Pests Coordination Group for its information and consideration within three months of the interim arrangements entering into effect. **(Recommendation 3.15)**

The Taskforce has developed a series of scenarios that elucidate the range of legal powers that could be invoked/required in responding to a marine pest emergency (Appendix F). The scenarios are specifically designed to assist in the identification of the extent of, and gaps in, legal powers to act in such situations.

In the longer-term, the outcomes of this examination will guide any amendments that will be desirable to existing legislation, or any formal agreement that should be put in place on roles and responsibilities of governments and agencies.

Decisions are required to clarify what legal powers should be used to manage an emergency response to incursions. While the *Quarantine Act 1908*, as amended by the *Quarantine Amendment Act 1999*, provides extensive potential powers for AQIS to manage emergency responses to marine pest incursions, at present AQIS does not have a significant operational capacity or funding to undertake more than a supporting operational role.

The Taskforce notes that the States and Northern Territory presently have greater operational capacity on the ground for emergency responses to introduced marine pest incursions than the Commonwealth, even though funding arrangements may not have been specifically identified.

The Taskforce recognises that agreement by Governments to the preferential use of State and Northern Territory legislation and operational capacity will be dependent on agreement to interim cost-sharing arrangements, that ensure equitable national burden sharing in responding to a matter of national significance.

~~The~~ The Taskforce recommends that (subject to the agreement to equitable interim cost-sharing arrangements) State and Northern Territory legal powers should be used in preference to Commonwealth powers to address introduced marine pest emergencies in State and Northern Territory waters, unless no comparable legal power exists at the State and Northern Territory level, or the use of Commonwealth statutes provides significant efficiency gains. **(Recommendation 3.16)**

This guidance will assist in settling the practical use of the *Quarantine Act 1908*, as recently amended, for emergency response to marine pest incursions and translocations.

3.2.7 Compensation and Liability

The black-striped mussel incursion also raised the issue of compensation for losses incurred as a result of actions taken by government as part of an emergency response, and the potential liability of governments and individuals in taking the action necessary to eradicate the outbreak. While claims have been relatively small, the principle has been raised.

Experience from other areas, such as animal diseases, suggests that negotiation of compensation arrangements with stakeholders will be time-consuming and therefore is a longer-term option.

The Taskforce does not support in the interim the general use of *ex gratia* payments as compensation for claimed damages incurred by responses to potential or actual marine pest incursions.

~~✍~~ The Taskforce recommends that as part of the interim arrangements, relevant stakeholders be informed that no special interim compensation arrangements will be put in place. Accordingly, stakeholders will need to make commercial decisions regarding insurance and risk management. **(Recommendation 3.17)**

As a consequence, claims for damages made against jurisdictions during the interim arrangements period will not fall under the cost-sharing arrangements outlined in Section 3.3.

Some laws relevant to the introduced marine pest issue provide exemption from liability for 'reasonable actions' (eg the *Quarantine Act 1908* for quarantine officers when dealing with a quarantine emergency). However, the situation is far from clear across all jurisdictions and is likely to require assessment and possible legislative change that cannot be completed immediately.

In the interim, it is important that those managing introduced marine pest outbreaks do not have a disincentive for quick and decisive responses. This will be assisted if agencies involved in responding to introduced marine pest emergencies seek immediate clarification of existing liability protection afforded to officers of the Commonwealth and States/Northern Territory, and other individuals, when responding to introduced marine pest emergencies in a reasonable and responsible manner.

~~✍~~ The Taskforce recommends that jurisdictions seek immediate clarification of existing liability protection afforded to government officers and other individuals involved in responding to introduced marine pest emergencies in a reasonable and responsible manner. This information should be provided to the National Introduced Marine Pests Coordination Group for its information and consideration

within three months of commencement of the interim arrangements.
(Recommendation 3.18)

3.3 INTERIM COST-SHARING ARRANGEMENTS FOR INCURSION EMERGENCIES

The black-striped mussel outbreak in Darwin highlighted the lack of an agreed cost-sharing formula for funding emergency responses to introduced marine pest incursions. In the face of the absence of any such agreement, the Northern Territory initially bore the brunt of the cost of the emergency response, which exceeded \$2 million, and sought recompense for 50% of the costs from the Commonwealth.

The Taskforce considers that agreed durable cost-sharing arrangements to fund emergency responses to introduced marine pest incursions will be a critical incentive for swift and comprehensive management responses to outbreaks. The Taskforce considers that this is a crucial component on which agreement is required in order to put in place both interim and long-term management arrangements.

Cost-sharing arrangements are in place for emergency actions in related areas such as specified animal disease outbreaks. These have been negotiated in close consultation with industry, in large part because there is considerable private benefit to industry from the control or eradication of animal and plant diseases and so the cost sharing arrangements have a considerable industry component.

However, cost-sharing arrangements involving industry contributions take some time to negotiate and require the identification of relevant beneficiaries and the proportional public/private benefit components. Relevant industries for marine pests could include shipping, ports, charter and recreational vessel yachts, tourism, aquaculture/mariculture and fisheries.

In the case of marine pests, the identification of private and public benefit resulting from emergency management actions is likely to require some time to assess and negotiate. The degree to which the polluter pays principle should apply in this area has not yet been considered by governments. In addition, the basis for assessing an equitable long-term proportional contribution from each of the States and the Northern Territory has not been discussed between Governments.

The Taskforce believes that an interim cost sharing arrangement, involving Commonwealth, State and Northern Territory Governments, is essential if jurisdictions are to agree to enter into cooperative emergency action. Like the other interim arrangements it should have a two year sunset clause which will provide an explicit timeframe for the negotiation with relevant stakeholders of durable cost-sharing arrangements involving industry.

At this stage the Taskforce is proposing a relatively simple formula for cost-sharing arrangements. It recognises that more complex models are in place, for example in the area of animal diseases. However, these arrangements take time to negotiate and can only realistically be pursued over the two year period of the interim arrangements.

The proposed interim 50:50 cost-sharing arrangement (see Recommendation 3.19) involves the States and the Northern Territory Governments all contributing collectively to the 50% of the agreed costs of each declared emergency response action occurring during the interim arrangements period, irrespective of the location of the outbreak and whether or not a State/Territory was involved in responding to the incursion. The Taskforce considers that this proposed interim arrangement reflects the national benefit that derives from any emergency response to an introduced marine pest incursion.

~~///~~ The Taskforce recommends that interim cost-sharing arrangements be established and operate on the basis of a 50% share from the Commonwealth and a 50% share collectively from the States and the Northern Territory. **(Recommendation 3.19)**

~~///~~ The Taskforce recommends that the individual States and the Northern Territory contribution to the 50% share be calculated according to a simple per capita formula, in the absence of a durable purpose-devised formula for the proportional contribution from the States and the Northern Territory. **(Recommendation 3.20)**

~~///~~ The Taskforce recommends that a \$5 million cap be introduced for the combined Commonwealth/State/Northern Territory contribution to declared introduced marine pest emergencies over the interim arrangements period. Any requirements for additional funding over this two year interim period should be referred back to the Ministerial Council on Forestry, Fisheries and Aquaculture for approval. **(Recommendation 3.21)**

~~///~~ The Taskforce recommends that access to funding by agencies for this interim period should be by a simple arrangement that includes the following features:

- ?? Funding would be available only for essential actions taken under a declared emergency situation, in response to new introductions or translocations of marine pests, and only after this proposed interim arrangement has been agreed.
- ?? For the purposes of funding, the status of a declared emergency, introductions, translocations and essential action would be a matter for judgement by the Consultative Committee on Introduced Marine Pest Emergencies, based on guidelines for eligible costs as outlined in the draft Australian Emergency Marine Pest Management Plan.
- ?? The Consultative Committee on Introduced Marine Pest Emergencies would make its judgements explicit to all parties at the time of the emergency response, and confirm these in writing.
- ?? Funding would only be available for those costs that fall within the scope of 'eligible costs' as outlined in the draft Australian Emergency Marine Pest Management Plan. (These are modeled on those used for animal disease emergency responses.) Jurisdictions are encouraged to benchmark any areas of expenditure that will assist in determination of eligible costs in the event of a declared introduced marine pest emergency.

