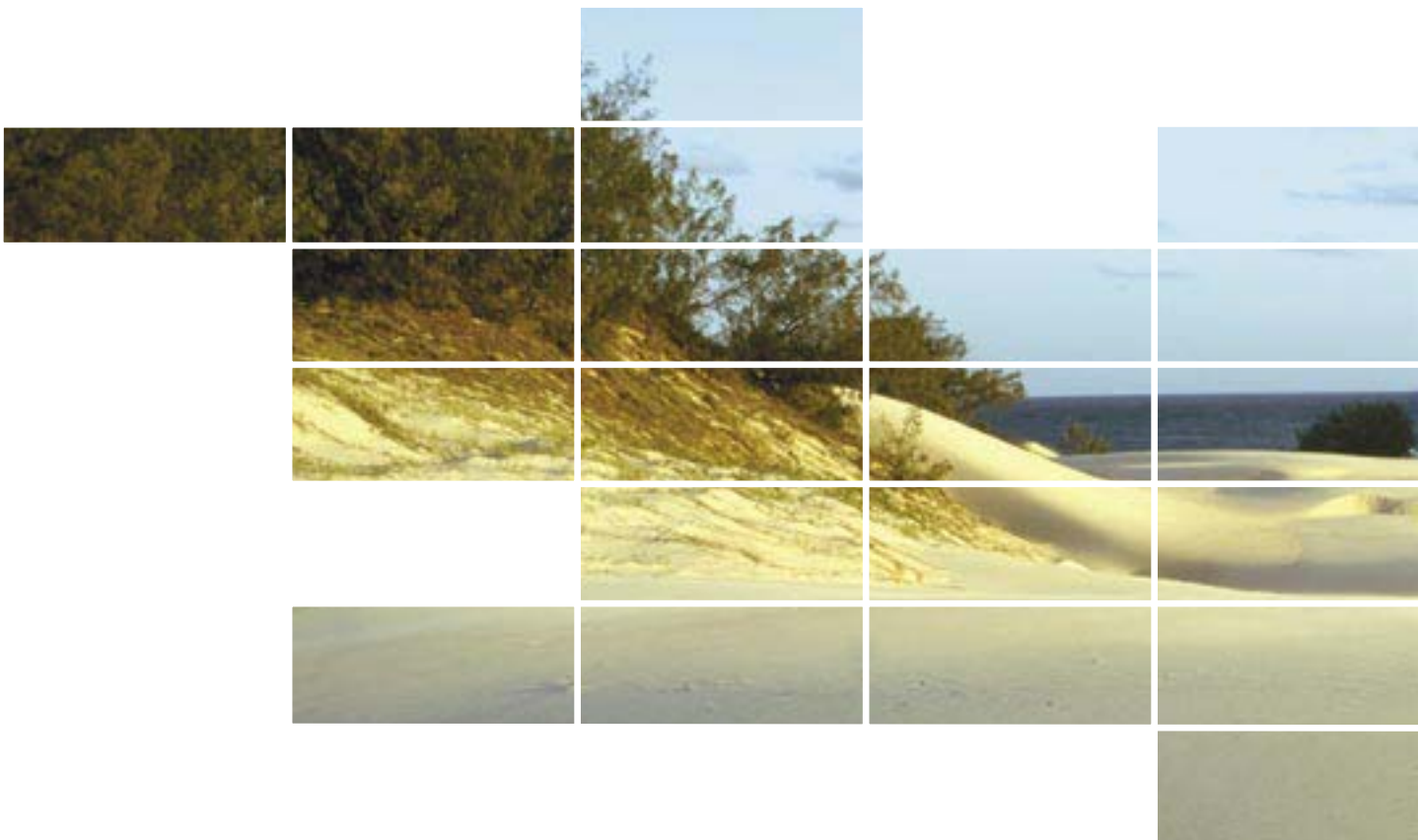


NATURAL RESOURCE MANAGEMENT MINISTERIAL COUNCIL

NATIONAL COOPERATIVE APPROACH TO INTEGRATED COASTAL ZONE MANAGEMENT

FRAMEWORK AND IMPLEMENTATION PLAN



NATURAL RESOURCE MANAGEMENT MINISTERIAL COUNCIL

NATIONAL COOPERATIVE APPROACH TO
INTEGRATED COASTAL ZONE MANAGEMENT
FRAMEWORK AND IMPLEMENTATION PLAN

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Natural Resource Management Ministerial Council

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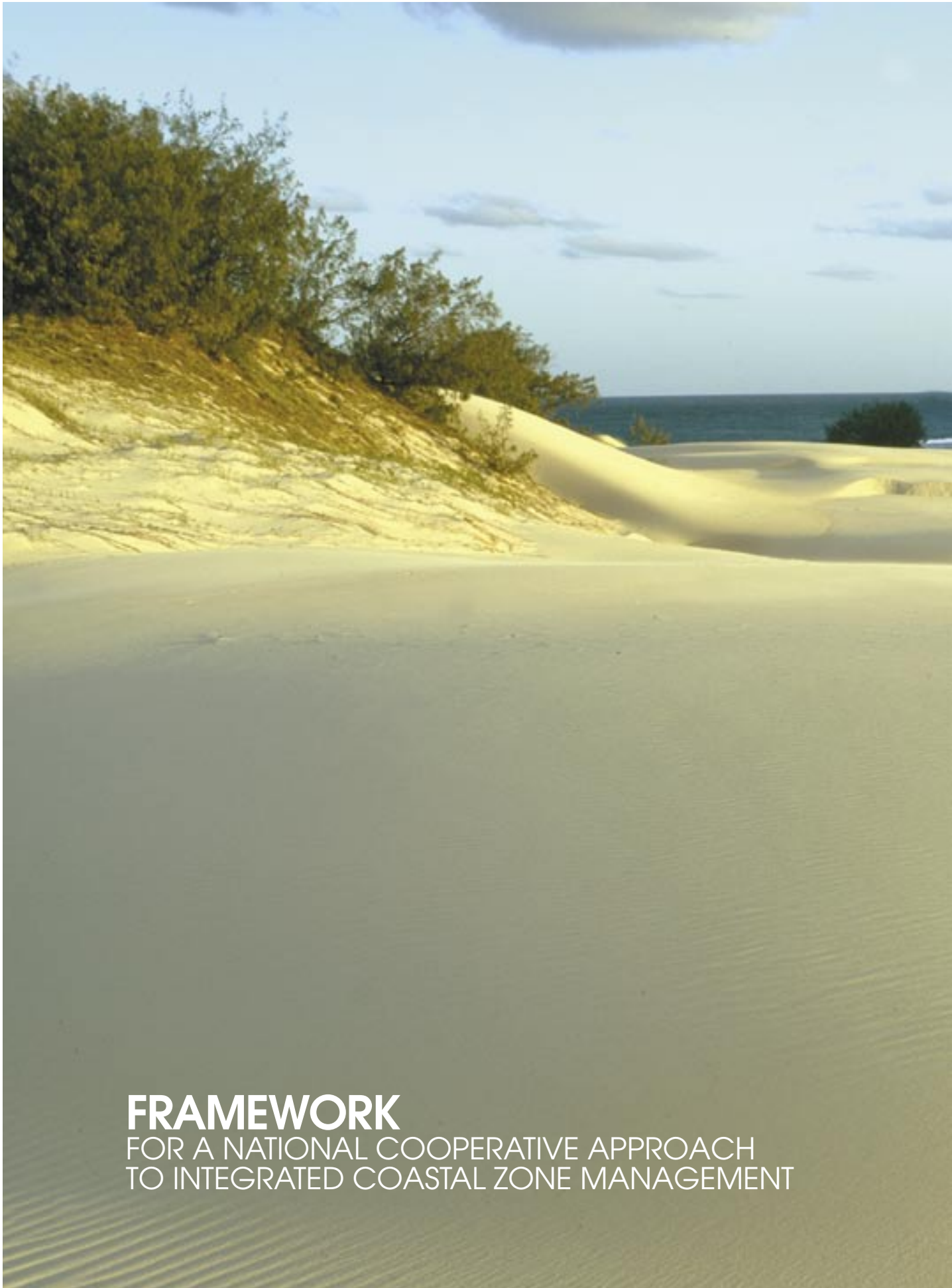
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FRAMEWORK
FOR A NATIONAL COOPERATIVE APPROACH
TO INTEGRATED COASTAL ZONE MANAGEMENT



INTRODUCTION

The coastal zone is one of Australia's greatest assets. Its unique coastal values and resources are vital to the Australian way of life. The capacity to ensure ecologically sustainable use and development of the coastal zone is imperative for all Australians, both now and into the future.