- ?? Cost-sharing would apply to costs of actions taken during the emergency phase of the response only, and would not apply to any expenses relating to actions taken after commencement of the stand-down stage of the emergency.
- ?? Final agreement on eligible costs for any emergency response will be taken by the Ministerial Council on Forestry, Fisheries and Aquaculture. This should generally follow the procedures adopted by the Agriculture and Resource Management Council of Australia and New Zealand for animal disease emergency responses.
- ?? The Consultative Committee on Introduced Marine Pest Emergencies should provide the Ministerial Council on Forestry, Fisheries and Aquaculture with updates of projected costs of incursions as actions proceed, in line with procedures that are generally used for animal disease emergencies, to allow progressive judgements on continuation of funding.
- ?? Formal approval for drawing down funds within the Commonwealth should lie with Agriculture, Fisheries and Forestry – Australia, which would take decisions following consultation with the Department of Finance and Administration. States and the Northern Territory would similarly need to make appropriate provisions within their jurisdictions.
- ?? Funding claims should be put forward in a single coordinated manner by each jurisdiction's treasury, and include all relevant agencies' claims.
- ?? These arrangements would be non-prejudicial to any existing financial arrangements between the Commonwealth and the States/Northern Territory.

(Recommendation 3.22)

~~✍~~ The Taskforce recommends that each jurisdiction immediately seeks appropriate funding arrangements to support the proposed interim cost-sharing arrangement for introduced marine pest emergencies. **(Recommendation 3.23)**

3.4 PREVENTION SYSTEMS: BORDER INTRODUCTION AND POST-BORDER TRANSLOCATION

The Taskforce acknowledges that total prevention of marine pest incursion and translocation is not achievable and that Governments must work within a framework of risk management. The Decision Support System for risk management of shipping that is being developed by AQIS reflects this approach.

The Taskforce notes that as an immediate action, the *Interim Australian Strategy to Prevent Marine Incursions* adopted by the ABWMAC in October 1999 will be in effect.

The draft AQIS *Action Plan for Minimising the Risks to Australia from the Introduction and Translocation of Marine Pests by Vessels* (AQIS Action Plan —

Appendix G), discussed in Chapter 4, provides many immediate actions for the progressive implementation of the single national management regime for preventing the introduction and translocation of marine species from vessels in Australian waters. These actions are a staged approach towards long-term arrangements and for this reason, recommendations in relation to the draft AQIS Action Plan are given in Chapter 4.

Chapter 4: National System For The Prevention And Management Of Introduced Marine Pests

This Chapter addresses the need for a long-term and robust National System for the Prevention and Management of Introduced Marine Pests.

4.1 OVERVIEW OF THE NATIONAL SYSTEM

The Taskforce believes that at present there is no effective integrated national approach to the prevention and management of introduced marine pests. Furthermore, there has been no explicit and accepted identification of the roles and responsibilities of the various Commonwealth and State/Northern Territory agencies.

~~✍~~ The Taskforce recommends that the Ministerial Council on Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and the Australian Transport Council agree to establish a National System for the Prevention and Management of Introduced Marine Pests.
(Recommendation 4.1)

~~✍~~ The Taskforce recommends that the National System for the Prevention and Management of Introduced Marine Pests should include the following components:

- ?? **prevention** systems operating at the **pre-border, border and post-border** levels to reduce the risk of importation and translocation of introduced marine pests covering all vectors and sources;
- ?? coordinated **emergency response** to new incursions and translocations;
- ?? ongoing **control** of introduced marine pests already in Australia;
- ?? **monitoring** to assist in risk assessment, detection of new incursions or spread of existing introduced marine pests, and control programs;
- ?? **targeted research** to underpin policy and management initiatives;
- ?? a **community preparedness** program to ensure public participation in and support for the National System;
- ?? **education and training** to support operation of the National System;
- ?? a **clear division of responsibilities** between governments, agencies and stakeholders involved in introduced marine pests management;
- ?? explicit agreement on the **statutory framework** which will be used to enable action under the System's components and to regulate all relevant sectors; and
- ?? **secure funding arrangements** for each element of the National System, including contributions from relevant private sector beneficiaries and potential polluters.

(Recommendation 4.2)

Key elements within the National System are shown in Figures 2 and 3. These elements will need to be developed and agreed. As the following sections show, progress is more advanced in some areas than others. Development of the requisite elements of the National System will be a key task of the National Introduced Marine Pests Coordination Group mentioned in the previous Chapter.

Figure 2: Conceptual diagram of the National System for the Prevention and Management of Introduced Marine Pests

National System for the Prevention and Management of Introduced Marine Pests

PRINCIPAL STAGES OF INTERVENTION

CROSS-CUTTING ISSUES

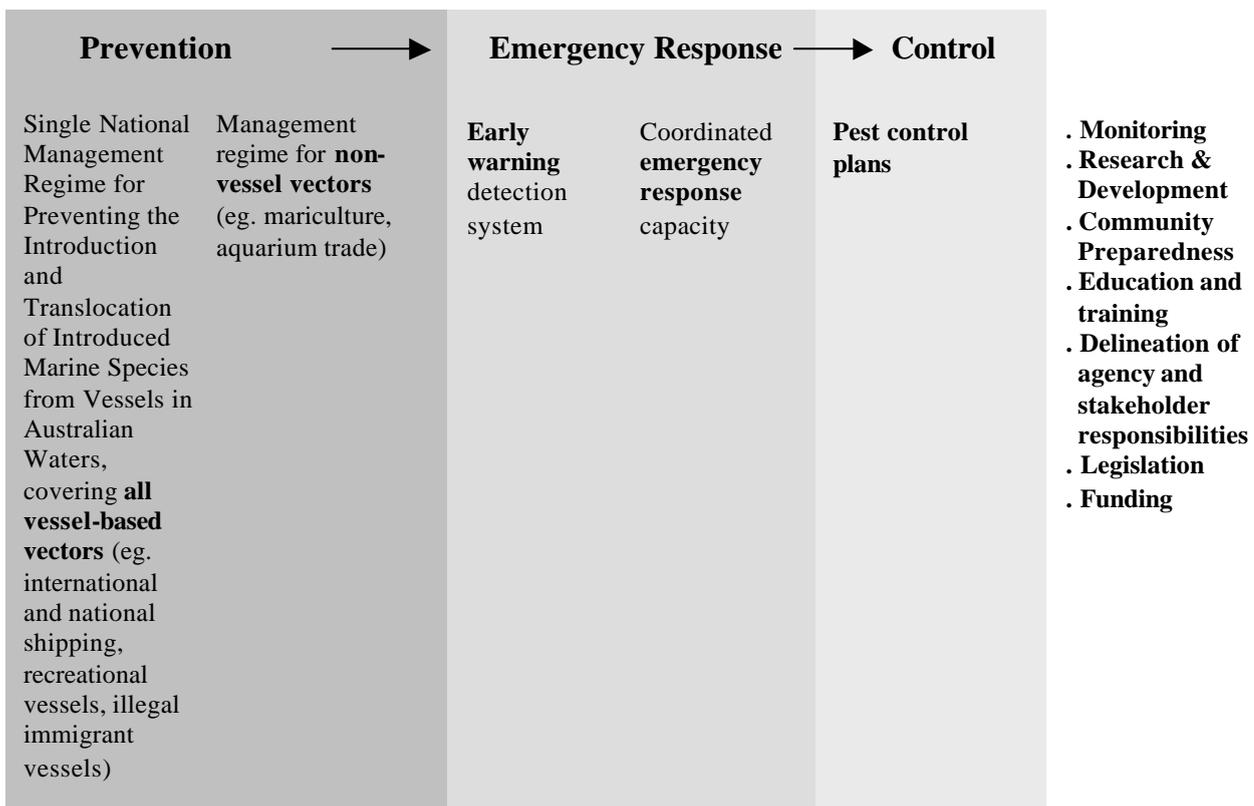
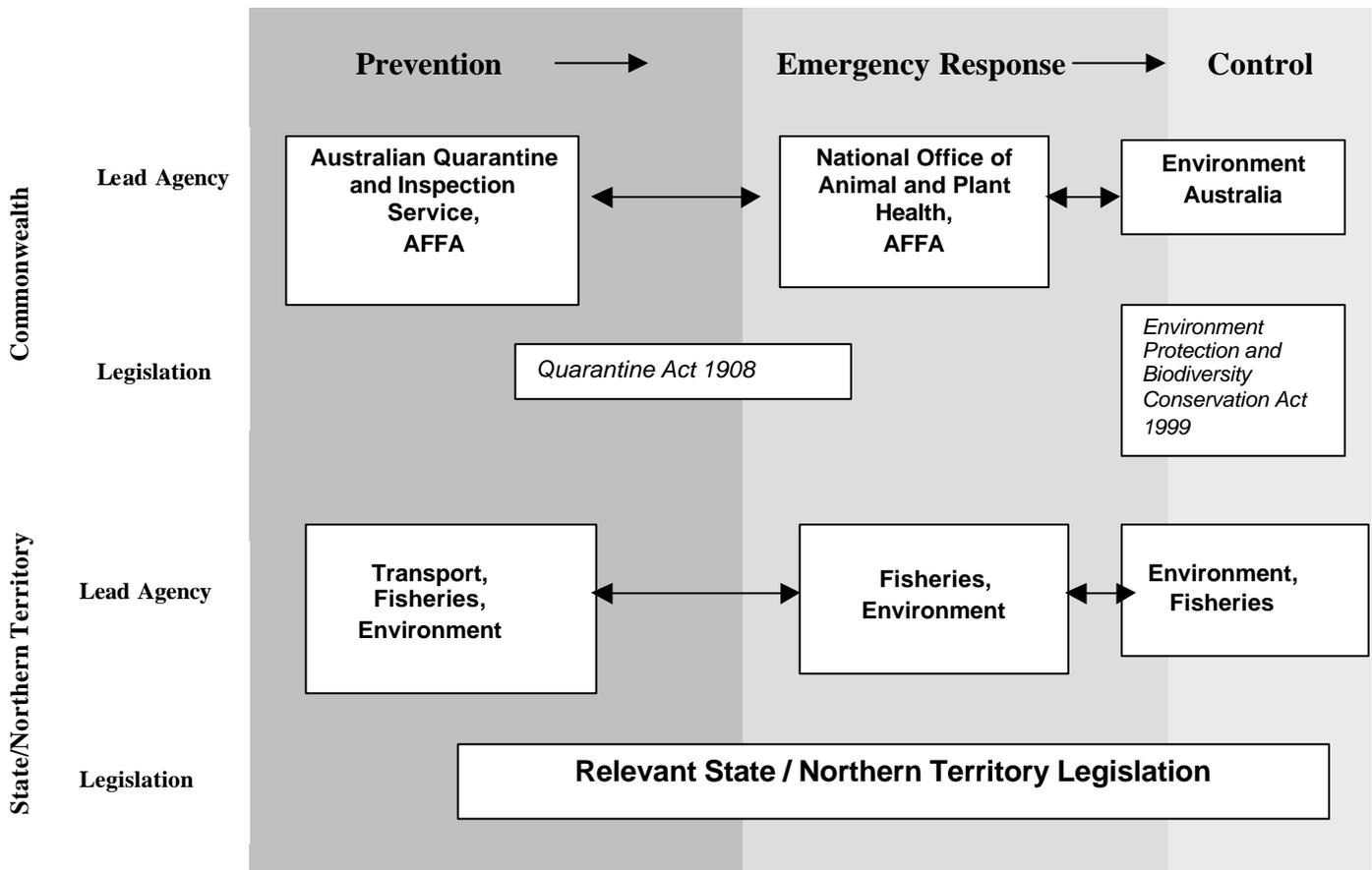


Figure 3: Role of Commonwealth and State/Northern Territory agencies and legislation in the National System for the Prevention and Management of Introduced Marine Pests



4.1.1 National Policy Framework

Each of these elements of the National System should be linked by a national policy framework for the National System and by a management structure with clarity in the roles and responsibilities of governments, agencies and sectors.

✍ The Taskforce recommends that a single policy document be developed and agreed between the Commonwealth, State and Northern Territory Governments through the Ministerial Council on Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and Australian Transport Council, that clearly sets out all aspects of responsibilities for the National System for the Prevention and Management of Introduced Marine Pests and its components. This document should be prepared by the National Introduced Marine Pests Coordination Group and agreed and adopted by the three relevant Ministerial Councils, in consultation with stakeholders, by the end of the interim arrangements period. **(Recommendation 4.3)**

Overall policy responsibility for the National System should be shared between the Commonwealth and the State/Northern Territory Governments through the relevant Ministerial Councils, MCFFA, ANZECC and ATC. During the development phase, and while the interim arrangements are in place, the Ministerial Councils should be supported by the NIMP Coordination Group and AIMPAC (Section 3.1).

While each of the key components may be developed and implemented autonomously by the relevant agencies, the concept of a single National System for the Prevention and Management of Introduced Marine Pests depends on the components being closely linked, both for the purposes of policy and performance management.

~~✍~~ The Taskforce recommends that the management agencies responsible for the various components of the National System should contribute to regular reports from the National Introduced Marine Pests Coordination Group to the Ministerial Councils on the status and performance of the National System's development, establishment and implementation, including reporting on progress against milestones outlined in this report. **(Recommendation 4.4)**

4.1.2 Timing for Development and Implementation

Whereas the interim arrangements proposed in Chapter 3 are intended to be capable of immediate implementation, the long-term National System will have elements which require some structural reform, that may involve significant negotiation or legislative change. Operational elements of the National System will come into effect incrementally; some may be operational before the conclusion of the interim period, with others to be implemented at a later stage.

~~✍~~ The Taskforce recommends that the components of the National System for the Prevention and Management of Introduced Marine Pests be progressively developed and adopted within a two year timeframe. This will be consistent with the timeframe proposed for the sunset on the interim arrangements. **(Recommendation 4.5)**

4.1.3 Consultation Arrangements

The prevention and management of introduced marine pests has many stakeholders. The development and implementation of the National System will involve a range of policy debates and decisions on issues that may have a significant regulatory impact, including on the environment, industry and the community.

It is important in the development of the National System that the key representative stakeholders have the capacity to consider and discuss these issues collectively. Maintaining a forum in which the non-government sector can reach an understanding and if possible consensus on issues will be valuable. Governments will be able to access such a body for advisory and consultative purposes.

Chapter 3 outlined recommended interim coordination and consultation arrangements and suggested that recommendations be made on future coordination and consultation arrangements at the end of the interim arrangements period. Nevertheless, the

Taskforce considers that a consultation body such as AIMPAC will continue to be necessary to assist the implementation of the National System.

~~✍~~ The Taskforce recommends that the National System include a consultative body that allows for effective government and non-government stakeholder advice and consultation on its implementation. A decision on the format and terms of reference of this body should be taken by relevant Ministerial Councils at the end of the interim arrangements period, based on advice from the National Introduced Marine Pests Coordination Group. **(Recommendation 4.6)**

4.2 PRINCIPAL STAGES OF INTERVENTION IN THE NATIONAL SYSTEM FOR THE PREVENTION AND MANAGEMENT OF INTRODUCED MARINE PESTS

4.2.1 International Policy for Prevention (Pre-Border)

Given the global nature of the marine pest problem, Australia recognises that its management will come in part from international policy efforts. The current emphasis within the IMO has been on the development of ballast water management guidelines, including working towards an agreement to mandatory ballast water management arrangements for international shipping.

While Australia will continue to work within an agreed multilateral framework, undue delays in the implementation of mandatory arrangements by the IMO have resulted in Australia, along with some other nations, acting ahead of IMO timelines, but in a complementary manner, to implement mandatory ballast water management arrangements by July 2001 for international shipping entering Australian waters.

While Australia's efforts to date to motivate international cooperation on the translocation of marine species have largely focused on the IMO, there may well be opportunities for using other multilateral fora such as the United Nations Development Program, the World Bank, and the Global Environment Facility, and for furthering bilateral arrangements to provide additional impetus. For example, given the trade implications of regulation of shipping and ports, Asia Pacific Economic Cooperation (APEC) could be explored as a forum for regional cooperation.