The coastal zone of Australia is 36 000 km long, not including external territories. The wide ranging climatic, geological and oceanographic regimes and interacting mix of terrestrial, estuarine and marine ecosystems support a wealth of biodiversity. Coastal biodiversity supports the resource base for a broad range of commercial and non-commercial activities. Coastal activities dependent on healthy coastal environments include commercial, recreational and Aboriginal and Torres Strait Islander peoples' fishing; tourism and recreation; urban development; aquaculture and mariculture; shipping and transportation; coastal agriculture; mining (including petroleum mining); manufacturing and trade. Equally the coastal zone has important social, cultural and indigenous values, including coastal landscapes, amenity and access.

The Australian coastal zone is a focus of major economic, industrial and social activity. Australians are giving increased value to lifestyle choices in the coastal zone with more than 86 per cent of the population now living near the coast and even more visiting coastal areas regularly. These trends are placing greater pressure on coastal resources and present significant resource use challenges, some of which have emerged at the national scale.

The State of the Environment Report (2001) notes that while there are continued efforts to improve coastal management responses, coastal zone condition is not significantly improving and against a number of criteria continues to decline. Pressures on coastal resources are increasing at a rate that exceeds the time necessary for damaged environments to stabilise and be repaired.

The State of the Environment Report (2001) concludes that without a concerted effort by all, Australia's coastal and marine environments are likely to be under increasing pressure over the next decade. Whilst nationally cooperative efforts that focus on improving water quality and salinity across catchments benefit the coastal environment, continued active management of human impacts on the coastal zone is also necessary if the health and productivity of coastal ecosystems are to be sustainable.

Forward thinking is required to initiate a nationally cooperative focus on achieving ecologically sustainable development through integrated coastal zone management (ICZM). Now is the time to encourage more active rehabilitation, protection and improvement of these important assets through proactive planning and management.



IMPORTANCE OF INTEGRATED COASTAL ZONE MANAGEMENT TO AUSTRALIA

The fundamental goal of ICZM is to maintain, restore or improve the quality of coastal ecosystems and the societies they support. A defining feature of ICZM is that it seeks to address both development and conservation needs within a geographically specific place – a single community, estuary or nation – and within a specified timeframe.

Australians expect governments to support ongoing economic, environmental and social wellbeing in the coastal zone. Governments have a responsibility and interest in the coastal zone and recognise the importance of ICZM as a tool for managing challenges that are of national scale and scope. Governments are working cooperatively to ensure effective and complementary arrangements within and across jurisdictions, and to better reflect the interests of coastal stakeholders including individuals, community groups, Indigenous communities, business and industry.



Whilst ongoing ICZM management efforts contribute to ecologically sustainable outcomes, the commitment of governments to a nationally cooperative approach to coastal issues will provide a strategic tool for guiding national, state, regional and local coastal zone outcomes and add value to existing initiatives. This approach is consistent with and builds on efforts to implement the 1993 Resource Assessment Commission's (RAC) Coastal Zone Inquiry report recommendations to achieve long-term ecologically sustainable development of the coastal zone for present and future generations.



COASTAL ZONE PRESSURES

The key economic, social and environmental drivers that affect the sustainable use of coastal resources include:

Population growth and demographic shifts – These will drive changes in traditional patterns of coastal zone settlement and resource use. They will be realised in the rate, extent and type of urban development and result in increased demands for infrastructure and services. While urban development is traditionally managed at the regional and local level, these changes reflect an emerging national trend that will require longer-term strategic thinking and appropriate resources for effective management. Coastal towns are facing the greatest rate of population increase and greatest pressure for economic growth. Visitors to the coast are also increasing in numbers and in remote areas can seasonally exceed the resident population. The aging profile of Australia's population will be a compounding factor, as retiring baby boomers may increasingly choose to reside on the coast, changing the nature and demand for the services and infrastructure.

Industry trends – The coastal zone is a major focus of economic development in Australia. National and international tourism are of economic and social significance and are key growth areas. Similarly, the growth of aquaculture and mariculture offer significant economic prospects. Shipping, fishing, transport, agriculture and petroleum industries are also important economic industries in coastal zones.

Protection of the coastal resource base – Governments have invested significantly in addressing the decline in water quality and loss of habitat in coastal catchments. Ecologically sustainable use of coastal resources has been recognised as critical to future development and use of the coastal zone, consistent with integrated natural resource management and related management strategies. Balancing economic, environmental and social needs and aspirations to achieve desired outcomes requires a degree of consistency and streamlining that would benefit from national cooperation. This approach will reduce potential overlap, inefficient cost structures and duplication, and be more responsive to the demands of local communities and the protection of coastal ecosystems. Achieving this balance may also call for programmes to be fine-tuned to the needs of local communities and specific ecosystems.

Climate change – challenges and opportunities – Climate change scenarios, if realised, will fundamentally affect natural, economic and social systems resulting in significant changes to the way the coastal zone is managed and used. However, the implications of projected changes are not well understood and may challenge the capacity of coastal zone managers to achieve long-term sustainable outcomes for the coastal zone. A national cooperative approach will open opportunities to adequately plan for and consider appropriate responses to managing the impacts of climate change. While these changes will not be uniform across the coastal zone, a common understanding of potential impacts can assist in maximising cross-jurisdictional opportunities and minimising adverse environmental, social and economic consequences.





PURPOSE OF THE FRAMEWORK

Governments and stakeholders have considered the most effective ways of moving towards ICZM.

The Framework for a National Cooperative Approach to Integrated Coastal Zone Management (the Framework) sets the scene for national cooperation in managing coastal issues and achieving ecologically sustainable development outcomes in the coastal zone over the next decade. It has been developed in consultation with key stakeholders and has the support of Australian Government, state and territory jurisdictions. As a high level strategic instrument it will provide the basis for a series of high level actions for development of an Implementation Plan which is the next step in the nationally cooperative approach.

While jurisdictions have different legislative and administrative frameworks for managing the coastal zone, adopting a national cooperative approach to these themes will address cross border and sectoral issues, harmonise joint action towards management of common issues and build on existing and encourage new investments from all jurisdictions.

A national cooperative approach to the management of these issues will benefit all Australians:

- ◎ **socially** as the majority of Australians will continue to enjoy lifestyle expectations of, and access to, the coastal zone,
- ◎ **economically** as industry will have a sound base from which to operate and provide benefits, including employment, to the community, and
- ◎ **environmentally** as the unique and diverse coastal zone flora and fauna will be enhanced to provide essential ecosystem services.

OUTCOMES THAT WILL BE ACHIEVED FROM A NATIONAL COOPERATIVE APPROACH

It is of national importance for the future to conserve coastal biodiversity, improve coastal water quality and protect the economic base of coastal areas. The major outcomes to be achieved through the Framework at the national, state, regional and local levels are:



(A) MANAGING COASTAL ISSUES THAT ARE OF NATIONAL SCALE AND SCOPE

Issues of national scale and scope require national efforts to maximise returns to the nation as a whole. These coastal issues include cross border issues such as: the potential impacts of climate change and sea level rise; coordinating appropriate responses to major pressure points such as land based sources of marine pollution and managing introduced pests; enhancing Australia's competitiveness to maximise its 'clean and green' reputation; and promoting and enhancing sustainable resource use.

In coordinating issues of national scale and scope, the Framework will deliver to Australians:

- ⦿ a proactive and adaptive approach to address coastal issues of a national scale that are beyond the scope of individual jurisdictions,
- ⦿ over a 10-year timeframe, guidance for investment in the ecologically sustainable development of the coastal zone through greater clarity and certainty of governments' directions,
- ⦿ thorough and comprehensive performance information to track progress in achieving ICZM outcomes, and
- ⦿ a commitment to improved capacity for undertaking integrated coastal zone planning and decision-making.



(B) MANAGING COASTAL ISSUES WHERE COMPLEMENTARY ARRANGEMENTS WILL WORK BETTER

More than a decade ago the RAC Inquiry Report concluded that there were major resource management problems in the coastal zone. The Report's conclusions and recommendations sought to protect coastal environments, provide a catalyst for numerous improvements and reforms in coastal management and improve the effectiveness of coastal management arrangements so that Australians could obtain greater benefit from the use of coastal zone resources.

Australia's states and the Northern Territory have developed and continue to improve legislative, policy and programme responses to meet the management challenges associated with increasing pressures in the coastal zone.