~~✍~~ The Taskforce recommends that the Commonwealth Government continues to take a leadership role within the International Maritime Organisation in relation to the development of international approaches to minimise the translocation of marine species by all vectors related to shipping. **(Recommendation 4.7)**

~~✍~~ The Taskforce recommends that the Commonwealth direct greater efforts at regional and bilateral approaches to accelerate international cooperation on management of introduced marine pests. **(Recommendation 4.8)**

4.2.2 Prevention of Border Introduction and Post-Border Translocation: Vessels as Vectors

Mandatory arrangements for ballast water reporting by international shipping are already in place, with verification of these procedures coming into effect on 1 January 2000. Australia has announced an intention to implement mandatory ballast water management arrangements for international shipping entering Australian waters by July 2001.

There has been a lack of clarity over recent years regarding the degree to which ballast water from international vessels should be the focal point of domestic regulatory and management activity for border and post-border translocation compared with other vessel vectors, particularly hull fouling.

The Taskforce noted that there is currently no system in place that effectively allows for risk-assessed management of coastal and recreational vessels and vessel movements (for vessels under 300 tonnes), in terms of their potential to contribute to translocation of introduced marine pests.

~~///~~ The Taskforce recommends that AQIS continue to take the lead agency role to develop and manage a single national management regime for preventing the introduction and translocation of introduced marine species from vessels in Australian waters, based on a risk management approach, as a component of the National System for the Prevention and Management of Introduced Marine Pests. **(Recommendation 4.9)**

~~///~~ The Taskforce recommends that as part of the National System, the Commonwealth, State and Northern Territory governments cooperate to develop a system(s) that allows for real-time monitoring and/or management of vessel movements and assessment of risks, in terms of their potential for translocation of introduced marine pests. **(Recommendation 4.10)**

4.2.2.1 Single National Management Regime for Vessels

AQIS has prepared a draft *Action Plan for Minimising the Risks to Australia from the Introduction and Translocation of Marine Pests by Vessels* (AQIS Action Plan). This draft document ([Appendix G](#)) outlines a proposed framework for the operation of a single national management regime for preventing the introduction and translocation of introduced marine pests from vessels in Australian waters. The AQIS Action Plan includes immediate actions (some of which will be provisional in nature) and longer-term actions (which could become the basis for Australia's national arrangements). These actions recognise the complexity of arrangements and the need for a staged approach to conclude the single national management regime, ranging from international shipping at its first port-of-call, through to coastal shipping and inshore pleasure craft.

An important additional component of the single national management regime, as outlined in the AQIS Action Plan, is the need to identify treatment and management options for high-risk vessels. Included in these is a management option for the

provision of contingency de-ballasting areas, to be used only in defined circumstances, within Australia's exclusive economic zone. These areas are designed to reduce the likelihood of risk to World Heritage areas, marine parks and other sensitive environmental and marine industrial sites from possible introductions and translocations of marine pests via ballast water.

The Taskforce considers that the AQIS Action Plan is an essential component of the proposed National System for the Prevention and Management of Introduced Marine Pests.

~~///~~ The Taskforce recommends that the draft *Action Plan for Minimising the Risks to Australia from the Introduction and Translocation of Marine Pests by Vessels* be finalised and then agreed and adopted by the Commonwealth and the States/Northern Territory, as an essential component of the National System for the Prevention and Management of Introduced Marine Pests. **(Recommendation 4.11)**

The Taskforce particularly notes the following milestones, as outlined in the AQIS Action Plan:

- ~~///~~ Implementation of verification and compliance methodologies for vessels, commencing with ballast water exchange verification from 1 January 2000.
- ~~///~~ Development of decision support systems in support of regulatory approaches for ballast water, hull fouling and other vessel related pathways by mid-2001.
- ~~///~~ Implementation of mandatory Australian ballast water management arrangements for international vessels arriving in Australian waters by mid-2001.
- ~~///~~ Implementation of complementary national ballast water management arrangements for coastal vessel voyages by mid-2001.
- ~~///~~ Implementation of national regulatory, co-regulatory and other measures to address hull fouling and related pathways by mid-2001.

The Taskforce recognises that the costs for the full implementation of the AQIS Action Plan will be significant. AQIS has estimated that the costs to AQIS alone in implementing the Action Plan would be \$27.7 million between 1999/00 and 2003/04, of which \$18.3 million would require new funding (see Table 5 of Appendix G). The Taskforce also notes that the scope of the AQIS Action Plan extends to cover pathogens and may, therefore, have management and resource implications that are additional to those specific to introduced marine pests.

The importance of hull fouling as a vector for introduced marine pests is given added impetus by the Commonwealth Government's commitment to phase out the use of the effective anti-foulant TBT (see Section 2.3). However, testing and approving alternatives to TBT has a considerable lead time.

~~///~~ The Taskforce recommends that governments ensure that an alternative to tributyltin that is cost-effective, environmentally acceptable and safe, is available prior to imposing a unilateral ban on the application of tributyltin in Australia. **(Recommendation 4.12)**

The importance of hull fouling as a vector for introduction and translocation of introduced marine pests is becoming increasingly recognised. However, efforts to date on introduction and translocation have largely concentrated on ballast water. The Taskforce considers that greater effort needs to be directed towards management of hull fouling.

~~✍~~ The Taskforce recommends that the hull fouling issue be given a similar priority to that for ballast water. As part of this approach, the AQIS Decision Support System should be extended to handle hull fouling as soon as practicable.
(Recommendation 4.13)

The range of marine species that are likely to be introduced via hull fouling are not identical to those likely to be introduced in ballast water, although there are overlaps. At present, listings of target species, such as that prepared by the Australian Ballast Water Management Council, relate mainly to ballast water. There is a need to build on this list and the draft interim trigger list ([Appendix E](#)) to make a consolidated listing of introduced marine pests that is applicable to all vectors and that can be used for both risk and emergency management purposes.

~~✍~~ The Taskforce recommends that the interim trigger list and any other existing listings of introduced marine pests be consolidated as appropriate and further developed, to form a single list of threatening introduced marine species that can be used for both risk management and emergency response purposes.
(Recommendation 4.14)

4.2.2.2 *A National Environment Protection Measure for Ballast Water?*

The National Environment Protection Council (NEPC) has asked the Taskforce to provide it with advice on whether or not to scope a National Environment Protection Measure (NEPM) for ballast water.

In theory, a NEPM may be a useful tool to set standards for ballast water discharge, but it is less clear how a NEPM would tangibly improve current or proposed ballast water management arrangements. For example, it is unclear how a NEPM would improve shipping compliance, measure improvements in the quality of ballast water discharge, or increase legislative powers to strengthen ballast water management.

The draft Action Plan being prepared by AQIS offers a more comprehensive approach to managing vessel-based introduction of marine pests, rather than the water quality focus of a NEPM, which would only address ballast water discharge.

While the pursuit of a NEPM for ballast water has merits in terms of seeking to enforce nationally consistent standards, it would appear more appropriate to pursue national standards through the NIMP Coordination Group, rather than as a separate issue. Nevertheless, the Taskforce considers that a NEPM may contribute to a framework for the management of ballast water.

~~✍~~ The Taskforce recommends that the National Environment Protection Council consider the appropriateness of scoping a National Environment Protection

Measure for ballast water in the context of progress in implementation of the AQIS Action Plan over the next two years. The National Introduced Marine Pests Coordination Group should further advise the National Environment Protection Council on the need for a ballast water National Environment Protection Measure at the end of the two year timeframe. **(Recommendation 4.15)**

4.2.2.3 Other Vessel Vectors

While ballast water, and to a lesser extent hull fouling, have been the focus of attention for border and post-border translocation to date, other vessel vectors have been identified. These include a wide variety of sources such as vessel equipment and internal water systems. The AQIS Action Plan should explicitly manage these pathways, establishing objectives, responsibilities and performance criteria.

~~✍~~ The Taskforce recommends that the AQIS Action Plan should explicitly pursue the management of vectors (other than ballast water and hull fouling) associated with vessels such as internal water systems, anchor chains, vessel lockers and ropes. **(Recommendation 4.16)**

4.2.3 Prevention of Border Introduction and Post-Border Translocation: Non-Vessel Vectors

Other potential vectors for the introduction and spread of marine pests, include the importation of marine wildlife, aquarium and other fish and fish products as well as natural dispersal.

The National Policy for the Translocation of Live Aquatic Organisms (see Section 2.2) provides a risk assessment framework that is of assistance in minimising risk of harmful outcomes from the deliberate translocation of aquatic species for mariculture. The report of the National Taskforce on Imported Fish and Fish Products and AQIS's Import Risk Analysis on live ornamental finfish also provide guidance in preventing unwanted introductions of potential marine pests from non-vessel vectors.

The National System should assess the risk posed by all non-vessel vectors, establishing objectives, responsibilities and performance criteria. Establishing a separate component within the National System will ensure that this area will not be ignored.

~~✍~~ The Taskforce recommends that a component of the National System should develop management options for minimising the risk of introduction and translocation of introduced marine pests posed by non-vessel vectors such as imported aquarium fish and imported fish and fish products. **(Recommendation 4.17)**

4.2.4 Emergency Response to New Incursions and Translocations

As part of the interim measures proposed in Chapter 3, the Taskforce has proposed an interim national coordination mechanism for emergency responses to provide

immediate support for the eradication, control and mitigation of new incursions or translocations of introduced marine pests.

The interim arrangements include the creation of the Consultative Committee of Introduced Marine Pest Emergencies, to be managed from within the AFFA National Office of Plant and Animal Health, and the further development testing, adoption and implementation of the draft Australian Emergency Marine Pest Management Plan.

During the two year interim period these arrangements should be closely monitored for effectiveness and modifications made as necessary. The arrangements are built on current effective practice in related emergency management areas. The Taskforce is confident that the interim arrangements could be maintained as part of the long-term National System.

✍ The Taskforce recommends that the interim arrangements for emergency responses to incursions and translocations of introduced marine pests be refined over the interim period to form a permanent component of the National System for the Prevention and Management of Introduced Marine Pests.
(Recommendation 4.18)

4.2.5 Pest Control Programs

To date there have not been extensive nationally coordinated efforts in the areas of control or mitigation of established populations of introduced marine pests. A comprehensive National System will need to be structured on the recognition that control at the border and emergency responses to incursions will not always work. Indeed, there are already a number of introduced marine pests well established in Australian waters. A component of the National System should explicitly address the need for a more coordinated and effective approach to control of established exotic marine pests.

As part of the National System, and within the timeframe of its development, introduced marine pests control plans for key established pest species could operate at the national level to establish priorities for research, management and control activities. Individual jurisdictions could then undertake operational control plans that would define specific actions to contain known target populations.

This process would need to balance economic, environmental and social imperatives in determining priority species for action and, indeed, the scope of the proposed control program. It should also be closely linked to the emergency response component of the National System, so that control plans become an automatic follow-on action for any emergency response. This is particularly important in instances where eradication was unsuccessful in the emergency phase, but should also be developed as part of an overall contingency management plan for any newly introduced or translocated species.

The northern Pacific seastar national control plan ([Appendix H](#)) provides an appropriate model that could be used for control plans for other introduced marine pests.

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides for the development of statutory plans to reduce, eliminate or prevent the impacts of introduced marine species on the biodiversity of Australia (Section 301A). The Taskforce considers that this could provide an appropriate legislative framework under which national coordination of the development and implementation of introduced marine pest control plans could proceed. However, in developing such plans, the implications of using the EPBC Act need to be fully assessed.

✍ The Taskforce recommends the development and implementation of plans to reduce, eliminate or prevent the impacts of introduced marine pests on the biodiversity and marine industries of Australia. Identification of species for which these plans should be developed should occur through the National Introduced Marine Pests Coordination Group. **(Recommendation 4.19)**

✍ The Taskforce recommends that the Commonwealth Government explore the option of developing statutory plans to reduce, eliminate or prevent the impacts of introduced marine species on the biodiversity of Australia using Section 301A of the *Environment Protection and Biodiversity Conservation Act 1999*. This should be nationally coordinated by Environment Australia, as part of the National System. **(Recommendation 4.20)**

4.3 CROSS-CUTTING ELEMENTS OF THE NATIONAL SYSTEM

4.3.1 Statutory Framework

The National System for the Prevention and Management of Introduced Marine Pests should include an account of the legislative powers that enable action under its components.

Efforts should be made to ensure that applied legislation is consistent, with no significant gaps in reach, and that where there are overlaps they are supported by clear statements of policy as to preferences for application. Steps to address this will be undertaken during the interim arrangements period and were outlined in Chapter 3.

As a general guide, the Taskforce suggests that the *Quarantine Act 1908*, as amended by the *Quarantine Amendment Act 1999*, be the principal statutory instrument to support action to prevent border introductions and post-border translocations of marine species. Recent amendments to the Quarantine Act have given effect to the report, *Australian Quarantine: A shared responsibility* (the Nairn Report) on the continuum of quarantine; defined 'ballast water'; added extra sections on vessel vectors of marine pests; and involved the Commonwealth Environment Minister in decisions to be made by the Director of Quarantine that might cause 'a significant risk of harm to the environment'.

Statutory support for mitigation and control of established populations of marine pests could involve a combination of the EPBC Act and the range of State and Northern Territory legislation.

The use of Agreements with the States/Northern Territory under Section 11 of the *Quarantine Act 1908* and Bilateral Agreements under Section 45 of the EPBC Act might be applicable and should be investigated.

~~4.21~~ The Taskforce recommends that a target date of six months from when the interim arrangements become established should be set for reaching agreement between the Commonwealth and the States and Northern Territory on identifying the combination of statutory powers to be used in the long-term National System for the Prevention and Management of Introduced Marine Pests. **(Recommendation 4.21)**

This would allow an eighteen month period for the development and implementation of any statutory amendments that may be required.

Another issue that requires more detailed consideration are implications of the role of private ports in introduced marine pest management. The Taskforce advocates the inclusion of introduced marine pest management into the environmental management plans of all ports and considers that means to best achieve this require further investigation. This needs to be investigated for both public-owned and private ports.

~~4.22~~ The Taskforce recommends that environmental management plans, that address management of introduced marine pests and support the relevant components of the National System, are put in place for all ports. Instruments for best achieving this should be investigated by the National Introduced Marine Pests Coordination Group within the first twelve months of the interim arrangements. **(Recommendation 4.22)**

The Taskforce investigated liability indemnification only for actions taken by government officers to manage introduced marine pests, and particularly indemnification for actions taken as part of an emergency response (see Section 3.2.7). However, it noted that there was a strong interest from non-government agencies to assist with marine pest management, including during times of outbreaks. In some cases such bodies may provide valuable expertise that cannot be utilised if they have no indemnity for their actions or if the legal situation is unclear in this respect.

~~4.23~~ The Taskforce recommends that liability issues for any agencies, companies and individuals — both government and non-government — that may be involved in an emergency response to an introduced marine pest incursion, be examined within all jurisdictions. This work should be completed within one year of the interim arrangements entering into effect. Based on this examination, as part of the development of the National System, the National Introduced Marine Pests Coordination Group should provide clear guidance on liability issues and the ensuing implications, for all likely participants in introduced marine pest management. **(Recommendation 4.23)**

4.3.2 Secure Funding Arrangements

The efficient and effective operation of the National System and the improved management of introduced marine pests that it will provide, is predicated on the provision of adequate resourcing to implement its components in a timely manner. Each component of the National System — that is, prevention, emergency management, control and cross-cutting issues such as research and development and education and training — will require a secure funding base.

As already discussed, there are good public policy arguments for seeking contributions from private sector beneficiaries and potential polluters. The Taskforce noted the industry levy currently operating to assist in research and development on ballast water risk management issues, as a good example of this principle. There is also a need to reflect the substantial public good components in the funding of introduced marine pests management.

Joint public/private cost-sharing arrangements are in place in other emergency management areas, including oil spills, animal health and so on. The Taskforce considers that application of similar cost-sharing principles to introduced marine pests is appropriate and consistent with accepted practice in parallel areas.

✍ The Taskforce recommends that jurisdictions provide resources to allow the timely and effective development and implementation of the National System. **(Recommendation 4.24)**

✍ The Taskforce recommends that the Ministerial Council on Forestry, Fisheries and Aquaculture, the Australian and New Zealand Environment and Conservation Council and the Australian Transport Council, agree to give the National Introduced Marine Pests Coordination Group a mandate to develop and recommend options for a continuing and secure national funding base to support the National System. **(Recommendation 4.25)**

Chapter 3 outlined recommended interim arrangements for compensation for actions taken as part of an emergency response to a marine pest outbreak. In the longer-term it would be beneficial to have compensation issues addressed as part of negotiated financial arrangements for introduced marine pest emergencies, as it is for animal diseases, for example. This would provide greater clarity and certainty for all parties who may be affected by actions taken as part of an emergency response to an outbreak.