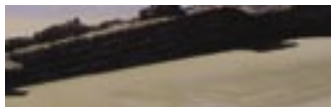
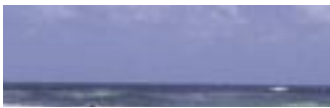
It is recognised that there are specific coastal issues that would benefit further from complementary arrangements between jurisdictions under a national approach. The Framework provides a mechanism to encourage complementary arrangements to build on the successes and the momentum established through current state and territory coastal management initiatives.

Delivery of outcomes will be achieved through:

- ⦿ adopting approaches to maximise opportunities for achieving comparable national standards and consistent outcomes, for example in relation to national capacity building and mechanisms that encourage particular forms of resource use and collaborative behaviour among institutions and user groups,
- ⦿ more efficient and effective delivery of ecologically sustainable development outcomes in the coastal zone through integrating natural resource management marine and coastal outcomes as part of the regional delivery of the Natural Heritage Trust (the Trust),
- ⦿ efficient and effective delivery of ICZM for issues of national scale, for example through agreement to measures for the prevention and management of introduced marine, terrestrial plant and animal pests,
- ⦿ sharing information, knowledge and resources to support best practice management of efforts directed towards landscape restoration and rehabilitation, streamlined research, reporting and database development,
- ⦿ coordination of effort in waste water management and combating land based sources of marine pollution at a national scale where appropriate,



- © effective allocation of resources, for example encouraging consistent governance arrangements where it is important to provide a level playing field for industry to achieve ecologically sustainable development,
- © avoiding overlap and duplicated effort on nationally significant issues such as coastal acid sulfate soils, and
- © cooperation on significant national initiatives such as the Coastal Catchments Initiative and Sustainable Cities Initiative.



KEY THEMES FOR NATIONAL ACTION

To achieve the outcomes from a national cooperative approach, two key themes have been identified.

THE CATCHMENT-COAST-OCEAN CONTINUUM: AN INTEGRATED APPROACH

The catchment-coast-ocean continuum captures the essence of integrated coastal zone management. The coastal zone is both the physical and administrative interface between the catchments and the ocean. It is under the greatest pressure from resource use in the catchments and in the ocean and requires special focus to ensure ecologically sustainable development through securing adequate flows of freshwater to the coastal zone and by minimising land-based pollution.

A national focus on the coastal zone as a biophysical entity is a significant step towards ecosystem-based management. Australians benefit from the ecosystem services provided by the coastal zone such as climate buffering, recreational use, cultural traditions, provision of food, trapping and removal of pollutants, storm protection, cycling of nutrients and organic matter and stabilisation of shorelines. However, most of these ecosystem services have been unrecognised and undervalued. The protection of coastal ecosystems that provide significant ecosystem services is in the national interest.

Integration across the continuum will stimulate greater efficiency and effectiveness for delivery of integrated coastal zone outcomes. This will be reflected through reduced transaction costs, strategic and targeted investment opportunities and streamlined governance structures.

Such integration will also encourage greater opportunity to maximise returns on investment from existing Natural Resource Management (NRM) initiatives, particularly the Trust and the National Action Plan for Salinity and Water Quality (NAP) initiatives. In some jurisdictions institutional arrangements are now reflecting an integrated NRM approach to take a whole of catchment perspective, which includes the coastal zone and marine waters.

The development of the Framework is closely linked with a parallel process, the development of the Integrated Oceans Management collaborative approach. There is obvious commonality in the issues relating to Australia's coasts and oceans. The two processes will become more strongly linked over time with possible integration of coastal and oceans management activities.

The links between the land and the ocean are recognised in Australia's Oceans Policy as crucial for managing marine resources. Nationally, Australian and state governments are working towards a collaborative approach to integrated oceans management, focusing on improving government efficiency and consistency in dealing with matters that cross marine jurisdictional boundaries.

The Australian Government's regional marine planning process, although focused on Commonwealth Waters, considers the interactions between the coastal, inshore and offshore resource systems. Regional marine planning provides a useful mechanism to consider inshore-offshore interactions regionally. Importantly, in those marine regions where the process is underway (the South-east and Northern Planning Areas), the states have been pivotal in supplying data and information to build an understanding of those interactions.

Integration between Australian, state and territory, regional and local levels of government creates efficiencies and allows for effective linkages between national and local issues. Such cooperative arrangements to address key natural resource management issues in catchments and on the coast provide a mechanism to address management priorities at the national, regional and local scale. Arrangements between the Australian and state governments such as complementary legislation, policies and programmes facilitate the implementation of national and local priorities. This approach is now enshrined in the NRM regional delivery model.

Australia is a signatory to a number of international conventions and agreements of direct relevance to coastal zone management including the Ramsar convention, the World Heritage Convention, agreements on migratory birds (Japan-Australia Migratory Bird Agreement [JAMBA], China-Australia Migratory Bird Agreement [CAMBA]), agreements under the International Maritime Organisation (International Convention for the Prevention of Pollution from Ships [MARPOL 73/78]), the United Nations Conventions on the Law of the Sea and the Global Programme of Action for protecting the marine environment from land based sources of pollution. Some of these obligations are enshrined in Commonwealth legislation and matched in state and territory legislation.



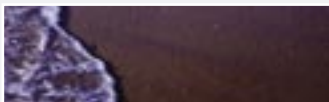


LINKS WITH PRIORITY AREA 1 OF
IMPLEMENTATION PLAN – PAGE 23

COASTAL ISSUES FOR NATIONAL COLLABORATION

A range of human-induced activities threaten many coastal environments, particularly estuarine systems, as a result of intensified use of and demand for coastal resources. Current trends in coastal demography and economic activities are expected to continue, with particular emphasis on:

- ⊙ population and demographic shifts combined with growth,
- ⊙ growth and changes in the nature of tourism and visitation patterns,
- ⊙ an affluent, mobile and ageing population,
- ⊙ changes from traditional, often rural, uses of the coast to higher value uses such as service industries and increasing urbanisation, and
- ⊙ potential population increases in small to medium sized coastal towns that are not matched by development of an equivalent sustainable industry economic base.



LINKS WITH PRIORITY AREA 5 OF
IMPLEMENTATION PLAN – PAGE 44

Key impacts include:

- ⊙ introduced pest plants and animals in coastal environments and areas of primary productivity such as fisheries, aquaculture, and agriculture,
- ⊙ loss of coastal habitats and biodiversity which in turn impact on the ongoing viability of coastal zone use and productivity in areas such as fisheries, tourism and recreation,
- ⊙ increasing residential development and urban sprawl on coastal habitats,
- ⊙ coastal acid sulfate soil impacts on water quality and agricultural productivity,
- ⊙ non-point source urban and catchment pollution such as sediment and nutrient run-off, and
- ⊙ marine pollution from vessel sources such as sewage, oil and marine debris.

All jurisdictions are taking measures to manage these threats. However a cooperative approach offers the opportunity to enhance management outcomes by better utilising existing national frameworks and strategies. A cooperative approach will facilitate the sharing of information and the identification of investment priorities. Outcomes will also be improved by minimising cross border impacts and by fostering competitive advantage in a whole of sector approach to environmental stewardship and responsibility.

The key issues that should be addressed cooperatively are outlined below.

1. LAND AND MARINE-BASED SOURCES OF POLLUTION

Land-based sources of pollution

Land-based sources of pollution, especially diffuse source pollution, whether derived from agricultural or urban sources, have been identified as some of the greatest threats to the health, productivity and biodiversity of Australia's coasts and oceans. The effects of land-based sources of pollution tend to be reasonably well understood where those effects are obvious and extreme. However, these effects tend to be very poorly understood where they are small, non-linear and or spatially exclusive. Nationally cooperative approaches to improve estuarine, coastal and marine water quality will enhance ecologically sustainable outcomes.

Marine-based sources of pollution

Legal frameworks are currently in place in Australia to implement the MARPOL 73/78 convention on marine pollution. All coastal states and territories have incorporated MARPOL 73/78 requirements into their legislation, but enforcement can be difficult and expensive. There is a great deal of marine debris arriving on Australian shores from unregulated dumping of waste in international waters. Containment of slip waste including biological debris and paint spills from harbours is also an issue.



LINKS WITH PRIORITY AREA 2 OF
IMPLEMENTATION PLAN – PAGE 30

2. MANAGING CLIMATE CHANGE

Climate change has the potential for major impacts on Australia's environment, and economy. Changes in temperature, precipitation, sea level, wind and climatic patterns, fire regimes and the spread of diseases may all be associated with climate change. Wetlands, estuaries, coral reefs, beaches, dune systems and other sensitive coastal ecosystems are vulnerable to the impacts of climate change. Increased coastal hazards are expected from changes in coastal processes. These will affect infrastructure of the coastal zone and the economic base of coastal communities. Climate change will also have major implications for fisheries and other coast dependent industries.