✍ The Taskforce recommends that compensation issues should be examined, and if necessary, compensation arrangements be negotiated during the interim arrangements period, to cover actions taken as part of a marine pest emergency. Any areas not covered by this agreement, or where agreement cannot be reached, should continue under present arrangements as outlined in Section 3.2.7. **(Recommendation 4.26)**

4.3.3 Monitoring

Long-term arrangements for introduced marine pests management should include agreed objectives for the monitoring component of the National System. In this sense, monitoring includes a range of activities, from targeted one-off surveys, to regular site inspections and ad hoc observations.

Monitoring may take place to detect new incursions, to contribute to an effective early warning system, to assess the spread of existing populations of introduced marine pests, to support control programs, and to establish baselines for risk assessment for prevention systems.

Monitoring the spread of marine pest incursions at known invaded sites allows for the early implementation of response mechanisms as the distribution changes either gradually or suddenly, and forms part of the mitigation and control action.

Each jurisdiction needs to identify monitoring priorities guided by scientific risk assessments of species, locations and vectors. The Taskforce noted above that non-ballast water vectors such as mariculture are also contributors to marine pest incursions. The degree of relative effort expended towards all vectors should be consistent with the risk-based assessment of the likelihood of each of these vectors contributing to introductions of marine pests.

Capacity exists to develop criteria for determining high-risk areas that should be targeted for monitoring under a risk-based monitoring approach. This work can be used by jurisdictions in the development of strategies to determine and implement risk-based monitoring programs at all high-risk locations. At present, Australian first ports of call have been identified as high-risk locations. However, no scientific determination has been made as to whether there are other areas that are high-risk and therefore likely competing priorities for monitoring programs.

For several ports, the baseline surveys described in Chapter 2 are becoming dated and ongoing monitoring programs are not in place. The Taskforce encourages the development of protocols, such as are currently being undertaken by the Research Advisory Group of ABWMAC, for ongoing monitoring of ports. This will assist the risk assessment process to be provided by the DSS.

Funding for port baseline surveys and ongoing monitoring should be on the basis of a cost-sharing arrangement that recognises the public and private beneficiaries of monitoring, as well as the polluter pays principle.

~~✍~~ The Taskforce recommends staged completion of port baseline surveys for all Australian first ports of call and adoption of a targeted approach for surveying other ports and marinas, in accordance with priorities established under the AQIS Action Plan. **(Recommendation 4.27)**

~~✍~~ The Taskforce recommends that CSIRO Centre for Research on Introduced Marine Pests continue to develop sampling methodologies for locations that are a high risk for first-time marine pest introduction to Australia, with the aim of

completing these methodologies within six months of commencement of the interim arrangements. **(Recommendation 4.28)**

~~///~~ The Taskforce recommends that a monitoring component be developed for the National System that is integrally linked to the prevention and emergency response components of the National System. The National Introduced Marine Pests Coordination Group should oversee development of this system, which should be ready for implementation within six months of the commencement of the interim arrangements. **(Recommendation 4.29)**

4.3.4 Targeted Research to Underpin Policy and Management

The Taskforce noted the current Ballast Water Strategic Research and Development Plan managed by AQIS and the support that has been provided to this program by both government funds and an industry levy. There is merit in establishing a research and development program, with similar public good and private benefit funding support, targeted to underpin the policy and management components of the National System for the Prevention and Management of Introduced Marine Pests.

The Taskforce observed that significant funding support may be required for such a research and development program. Given the mix of public and private good and recognising the polluter pays principle, the Taskforce considered that a partnership between government and industry would be appropriate.

The Taskforce noted that a proposal is in development for the establishment of a Cooperative Research Centre (CRC) on Marine Bio-invasions, with CRIMP taking the lead. While the Taskforce considers that this would be the preferable approach for achieving a coordinated national approach to research and development (R&D) on introduced marine pests, it recognised the need, nevertheless, for a national R&D plan as part of the National System. This should be prepared and implemented irrespective of whether or not the CRC on Marine Bio-invasions is established and therefore becomes the principal delivery mechanism.

~~///~~ The Taskforce recommends that a national plan for introduced marine pest research and development be prepared within two years, through the National Introduced Marine Pests Coordination Group. The national research and development plan should have work program elements that support all components of the National System for the Prevention and Management of Introduced Marine Pests. **(Recommendation 4.30)**

~~///~~ The Taskforce recommends that both government and industry contribute to research and development funding for introduced marine pests and that the national plan for introduced marine pests research and development specifically address funding requirements and sources. **(Recommendation 4.31)**

~~///~~ The Taskforce supports the establishment of a Cooperative Research Centre on Marine Bio-invasions, with CSIRO Centre for Research on Introduced Marine Pests taking the lead, as the best delivery mechanism for some or all of introduced marine pests research. The Taskforce further recommends that both government

and industry contribute funds to support the proposed Cooperative Research Centre on Marine Bio-invasions. **(Recommendation 4.32)**

4.3.5 Community Preparedness Program, Education and Training

The concept of a ‘prepared community’ has been embraced in a range of other disease and pest-related areas to assist government in its efforts to prevent and respond to outbreaks. The Taskforce considers that this approach is also applicable to introduced marine pests, particularly in enhancing capacity to monitor and report on possible marine pest incursions.

Anecdotal reports suggest that members of the public had observed the black-striped mussel in a Darwin marina some time before authorities became aware of its presence, but failed to act as they were unsure what to do with the information or of its potential importance. Improving public awareness of introduced marine pest issues, coupled with the improved reporting lines and outbreak response mechanisms outlined in Chapter 3, should lessen the chance of this happening again in the future.

A coordinated national approach would be advantageous for some target groups and have benefits in terms of economies of scale. Individual jurisdictions may also wish to undertake targeted community awareness activities geared specifically to organisations or situations in their region. An example of this is the green-lipped mussel awareness program undertaken in South Australia following an outbreak of this species in their jurisdiction.

~~✍~~ The Taskforce recommends that greater emphasis should be given to community awareness of introduced marine pest issues, and to targeting relevant community groups, such as fishers, divers, sailors and Coastcare groups, with the objective of mobilising them to monitor and report on possible marine pest outbreaks. Agriculture, Fisheries and Forestry – Australia, in consultation with Environment Australia and the States/Northern Territory, should coordinate a process that identifies priorities, costs and agency responsibilities for a coordinated national awareness program on introduced marine pests, to be agreed by the National Introduced Marine Pests Coordination Group within six months of the interim arrangements entering into effect. **(Recommendation 4.33)**

Education and training programs also have broader application beyond the concept of a prepared community. The Maritime Awareness Campaign of AQIS has been an important component in enhancing compliance with ballast water reporting requirements, for example. The Taskforce considers that education and training, both of industry and within government agencies, will be a vital component in maximising the effectiveness of the operation and implementation of all aspects of the National System.

~~✍~~ The Taskforce recommends that all components of the National System include an education and training component and that resources are made available to support these. Preparation of modules that can be used or adapted for use across jurisdictions is recommended as the best means to ensure consistency of messages and is also likely to be more cost-efficient. **(Recommendation 4.34)**

Appendix A

Joint SCC/SCFA National Taskforce on the Prevention and Management of Marine Pest Incursions: Terms of Reference and Membership

Terms of Reference

While recognising that the origin of particular species may be uncertain, the Taskforce will confine its attention to introduced marine species, excluding diseases. It will:

?? Examine:

- existing pre-border and border control arrangements for introduced marine pests;
- existing introduced marine pest incursion management arrangements nationally;
- previous research and recommendations such as the 1997 SCARM Report *Managing Incursions of Exotic Pests, Weeds and Diseases*.

?? Propose short-term actions (eg use of legal powers, protocols etc, drawing on the experience gained as a result of the black striped mussel outbreak and attempted containment of Northern Pacific seastars and Japanese kelps) within existing resources and statutory arrangements to improve existing emergency incursion response arrangements, monitoring and border control measures, and to propose interim cost-sharing arrangements.