The complexity and expense of predictive models required to assist adaptation to climate change highlight the need for a cooperative effort across jurisdictions for their development and operation. Coastal ecosystems span jurisdictional boundaries so potential changes to them are likely to affect more than one jurisdiction. Adequate forward planning, that builds on existing national and state processes such as the Climate Change Forward Strategy and the National Greenhouse Framework, is required to meet the challenges that may arise from climate changes and would benefit significantly from a national cooperative approach.



LINKS WITH PRIORITY AREA 3 OF
IMPLEMENTATION PLAN – PAGE 37

3. INTRODUCED PEST PLANTS AND ANIMALS

The introduction of weeds and pest species has contributed to national reductions in biodiversity and marine, estuarine and coastal productivity. On a national scale, non-native plant species now account for about 15 per cent of our total flora and the populations are expanding. About half of them invade native vegetation, which is likely to affect the structure, species composition, fire frequency and abundance of native communities. Environmental weeds are spread by birds, animals and people. An emerging concern is the threat from pathogens and viruses being spread by people, their cargo, fishing gear, boats and parcels, and that are difficult to detect. Introduced marine pests enter Australia through ships' ballast water, as biofouling on ships' hulls and equipment, and through deliberate introduction, from the aquarium trade and aquaculture for example. Around 97 per cent of the volume of Australia's trade is moved through coastal ports. With around 6 000 ship visits per year, further introductions of marine pests in coastal waters also represent a significant economic and environmental threat. Translocation of introduced marine pests within Australian waters occurs through the same means, as well as by means of natural processes. There are now up to 400 introduced marine species in Australia. One in six is, or will become, a pest.



LINKS WITH PRIORITY AREA 4 OF
IMPLEMENTATION PLAN – PAGE 40

4. ALLOCATION AND USE OF COASTAL RESOURCES

Managing the impacts of change in coastal land use poses significant long-term challenges to ensure coastal resources are allocated effectively in line with the principles of ecologically sustainable development.

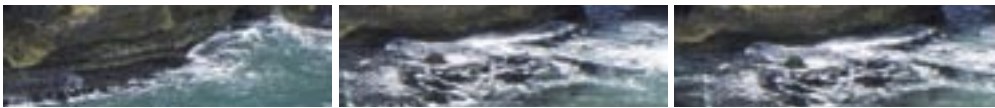
Key issues to consider in responding to these challenges include:

- ⦿ developing an understanding of future trends and implications nationally, regionally and locally,
- ⦿ ensuring that appropriate valuation is made of the ecosystem services that are provided to support the coastal zone,
- ⦿ developing effective mechanisms to reduce uncertainty for investment and economic development, and
- ⦿ encouraging environmental stewardship by industry and community.

Managing changes both in terms of distribution patterns and rate of change will require a range of tools both regulatory and non-regulatory as well as an enhanced institutional capacity to achieve a balance between environmental, social and economic objectives for the coastal zone.

The Council of Australian Governments and the Natural Resource Management Ministerial Council have agreed national agendas for water reform, vegetation management and response to greenhouse, which will guide all jurisdictions in the process of reform for improved water allocation and native vegetation management. These processes will impact on the coastal zone to some extent but they will not necessarily address all aspects of resource allocation and use.





5. CAPACITY BUILDING

Capacity building of stakeholders is critical to achieve effective coastal management and protection of coastal resources. It is a long-term investment in order to achieve effective and sustained coastal zone outcomes. Improved and informed decision making and implementation of decisions in the coastal zone must be under-pinned by the necessary skills, tools, technical knowledge and science.

All managers, users and volunteers, including local government and Aboriginal and Torres Strait Islander coastal managers and communities, need to be well-equipped to meet their responsibilities through:

- capacity building initiatives that support informed decision making,
- effective allocation of resources,
- adequate investment in research and information sharing to support effective decision making and management, and
- provision of support to, and recognition of, the contribution of community based volunteer action.

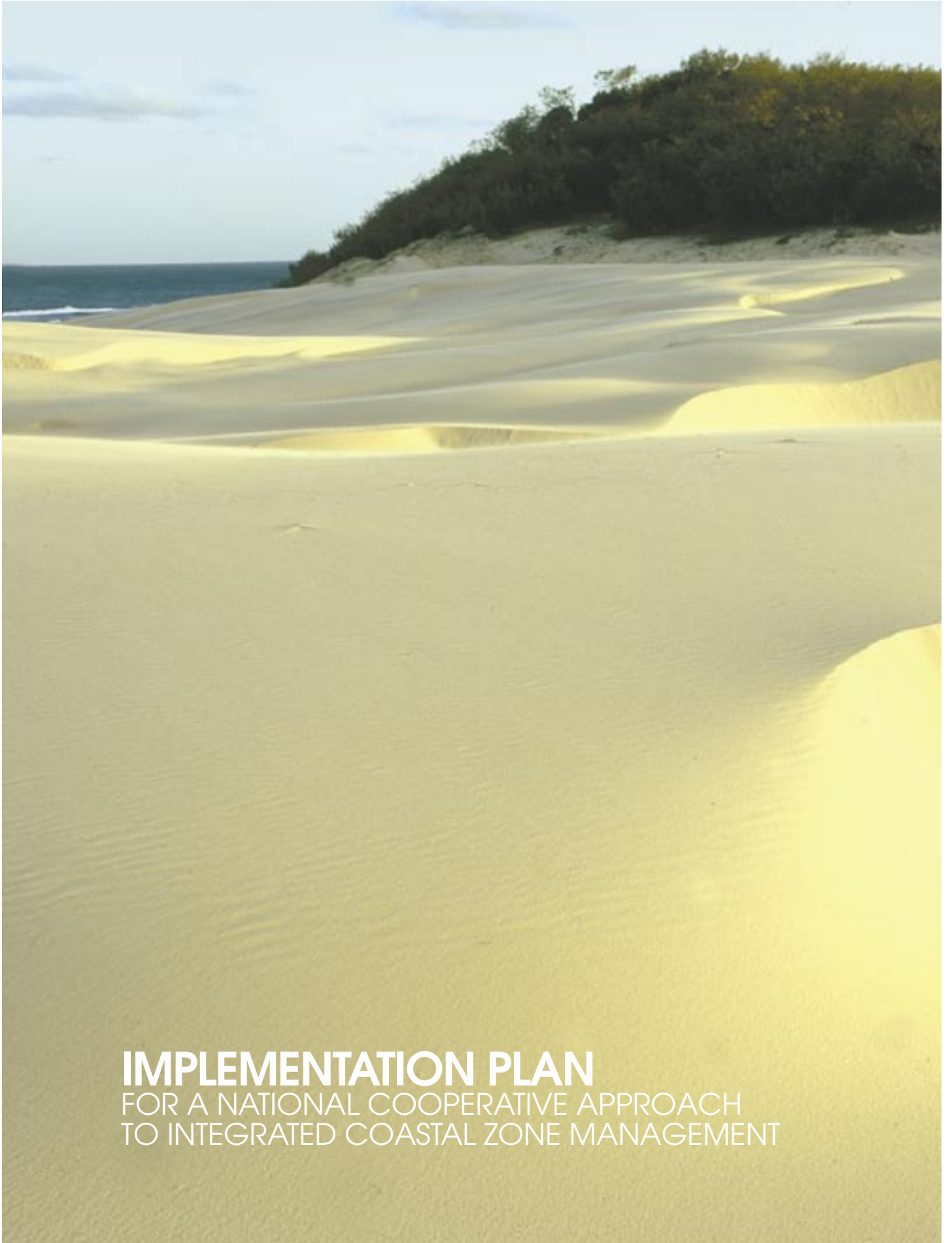
A national cooperative approach to capacity building will enhance existing national, state and local initiatives and ensure effective integration of coastal and marine requirements in the natural resource management and other related management capacity building frameworks.



LINKS WITH PRIORITY AREA 6 OF
IMPLEMENTATION PLAN– PAGE 45

NEXT STEPS

Following acceptance of the Framework, the next step is development of an implementation plan that seeks nationally cooperative outcomes within nominated timeframes. These actions will build on existing coastal management initiatives at the Australian, state and local government level. Where feasible these actions will be achieved through the efficient allocation of existing resources in consultation between the Australian Government, the states, Northern Territory and local government. Further funding implications associated with the implementation plan will be identified and agreed to between the Australian Government and various jurisdictions.