?? Prepare a report to Ministers on effective and efficient arrangements for a national system for the prevention and management of all components of introduced marine pest incursions (see **Outputs** below).

?? Identify the resources and stakeholder responsibilities needed to establish a national system for the prevention and management of introduced marine pest incursions.

?? Consult with relevant Commonwealth and State/Territory management agencies and non-government organisations in delivering the various components of its Work Plan.

?? Report by 24 December 1999.

Outputs

Prepare a report to Ministers covering:

?? Agreement on a national ready response capability within current statutory arrangements and resources that includes:

- agreed emergency administrative procedures in the event of an outbreak of an introduced marine pest, including clearly defined agency roles, responsibilities and legal powers;
- early warning and prevention systems for a short list of non-indigenous marine species that pose a major threat; and
- interim cost-sharing arrangements.

?? The requirements of a comprehensive national system for the prevention and management of introduced marine pest incursions addressing:

- pre-border efforts to reduce the risk of importation of marine pests;
- border and post-border (translocation) control systems for ballast water, hull fouling and other vectors;
- monitoring to detect new incursions or spread of existing introduced marine pests;
- emergency response to incursions; and
- mitigation/control of introduced marine pests already in Australia;

and make recommendations in these areas relating to:

- administrative arrangements, including national coordination mechanisms;
- legislation, including regulatory reform;
- financial arrangements and resource requirements (eg funding requirements and cost-sharing arrangements);
- supporting research; and
- other relevant components such as stakeholder liaison and cooperation, awareness programs, training, etc.

Membership

Conall O'Connell, Environment Australia (Chair)
Mike Drynan, AFFA Fisheries & Aquaculture Branch
Mike Nunn, AFFA National Office of Animal and Plant Health
Denis Paterson, AQIS, AFFA
Leonie Mack, Department of Transport & Regional Services
Rod Gowans, SCC, Department of Environment & Natural Resources, Victoria
Rex Pyne, SCFA, Department of Primary Industry & Fisheries, Northern Territory
Pauline Semple, SCEP, Environmental Protection Agency, Queensland
Darryl Grey, NSW Fisheries
Colin Chalmers, Fisheries Western Australia
Vic Neverauskas, Department of Primary Industries and Resources, South Australia
Ron Thresher, CRIMP, CSIRO

Representatives of the following agencies also participated in one or more meetings of the Taskforce:

?? AQIS
?? Environment Australia
?? AFFA
?? Australian Fisheries Management Authority
?? Department of Transport, Western Australia
?? Department of Primary Industries, Water and Environment, Tasmania
?? Chair, Australian Ballast Water Management Advisory Council

Appendix B

Summary of Comments on the Stakeholder Consultation Paper

On 28 September 1999 the Taskforce distributed a consultation paper to seek input from non-government stakeholders. This document summarises the comments received and the Taskforce's response.

Comments on the stakeholder consultation paper were received from a range of organisations including industry, research and conservation groups (listed below). Most respondents indicated general support for the approach outlined in the paper and also raised issues or concerns from their areas of particular interest.

All of the comments received were considered by the Taskforce in compiling its final report. As the summary table below shows, many of the issues raised by stakeholders are addressed in the final report, or have been noted as issues to be considered further in developing longer-term management options for introduced marine pests.

Stakeholders will have the opportunity to participate further in the development of long-term management options for introduced marine pests through consultation arrangements proposed by the Taskforce.

List of Respondents

- ?? Ocean Watch
- ?? Port of Port Kembla
- ?? Quicksilver Connections
- ?? Transport Western Australia
- ?? Australian Institute of Marine Science
- ?? The Association of Australian Ports and Marine Authorities
- ?? The Marine and Coastal Community Network (Northern Territory)
- ?? University of Wollongong
- ?? Victorian Joint Submission – Dive Industry of Victoria Association, Seafood Industry Victoria, Victorian Aquaculture Council, Victorian National Parks Association, Victorian Recreational Fishing Peak Body, Marine and Coastal Community Network (Victoria)
- ?? Ports Corporation of Queensland
- ?? Queensland Marine Waste Management Group (formerly Queensland Ballast Water Management Group)

Summary of Stakeholder Comments and Taskforce Response

Comment	Taskforce Response
1. Ensure that there are cost effective alternatives and arrangements in place when the phase out of tributyltin (TBT) antifoulant occurs.	Accepted – see Sections 2.3 and 4.2.2.1

Comment	Taskforce Response
2. A philosophical framework is needed to put measures and options in context (overview of problem, key themes and principles to guide policy development).	Accepted – see Chapters 1 and 2
3. Action plans and timelines should be prepared for key activities.	Accepted – where possible milestones have been included in the report; some actions and milestones will need to be developed further with the long-term arrangements. Section 4.2.2 and <u>Appendix G</u> provide details of the AQIS Action Plan.
4. The importance of the involvement of all stakeholders in the process.	Accepted – stakeholder consultation mechanisms are proposed – see Sections 3.1, 4.1.3 and 4.3.5.
5. A need to determine and agree the roles of non-government stakeholders (industry and public) in emergency response.	Accepted – these are outlined in the interim response arrangements and can be further developed in the long-term arrangements.
6. Responsibilities and accountability for incursion management and prevention should be explicit for all levels of government, industry and the community.	Accepted – as for previous comment.
7. The importance of education and information dissemination.	Accepted – see Section 4.3.5.
8. The importance of baseline surveys (port surveys etc.) and the need for standardised protocols for survey and monitoring. This was seen as a core government responsibility.	Accepted in part – the importance of baseline surveys is acknowledged. Responsibility for undertaking both initial and ongoing survey and monitoring is something that needs to be resolved as part of developing the long-term arrangements. See Section 4.3.3.
9. Issues of funding featured strongly, particularly the need for resolution of a range of cost sharing and cost recovery issues. Compensation and liability featured as issues that need resolving.	Accepted – see Chapter 3 introduction, Sections 3.2.7, 3.3 and 4.3.1 and 4.3.2.
10. Resolution of the structure, operation and responsibility for the single national management regime for ballast water.	Accepted – see Section 4.2.2 and the AQIS Action Plan (<u>Appendix G</u>).
11. The importance of developing a comprehensive trigger list (temperate and tropical species) and distributing it widely.	Accepted – report provides an interim trigger list and proposed criteria for adding species to and deleting species from the list. See Sections 3.2.3, 3.2.5, 4.2.2.1 and <u>Appendix E</u> .

Appendix C

Major introduced marine pests detected in Australia

***Asterias amurensis* (northern Pacific seastar)**

Populations in Victoria and Tasmania

- ?? major predator on wide range of marine species, including commercial shellfish
- ?? impacts on shellfish farms and temperate reef habitats
- ?? major threat to endangered species such as spotted handfish
- ?? recent invader that is rapidly spreading (established in Port Phillip Bay in 1998, population now estimated at 15,000,000 individuals)
- ??

***Carcinus maenas* (European shore crab)**

Populations in New South Wales, Victoria, Tasmania, South Australia and Western Australia

- ?? major predator on native bivalves and farmed shellfish species
- ?? forms dense populations and alters ecosystem function

***Mytilopsis sallei* (black-striped mussel)**

Isolated outbreak in Northern Territory in 1999 with local densities of 24,000 m².

- ?? similar to zebra mussel (annual control cost in the USA of \$US 30 million)
- ?? population explodes forming massive monocultures (15 cm thick, 100 kg/m²)
- ?? grows on a wide range of substrates including water intake piping
- ?? out-competes native and farmed species and alters nutrient flows
- ?? directly threatens shellfish, shipping and other maritime industries

***Sabella spallanzanii* (Mediterranean fanworm)**

Populations in New South Wales, Victoria, South Australia, and Western Australia. Detected in Tasmania but may not have established

- ?? competes for phytoplankton food with native bivalves and other shellfish
- ?? changes the marine environment, affecting water circulation, nitrification, fish breeding, seagrass beds
- ?? impacts on fishing operations

***Undaria pinnatifida* (Undaria seaweed, wakame)**

Populations in Tasmania and Victoria

- ?? forms massive stands that out-compete native species for space and light
- ?? impacts on abalone and other shellfish farms by invading suitable habitat; fouls fish farm cages and equipment
- ?? recent invader that is rapidly spreading

***Codium fragile tomentosoides* (broccoli weed)**

Populations in Victoria

- smothers and competes with native species

***Musculista senhousia* (Asian mussel)**

Populations in Tasmania, Victoria, South Australia and Western Australia.