IMPLEMENTATION PLAN
FOR A NATIONAL COOPERATIVE APPROACH
TO INTEGRATED COASTAL ZONE MANAGEMENT



INTRODUCTION

The Natural Resource Management Ministerial Council (NRMMC) endorsed the Framework for a National Cooperative Approach to Integrated Coastal Zone Management (the Framework) on 3 October 2003. The Framework was developed to protect coastal and estuarine water quality, coastal biodiversity and the economic base of coastal areas around Australia. Coastal values and resources are vital to the Australian way of life. The wide ranging climatic, geological and oceanographic regimes and interaction of terrestrial, estuarine and marine ecosystems support a wealth of biodiversity. Coastal biodiversity underpins the resource base for a broad range of commercial and non-commercial uses and activities.

The coastal zone is part of the catchment-coast-ocean continuum. Integration of policies and actions across the continuum is a priority for both the Framework and the national approach to integrated oceans management. A key focus for both processes is to explore ways of enhancing management of Australia's coasts and oceans.

There are potential areas of synergy between integrated oceans management and integrated coastal zone management (ICZM), including:

- ⦿ addressing land and marine-based sources of pollution which impact on water quality on our coasts and in our estuaries and oceans,
- ⦿ addressing research knowledge gaps and identifying research priorities in relation to issues impacting on our coasts and oceans, and
- ⦿ knowledge management, particularly in relation to data management and access.

It is recognised that there will be benefits in exploring opportunities for integration and cooperation.

The Framework will also integrate with the regional planning under the Natural Heritage Trust (the Trust) and the National Action Plan for Salinity and Water Quality (NAP), to form a comprehensive natural resource management approach across the continuum.

The Implementation Plan for the Framework sets out, under strategic priority areas, implementation objectives and actions required to address coastal management issues that are of national scale or scope, or where issues will benefit from complementary arrangements between jurisdictions. As far as possible, the implementation objectives and actions are consistent with, and build on coastal zone planning and management initiatives in each jurisdiction.



PRIORITY AREA 1 – INTEGRATION ACROSS THE CATCHMENT-COAST-OCEAN CONTINUUM



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OF THE ICZM FRAMEWORK

Australia's social, economic and environmental wellbeing is dependent on how well we manage our land, water, marine and biological natural resources. The Australian, state and territory governments are working cooperatively and in partnership with regional bodies, community groups, industry and local governments across the country to encourage the sustainable management of our natural resources. The \$3 billion Trust and the \$1.4 billion NAP are major national programmes that aim to improve the integrated management of natural resources on a regional scale. A single accredited natural resource management plan and a single investment strategy per region, developed by local communities and supported by government and the best available science, are being used as the basis for investment for both programmes. Plans consider all environmental, social and economic impacts of natural resource management decisions on a regional basis.



1.1 RESEARCH PRIORITIES

The development of Australia's coastal zone and population growth has resulted in significant changes to the natural environment. Environmental changes such as loss of coastal habitat and decline in water quality potentially impact on social and economic development in the long term. Research aimed at improving understanding of the social, economic and environmental influences and consequences of coastal zone management decisions will help planning for future challenges. Strategic coordination of Australia's coastal zone research effort provides a mechanism for adaptive management and improving coastal zone outcomes across the continuum.

Coastal zone related research is undertaken by a range of organisations including Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Bureau of Meteorology (BoM), Australian Institute of Marine Science (AIMS), Geoscience Australia, Royal Australian Navy (RAN), Fisheries Research and Development Cooperation, Bureau of Resource Sciences and Great Barrier Reef Marine Park Authority (GBRMPA), also universities and other tertiary institutions and Cooperative Research Centres (CRC) including the CRC for Coastal Zone, Estuary and Waterway Management.

Objective: Build on knowledge and understanding of key biophysical, social and economic processes operating across the continuum for improving coastal zone decision-making.

Actions to implement the objective	Intended timeframe	Responsibility
1.1.1 Promote coordinated and integrated approach to coastal zone science across the continuum through existing mechanisms.	2 years	Marine and Coastal Committee (MACC)
1.1.2 Identify inexpensive means of accessing all relevant scientific and socio-economic data.	2 years	MACC
1.1.3 Establish national mechanisms to share knowledge, understanding and models of point and non-point source pollutant loads and coastal habitat loss and their impacts on coastal zone ecosystem, social and economic condition.	2 years	MACC
1.1.4 Facilitate a strategic national approach to identify and address research knowledge gaps, and identify research priorities for coastal zone management.	5 years	Department of the Environment and Heritage (DEH). Input from Oceans Policy Science Advisory Group (OPSAG) BoM, and CSIRO

1.2 FRESHWATER FLOWS

Changes in river flows that have occurred since European settlement have resulted in changes to coastal and estuarine habitats. Understanding these changes will assist jurisdictions to develop water plans that consider coastal and marine impacts of river regulation, land-use impacts on rivers and the coastal environment adjacent to the mouth of rivers. Few water-planning processes cover these kinds of impacts. Making this information available will facilitate its incorporation into water planning processes.

The Council of Australian Governments (COAG) Water Reform Framework in 1994 spurred considerable progress towards more efficient and sustainable water management. Through the COAG framework there has been improved understanding of surface and groundwater systems and their management needs. The outputs from organisations such as the National Land and Water Resources Audit (NLWRA), National Estuaries Network and the Australian Surveying and Land Information Group have contributed to this expanded knowledge base. The 2004 COAG National Water Initiative provides an opportunity to build on this work.

Objective: Support and encourage the processes investigating the impact of freshwater flows on coastal processes and habitats, and understand changes occurring to coastal resources due to changes in river flows.

Actions to implement the objective	Intended timeframe	Responsibility
1.2.1 Incorporate into the COAG water reform process the impacts on coastal and estuarine processes and habitats from alteration of river flows.	2 years	NRMMC
1.2.2 Develop and improve knowledge, understanding and models of freshwater and sediment flow impacts on coastal zone habitats and processes by: <ul style="list-style-type: none"> © focusing research and investigation in catchments where significant impacts have been identified, and © sharing knowledge, and information. 	5 years	MACC
1.2.3 Establish NRMMC endorsed guidelines on estuary flow management including artificial entrance management.	5 years	NRMMC



1.3 COMMUNICATION

All levels of governments have an interest in coastal zone management. Many different agencies are involved in coastal zone management and the roles of coastal managers differ between jurisdictions. In addition, management of coastal zone issues may be shared by the three levels of government within a jurisdiction and by Natural Resource Management (NRM) regional bodies, each having different roles. This may lead to inefficiencies including duplicated efforts and lack of consistency.

Mechanisms that facilitate better understanding of roles and responsibilities between and across jurisdictions can improve the efficiency and coordination of planning and management processes. An example in the marine area is the development of the Oceans Portal, which is an internet-based gateway to Australian marine data to support planning for resource use and biodiversity conservation using applications such as online mapping.

Effective institutional structures that support stakeholder access to knowledge, information and engagement in planning and management processes are important. Two benefits are expected. The first is to reflect community values and expectations in coastal zone management, where the spiritual and cultural values of Aboriginal and Torres Strait Islander peoples' communities and importance of local government are recognised. Secondly, so that development and implementation of regional plans adequately reflect coastal issues.



Objective: Promote coordinated and complementary governance arrangements to improve stakeholder understanding and engagement in planning processes and management structures.		
Actions to implement the objective	Intended timeframe	Responsibility
1.3.1 Communicate the roles and responsibilities of coastal zone managers in government, industry and community processes.	2 years	DEH, Department of Agriculture, Fisheries and Forestry (DAFF) via joint NRM team. All jurisdictions and Australian Local Government Association (ALGA)
1.3.2 Improve and sustain coastal zone management skills and expertise in natural resource management, through: <ul style="list-style-type: none"> © provision of training and other support for enhancing the coastal zone management skills base, and © ensuring coastal zone management expertise is available to regional NRM bodies. 	Ongoing	DEH, DAFF via joint NRM team. All jurisdictions and ALGA
1.3.3 Assist the direct involvement of local government bodies and Aboriginal and Torres Strait Islander peoples' in coastal zone management issues and fora.	Ongoing	DEH to lead. Input from ALGA and all jurisdictions

1.4 NATIONAL NETWORKS

There are many Australian Government natural resource management policies, programmes and processes that address different elements of coastal zone management. Networking is an efficient mechanism for strengthening coastal zone initiatives through connecting, informing and engaging stakeholders and facilitating information and knowledge exchange. National fora, such as the biennial Coast to Coast conferences, should be encouraged as they provide opportunity for linkages and collaboration between coastal zone networks.



The NRM Facilitator Network (includes Indigenous and Local Government facilitators) supports delivery of the Trust at national, state, regional and local levels. Enhancing expertise of facilitators in coastal zone issues will inform regional planning and guide investment toward integrated coastal zone management. Aboriginal and Torres Strait Islander peoples have a particular interest in determining and planning for local solutions to natural resource management issues. Efforts should focus on engaging Aboriginal and Torres Strait Islander peoples in the facilitator network and ensure provision of training opportunities to support land and sea management activities.

Objective: Make the best use of coastal zone networks.

Actions to implement the objective	Intended timeframe	Responsibility
<p>1.4.1 Intergovernmental Coastal Advisory Group (ICAG) to arrange occasional meetings with national network representatives so network views can be taken into account in implementation actions. Current networks include:</p> <ul style="list-style-type: none"> © National Estuaries Network, © NRM Facilitator Network, © National Committee for Acid Sulfate Soils, and © ALGA forum. 	Ongoing	ICAG

1.5 STATE OF THE ENVIRONMENT REPORTING

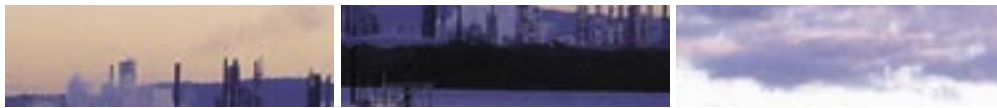
National State of Environment (SoE) reporting seeks to make available comprehensive information on environmental condition, pressures and management response strategies. Access to reliable data and analysis is therefore critical for effective SoE reporting and its usefulness as a tool for coastal zone managers. Although information and data about the coastal zone is limited, major problems with existing coastal zone information include restricted access and availability and inconsistency between standards and methods for compilation.

Important information providers to SoE reporting include state and territory governments, CRCs and the NLWRA. Most of the state and territory governments prepare jurisdictional SoE reports on a regular basis and in some jurisdictions this is a legislative requirement. However, since these reports are undertaken independently, it is not always possible to derive consistent national data from state and territory reports.



Objective: The availability of useful data and, in particular, the usefulness of State of Environment reporting, is increased for coastal managers through improved availability of reliable coastal zone information.

Actions to implement the objective	Intended timeframe	Responsibility
<p>1.5.1</p> <p>Improve national and state/territory SoE reporting by:</p> <ul style="list-style-type: none"> © Identifying key indicators of progress against the objectives of coastal zone management, © Identifying key indicators which will allow future trends to be effectively and quantitatively measured, © Ensuring baseline data against coastal condition, pressure and response indicators is collected in such a manner that it can be effectively coordinated with research about coastal zone pressures and incorporated into strategic planning and decision making, and © More effectively coordinating the collection by universities and other research organisations of baseline coastal condition, pressure and response information. 	<p>5 years</p>	<p>MACC and Natural Resource Policy and Programmes Committee (NRPPC) to raise with NLWRA</p>



PRIORITY AREA 2 - LAND AND MARINE-BASED SOURCES OF POLLUTION



LINKS WITH PAGE 17 OF THE INTEGRATED COASTAL ZONE MANAGEMENT FRAMEWORK UNDER 'COASTAL ISSUES FOR NATIONAL COLLABORATION'

2.1 COASTAL AND ESTUARINE WATER QUALITY

Decline in water quality is a major threat to the coastal zone. The 1995 State of the Marine Environment Report provided the first comprehensive scientific description of our marine environment. It found that pollution from land-based sources contributes up to 80 per cent of all marine pollution and is a major threat to the long-term health of near-shore marine systems. It affects ecological processes, public health and social and commercial use of coastal zone resources including marine resources. These findings have been largely reinforced through SoE Reporting.

The National Water Quality Management Strategy (NWQMS) seeks to achieve sustainable use of the nation's water resources by protecting and enhancing their quality, while maintaining economic and social development. The NWQMS management framework involves governments, in consultation with the community, establishing environmental values and water quality objectives for coastal and estuarine areas and identifying and implementing management and monitoring arrangements.

The Australian Government's Coastal Catchments Initiative seeks to deliver through agreed Water Quality Improvement Plans, significant reductions in the discharge of pollutants to coastal and urban water quality hotspots. The Plans involve identifying cost-effective measures for water quality improvement, including planning instruments for water sensitive urban design, review of pollution control measures, critical source identification and amelioration, and water quality trading programmes.



Objective: Support and encourage processes and mechanisms that seek to maintain and improve ecosystem health in relation to water quality.

Actions to implement the objective	Intended timeframe	Responsibility
2.1.1 Implement the NWQMS management framework through regional NRM plans, Coastal Catchments Initiative projects, state, territory and local government policies and programmes, and negotiations with industry in line with state/territory priorities.	5 years	DEH, all jurisdictions and ALGA
2.1.2 Share information about implementation and outcomes of national coastal zone initiatives and rehabilitation of estuarine, coastal and marine ecosystems degraded from pollution.	Ongoing	DEH, all jurisdictions and ALGA

2.2 COASTAL ACID SULFATE SOILS

Acid sulfate soils underlie large areas of Australia’s coastline where the majority of Australians live. These soils were formed long ago, underwater, when the ocean level was much higher. As the seas receded, these soils remained and today can be found under low-lying coastal areas like coastal plains, wetlands and mangroves.

In an undisturbed and waterlogged state these soils are relatively harmless, but when disturbed and exposed to oxygen through drainage or excavation, these soils produce sulfuric acid in large quantities.

The disturbance of coastal acid sulfate soils by excavation or drainage can result in the discharge of sulphuric acid, heavy metals and aluminium into waterways. Poor acid sulfate soil management can cause significant environmental, economic and social costs to coastal communities including damage to infrastructure, fish kills, fish disease, oyster mortalities and loss of aquaculture areas and destruction of habitat. The result is loss of coastal amenity, reduced quality of life, loss of tourism and unemployment.

The National Committee for Acid Sulfate Soils (NatCASS) was established in 2000 to oversee the implementation of the National Strategy for the Management of Coastal Acid Sulfate Soils (National Strategy). Identifying the



occurrence of coastal acid sulfate soils nationally is essential for managing this problem and is a primary action under the National Strategy. Mapping of areas likely to contain acid sulfate soils has been undertaken along the New South Wales, Victorian, South Australian, Tasmanian (part) and southern Queensland coastlines. However, large gaps remain from a national perspective.



Objective: Manage impact of coastal development in areas with acid sulfate soils.

Actions to implement the objective	Intended timeframe	Responsibility
2.2.1 Promote and enhance implementation of the NatCASS Strategy through finer scale mapping. Develop planning and management guidelines and tools to improve development and rehabilitation practices.	2 years	MACC/ NatCASS
2.2.2 Promote increased awareness and understanding of coastal acid sulfate soils and best practice management approaches through: <ul style="list-style-type: none"> © newsletter, © coastal acid sulfate soils atlas, and © improved web site. 	2 years	MACC/ NatCASS
2.2.3 Establish national programme support for regional and multi-jurisdictional best practice approaches to coastal acid sulfate soils identification and management, and support local initiatives within the scope of the Trust.	2 years	MACC/ NatCASS

2.3 MARINE DEBRIS

Harmful marine debris, such as plastic garbage washed or blown from land into the sea, fishing gear abandoned by recreational and commercial fishers, and solid non-biodegradable floating materials (such as plastics) disposed of by ships at sea, is a hazard for sea creatures. Entanglement in marine debris can cause restricted mobility, starvation, infection, amputation, drowning and smothering. The ingestion of marine debris can cause physical blockage in the digestive system, leading to painful internal injuries and starvation.

Injury and fatality to vertebrate marine life caused by marine debris is listed as a key threatening process under the *Environment Protection and Biodiversity Conservation Act 1999* and some state governments have also declared threatening processes relating to marine debris under their legislation. Under the legislation of the Australian Government and some state governments, threatening processes are generally defined as processes that threaten or may threaten the survival, abundance or evolutionary development of a native species or ecological community.

Following from the declaration of the key threatening process relating to marine debris under the *Environment Protection and Biodiversity Conservation Act 1999*, a threat abatement plan will be developed to establish feasible, effective and efficient ways to reduce the impact of marine debris. In addition the NRMCC is exploring methods of integrating the management and decision-making processes for marine based sources of marine debris under the Integrated Oceans Management work programme. The Environment and Heritage Ministerial Council contributes to management of land-based sources of marine debris, through supporting retailers to meet national plastic bag reduction and recycling targets under the Retailers Code of Practice for the Management of Plastic Shopping Bags.