Recently detected on a recreational vessel in Darwin (1999)

- ?? can form major outbreaks that out-compete other shellfish and native species

***Corbula gibba* (European clam)**

Populations in Victoria and Tasmania

- ?? can form major outbreaks that out-compete other shellfish and native species

***Caulerpa* species (caulerpa)**

Populations of *C. scapelliformes* and *C. filiformis* in New South Wales.

Populations of *C. taxifolia* in Queensland, New South Wales and Western Australia

- ?? grows quickly and out-competes native sea grass, an important marine habitat
- ?? the *C. taxifolia* aquarium hybrid (not yet in Australia) aggressively overgrows native species to form massive monocultures, is toxic to browsing fish and invertebrates, and has no known controls

***Maoricolpus roseus* (New Zealand screwshell)**

Populations in New South Wales, Victoria and Tasmania

- ?? forms concentrations of up to 1,000 m² on the continental shelf and in some inshore areas, and is likely to be Australia's most numerous marine invader
- ?? impacts on fishing operations (eg scallop trawling)
- ?? huge biomass suggests possible role in demise of native shellfish and changes to water and nutrient flows

***Crassostrea gigas* (feral Pacific oyster)**

Farmed and feral populations in Tasmania, New South Wales and South Australia.

- ?? causes loss of aesthetic and amenity value (alteration of the appearance of shores; faeces from dense colonies enrich sediments; sharp edges of shells injure coastal users and damage equipment)
- ?? competes for space and nutrients with native species
- ?? can pass on a parasitic copepod (*Mytilocola orientalis*) to commercial mussels

***Gymnodinium* and *Alexandrium* species (toxic dinoflagellates, red tides)**

Widespread in algal blooms; more prevalent in southern Australia

- ?? impacts on human health through paralytic shellfish poisoning
- ?? leads to closures of fisheries and marine farms

Appendix D

**Draft Australian Emergency Marine Pest Management Plan
(EMPPlan)**

Appendix D comprises pages 70–156 of the Taskforce Report

Document distributed separately

Appendix E

Interim Trigger List of Introduced Marine Pests

CRITERIA

Necessary and sufficient information to justify including a species on the trigger list (all four need to be satisfied)

1. Demonstrable invasive history.
2. One or more relevant transport vectors are still operating.
3. Demonstrable impact in native or invaded ranges on:
 - ?? economy;
 - ?? environment;
 - ?? human health; or
 - ?? amenity.
4. Inferred as likely to have major impacts in Australia based on the overseas data and characteristics of Australian environments and marine communities.

Necessary and sufficient information to justify removing species from the trigger list (any one needs to be satisfied)

1. Scientific, empirical data show that impacts overseas are less than previously thought.
2. Scientific, empirical data show that impacts in Australia are likely to be less than previously thought.
3. Already is or becomes widely distributed in Australia.

INTERIM LIST

Species	Common Name	Native Distribution	Introduced Distribution
<i>Aurelia aurita</i>	Moon Jelly	Northern Hemisphere	Hawaii
<i>Caulerpa taxifolia</i> Aquarium strain	Marine Algae	Native strains circumtropical	Invasive ‘hybrid’ in Mediterranean Sea
<i>Cyanea</i> spp.	Lion’s Mane Jelly	Northern Hemisphere	?
<i>Dreissena bugensis</i>	Quagga Mussel	Europe	North America
<i>Eriochir sinensis</i>	Chinese Mitten Crab	North West Pacific	Europe; West North America
<i>Mnemiopsis leidyi</i>	Comb Jelly	Western Atlantic	Black Sea; Mediterranean
<i>Mytilopsis sallei</i>	Black Striped Mussel	Caribbean	Hong Kong; India; Singapore; [Darwin, NT]
<i>Pfiesteria piscicida</i>	Dinoflagellate	North West Atlantic	?? (proposed as introduced to N America)
<i>Potamocorbula amurensis</i>	Asian clam	North West Pacific	North East Pacific (SF Bay)
<i>Rapana thomasina</i>	Gastropod	North West Pacific	Black Sea
<i>Rapana venosa</i>	Gastropod	North West Pacific	North West Atlantic (Chesapeake Bay)
<i>Sargassum muticum</i>	Asian Seaweed	North West Pacific	North West Pacific; England
In Australia, but not widespread			
<i>Asterias amurensis</i>	Northern Pacific Seastar	North West Pacific	Tasmania, Victoria
<i>Codium fragile</i> spp. <i>tomentosoides</i>	Broccoli weed, Dead man’s fingers	North East Pacific	Tasmania, Victoria
<i>Musculista senhousia</i>	Asian Date or Bag Mussel	North West Pacific, South Asian Seas	Tasmania, Victoria, Western Australia
<i>Undaria pinnatifida</i>	Undaria Seaweed “wakame”	North West Pacific	Tasmania, Victoria

Note that this list is currently limited to marine and estuarine species.

Appendix F

Scenarios to Test Capabilities of Legislation

The Scenario

Suppose for this purpose the responsible agency has received a mysterious report alleging the presence of the highly invasive and destructive (but in the real world - mythical) pest the purple spotted oyster (*Ostrea nastii*) on some piers of a recreational boating wharf in a private marina in your state.

?? Who is the lead agency for coping with a marine pest incursion in your Commonwealth/State/Territory jurisdiction?

?? What Act would be used to back the investigation and possible treatment of this pest problem?

Due to an historical oversight the dreaded purple spotted oyster has not been put on any 'noxious pest lists' or the like in the past.

?? Does this matter?

?? If it does matter, what is the process to get the pest covered under the relevant Act?

1) ENTRY OF SUSPECT PREMISES/AREAS

?? What officers would you send to investigate the sighting?

?? Is there a capacity to second / direct officers from other services to assist?

?? Do your officers have the legal right to insist on entry if the marina owners refuse them entry to the premises?

?? What about if the suspect animals may be attached to:

- an ore loader?
- the hull of a moored ship?
- a ship on the move?

2) ***REMOVAL OF SAMPLES FOR TESTING***

Some suspicious creatures are found stuck to a mooring line among other things, but it is impossible to get a good sample of the more solid objects because the shells break.

- ?? Can your officers remove the rope from the marina without permission of the owner?
- ?? Can your officers require some work in the vicinity – perhaps loading a ship – to stop briefly so a sample can be taken in safety?

3) ***MOVEMENT CONTROL OF VECTORS INFLUENCED BY HUMAN ACTIVITY***

After assessment the creature is confirmed as the dreaded purple spotted oyster.

- ?? Can you quarantine the area?
- ?? Does this apply to boats trying to leave the area?
- ?? Can you require ‘at-risk’ boats to return to the infested area to decrease spread?

4) ***QUESTIONING FOR TRACING PURPOSES***

The purple spotted oyster is capable of being carried on the hull or in the ballast of boats. You are trying to trace where boats have come from, what boats have been in the area and where those boats have gone.

- ?? Is it an offence to obstruct your officers in this task?
- ?? Can your officers require people to produce any records of boat movements?

5) ***REQUIRING RESPONSE OR TREATMENT***

The decision making committee has authorised a control campaign to start.

- ?? Can you require treatment of boats and structures?
 - In the quarantine area?
 - Outside the quarantine area?
- ?? Can you stop ‘at risk’ boats from entering uninfested environments and redirect them?

?? What capacity / limitations are there on actions that can be taken to control the pest
(ie. normal pollution / Environment Protection Agency guidelines?)

6) *IMMUNITY OF OFFICERS / COMPENSATION PROVISIONS?*

?? Are there any such provisions?

Appendix G

**Draft Action Plan for Minimising the Risks to Australia from the
Introduction and Translocation of Introduced Marine Pests by
Vessels**

Appendix G comprises pages 162–182 of the Taskforce Report

Document distributed separately

Appendix H

**National Control Plan for Northern Pacific Seastar
(*Asterias amurensis*)**

**Appendix H comprises pages 183–215 of the Taskforce Report
Document distributed separately**