Objective: Minimise the impact of marine debris on marine wildlife.			
Actions to implement the objective		Intended timeframe	Responsibility
2.3.1	Develop and support implementation of a national threat abatement plan for the impact of marine debris on wildlife within the coastal zone.	3 years	DEH and all jurisdictions except local government
2.3.2	Develop links with regional marine planning processes that have identified marine debris as a major issue.	2 years	DEH and MACC



2.4 OCEAN-GOING COMMERCIAL VESSELS WASTE

With the level of shipping in Australian waters expected to increase, it is important that effective measures for control and reduction of marine-based sources pollution are maintained.

The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), developed by the International Maritime Organisation, deals with marine pollution from commercial ships. MARPOL 73/78 covers all forms of marine pollution from ships except sea dumping. The Australian Government has given full effect to MARPOL 73/78, and most States and the Northern Territory have incorporated some of its requirements into complementary legislation. Enforcement, however, can be difficult and expensive especially in relation to smaller vessels coming within state and Northern Territory waters.

Objective: Improve consistent application of MARPOL 73/78 and its effective enforcement across Australian jurisdictions.

Actions to implement the objective	Intended timeframe	Responsibility
2.4.1 Review and make recommendations on the extent to which consistent MARPOL 73/78 legislation has been implemented in coastal waters across state and Northern Territory jurisdictions.	2 years	MACC



2.5 SMALL COMMERCIAL AND RECREATIONAL VESSEL WASTE

Waste from large commercial vessels is already subject to a comprehensive regulatory regime based on international convention standards. The focus is on extending these regulatory standards in a coordinated way to apply to smaller vessels, particularly commercial fishing vessels and recreational vessels that largely come within state and Northern Territory jurisdiction.

The Australian and New Zealand Environment Conservation Council (ANZECC) Best Practice Guidelines for the Provision of Waste Reception Facilities at Ports, Marinas and Boat Harbours focused on reducing inappropriate disposal of waste from vessels of all sizes into marine waters and adjacent shore areas. Reduction in waste is to occur through use of suitable shore based waste reception facilities.

The Marine Waste Reception Facilities programme under the first phase of the Trust promoted establishment of best practice facilities for the management and treatment of marine waste at ports, marinas and boat harbours. This work should be promoted to encourage owners and managers of ports and marinas to improve marine waste reception practices to meet client needs.

Objective: Reduce inappropriate disposal of waste from recreational vessels and minimise the impacts to coastal zone habitats.			
Actions to implement the objective		Intended timeframe	Responsibility
2.5.1	Assess the costs and benefits of a nationally consistent approach for managing disposal of waste from recreational vessels.	2 years	Australian Government (NRMMC to raise with Productivity Commission)
2.5.2	Promote best practice disposal facilities in ports and marinas.	2 years	DEH lead. Input from Department of Transport and Regional Services (DoTARS) via Australian Transport Council
2.5.3	Determine an agreed national approach to managing disposal of waste from recreational vessels.	5 years	NRMMC



2.6 DREDGING

Dredging programmes in ports, harbours and estuaries adjacent to urbanised or industrialised areas are likely to generate contaminated dredge spoil. The impacts of dredging activity on the marine environment include changes in species composition, loss of biodiversity and reductions in commercial and recreational fisheries catches. These impacts may become apparent immediately or over extended periods of time. Longer term impacts include changes in circulation patterns, coastal zone dynamics and coastal morphology from modified coastline and/or seabed.



The National Ocean Disposal Guidelines for Dredged Material 2002 provide a national framework to assess the environmental impacts from disposal of dredged material at sea, in particular impacts from contaminated dredge spoil. Through periodic review, consideration should be given to broadening these guidelines to incorporate best practice approaches to removal of dredge material and guidance to disposal options and alternatives. This work should build on the existing dredging, extraction and disposal controls and guidelines that have been developed in the states and Northern Territory.

Objective: Minimise the impacts of dredging activities on the aquatic environment.

Actions to implement the objective	Intended timeframe	Responsibility
2.6.1 Update the National Ocean Disposal Guidelines for Dredged Material 2002 to include best practice approaches to managing dredging activity to address the removal and placement of dredged material on land and at sea.	5 years	MACC

PRIORITY AREA 3 – CLIMATE CHANGE



LINKS WITH PAGE 17 OF THE INTEGRATED COASTAL ZONE MANAGEMENT FRAMEWORK UNDER 'COASTAL ISSUES FOR NATIONAL COLLABORATION'

3.1 UNDERSTANDING OF CLIMATE CHANGE

Australia's coastal zone is vulnerable to changes in climate, which may include increased temperatures, changes in rainfall, sea level rise, increased storm frequency and intensity and flooding. These potentially threaten the value and viability of coastal ecosystems, industry, property and infrastructure. Increasing population and development pressures are likely to exacerbate the impacts of climate change on the coast.

Extreme events are a particular threat to human settlements, with the potential to increase the severity of cyclones, storms, bushfires and floods in certain areas of the country. Improved understanding of the scale and range of potential impacts to the natural and built coastal environment is needed in order to develop and implement appropriate response strategies. Australian climate science is well developed and highly regarded internationally. Research organisations such as CSIRO and BoM are working to increase the reliability of regional climate change scenarios. It is important to foster and build on this work to improve understanding of how climate change will affect the coastal zone.





Objective: Improve understanding of the impacts of climate change on the coastal zone.

Actions to implement the objective		Intended timeframe	Responsibility
3.1.1	Identify international best practice and national research and response priorities for understanding potential climate change impacts in the coastal zone.	2 years	NRPPC. DEH to lead. Input from BoM and OPSAG.
3.1.2	Build a national 'picture' of coastal zone areas that are particularly vulnerable to climate change impacts to better understand the risks and interactions with other stresses in the coastal zone.	Interim report in 5 years. More detailed report in 10 years	NRPPC. DEH to lead. BoM and Geoscience Australia to provide input.
3.1.3	Undertake modelling, in line with state and territory priorities, at the regional scale to inform coastal zone management, in response to climate change scenarios, on issues such as: <ul style="list-style-type: none"> © sea level rise and foreshore change, © estuary and wetland response (including salt marsh), © wave, storm, cyclone, fire and flood intensity and frequency, © structural response (coastal infrastructure), and © changes to distribution and lifecycles of affected species and ecological communities. 	5 years	NRPPC. DEH to lead. Input from BoM and CSIRO States also have responsibility.

3.2 MANAGING AND ADAPTING TO IMPACTS AND OPPORTUNITIES

Integration of climate change adaptation initiatives with existing coastal zone conservation, planning and management processes will ensure that coastal zone management takes account of potential climate change impacts and adaptation options. A number of policies, forums and organisations promote action on climate change, and it will be important to cooperate with these efforts where combined action can improve results.

For example, the National Biodiversity and Climate Change Action Plan is relevant to the management of coastal ecosystems and the National Greenhouse Research Programme is directed at improving regional climate change modelling. Coordinating initiatives such as these enhances opportunities for climate change modelling in the coastal zone.

Objective: Develop strategies to effectively identify and manage climate change threats and opportunities within the coastal zone.

Actions to implement the objective	Intended timeframe	Responsibility
3.2.1 Develop information, guidelines and tools for coastal zone managers and planners on climate change risks, liability and adaptation options and 'share' the outcomes.	5 years	NRPPC and MACC.





PRIORITY AREA 4 – PEST PLANTS AND ANIMALS



LINKS WITH PAGE 18 OF THE INTEGRATED COASTAL ZONE MANAGEMENT FRAMEWORK UNDER 'COASTAL ISSUES FOR NATIONAL COLLABORATION'



4.1 WEEDS AND FERAL ANIMALS

After habitat loss, invasive species are considered to pose the greatest threat to Australia's biodiversity. Weeds are among the most serious threats to Australia's primary production and natural environment, costing the Australian economy between \$3.5 to \$4.5 billion each year in lost agricultural production and control costs.

Feral animals are major agents in driving to extinction many species of native animals in Australia. For example, feral cats, found in most habitats across Australia, were listed in 2002 as threatening the extinction of 24 mammals and eight bird species.

Significant achievements have been made through stringent border controls and implementation of the National Weeds Strategy, which provides a system for governments to recognise high priority Weeds of National Significance. Increased action to control or eradicate coastal weeds of national significance would help to reduce the impact of coastal weeds on biodiversity.

Over the past 200 years urban development has resulted in extensively fragmented natural coastal ecosystems with many small, isolated remnants of native vegetation in amongst the built environment. Fragmentation and disturbance of habitats can encourage the spread of weeds and feral animals unless actively managed.

In April 2004, the NRM Council agreed on the need to develop a robust national framework for a coordinated and strategic approach to preventing significant new invasive species establishing in Australia, and to reducing the impacts of major pests and weeds already present. A report on options for a national framework for preventative action, early detection, awareness and ongoing control will be prepared for NRM Council consideration in 2005.

In May 2004, the Primary Industries Ministerial Council noted that a high level working group would be established to engage primary industry and other stakeholders, including the Health, NRM and Environment Protection Ministerial Councils, in the process of developing and implementing a National Biosecurity Strategy for Australia. The strategy would address the broader, longer-term biosecurity issues in relation to the management of animal, plant and marine pest and disease incursions. The Standing Committee will report back to Council later in 2004.¹

From time-to-time, states have applied to the NRM or Primary Industries Ministerial Councils for Australian Government assistance in eradication programmes for new pest incursions. Proposals may be agreed by all jurisdictions on a case-by-case basis.

1. In October 2005 the Primary Industries and Natural Resource Management Ministerial Councils agreed that national biosecurity objectives and outcomes for primary production and the environment should be progressed under a single process by a joint Steering Group – development of an Australian Biosecurity System for Primary Production and the Environment ('AusBIOSEC').

The AusBIOSEC will cover all invasive plants, animals and diseases of the terrestrial, freshwater and marine environments, which impact on primary industries, the natural and the built environments. It interfaces with public health in relation to zoonotic diseases (diseases that can be passed from animals to humans), public amenity, food safety and security, and where quarantine biosecurity measures are involved.

Development of comprehensive national institutional and decision-making arrangements, and pre-agreed resourcing and cost-sharing arrangements, will be a major focus in developing the AusBIOSEC. The joint Steering Group will also develop coordinated national approaches to invasive species response preparedness and key operational activities.



Objective: Conserve and protect coastal biodiversity and reduce the cost of eradicating weeds and feral animals.

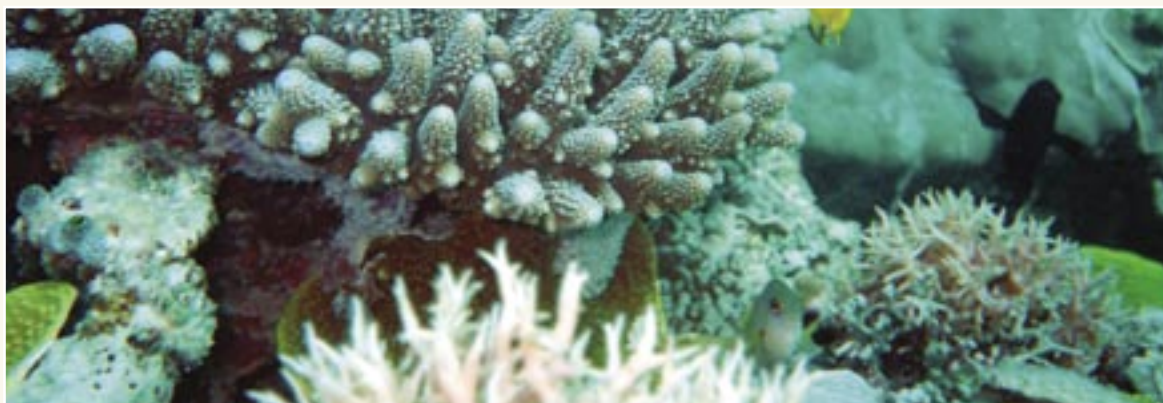
Actions to implement the objective	Intended timeframe	Responsibility
4.1.1 Strengthen knowledge and understanding of pest species, and of effective tools to conserve and protect coastal biodiversity from the impacts of pest species; and increase capability of NRM regional bodies and coastal managers to identify, manage and/or eradicate pests.	Ongoing	NRM and Primary Industries Ministerial Councils
4.1.2 Review and amend, as necessary, the list of Weeds of National Significance and alert list weeds, to better recognise the impacts of weeds on our coastal resources and biodiversity.	2 years	Australian Weeds Committee

4.2 INTRODUCED MARINE PESTS

Marine species entering Australia’s coastal waters through ballast water or hull fouling of international vessels, have the potential to become pests, causing dramatic changes to the marine environment and threatening existing habitats. Also of concern is domestic translocation of marine pests via ballast water and hull fouling and through domestic shipments of live or frozen seafood products, aquaculture industry and aquarium trade.

The Northern Pacific Seastar, *Asterias amurensis*, is one of the worst recent marine species to invade Australian waters. By the time it was identified in the Derwent Estuary in 1992 it was already present in the millions and past the point where a rapid eradication attempt was feasible. In the absence of effective methods for managing domestic vectors, it is not surprising that the Seastar has since spread to another major port complex – Port Phillip Bay. As Port Phillip Bay is a major transport hub, there is now a high risk of the Seastar being moved to other temperate Australian ports in the near future.

The National Introduced Marine Pests Coordination Group (NIMPCG) reports to the MACC. It is responsible for the development of the National System for the Prevention and Management of Marine Pest Incursions (the National System). It is anticipated that the Australian, State and Northern Territory governments and industry will implement the National System.



Objective: Support implementation of the National System for the Prevention and Management of Marine Pest Incursions.

Actions to implement the objective	Intended timeframe	Responsibility
4.2.1 Monitor and report on the presence of marine pests in Australia's ports and harbours.	Ongoing	NIMPCG
4.2.2 Encourage uptake of best practice guidelines on reduction of marine pest translocation risks, to be produced under the National System, including for recreational vessels, fishing vessels, nodes such as ports and boat harbours, the aquaculture industry, and the aquarium trade.	5 years	NIMPCG
4.2.3 Support implementation of the coastal ballast water management regime (with a seamless interface to international ballast water management) that is being developed under the National System.	5 years	NIMPCG



PRIORITY AREA 5 – PLANNING FOR POPULATION CHANGE



LINKS WITH PAGE 16 OF THE INTEGRATED COASTAL ZONE MANAGEMENT FRAMEWORK UNDER 'COASTAL ISSUES FOR NATIONAL COLLABORATION'

5.1 PLANNING AND POPULATION

The SoE report 2001 indicated that development pressure is a major issue confronting sustainable management of the coastal zone. More than 86 per cent of Australians live within the coastal zone, and many more take their holidays there. Coastal population growth, demographic trends and lifestyle choice are resulting in broad scale social change.

Future planning and decision-making will need to ensure that Australians can continue to enjoy the seaside lifestyle, beach holidays and access to the coast. Improving processes for gathering and sharing knowledge, information and resources about cross-jurisdictional population and demographic trends, including tourism and visitation patterns, will assist in preparing for long term population challenges in the coastal zone.

Objective: Better integrate population trends into coastal zone planning and management.

Actions to implement the objective	Intended timeframe	Responsibility
5.1.1 Coordinate and share national research and information available about population change and long-term demographic trends in coastal areas in a format which can be used by state, regional and local planners.	2 years	DEH to lead. Input from Australian Bureau of Statistics (ABS), CSIRO and DoTARS, States and ALGA
5.1.2 Investigate means of improving sustainable growth planning for the recreation and tourism industries, that promotes integrated coastal zone management principles/outcomes.	2 years	DEH
5.1.3 Investigate mechanisms to improve capacity of state, territory and local government bodies to plan for population change in coastal areas.	2 years	DEH

PRIORITY AREA 6 - CAPACITY BUILDING



LINKS WITH PAGE 16 OF THE INTEGRATED COASTAL ZONE MANAGEMENT FRAMEWORK UNDER 'COASTAL ISSUES FOR NATIONAL COLLABORATION'

6.1 INFORMATION

Effective management of the coastal zone requires managers to have access to diverse types of information and data, including social, cultural, economic, ecological, biophysical and geophysical. Coastal zone information and data however, remains limited, particularly the status of many coastal species and habitats.

Research efforts that contribute to our understanding of coastal environments benefit from coordination and monitoring to ensure that priority areas are being addressed and that coastal management needs are being met. Partnerships between governments and organisations to facilitate sharing information and data, help to improve understanding of coastal condition and to elicit appropriate management responses. Adaptive management relies on dependable information being available to managers for initial decision-making and then review and adaptation of management practices.

The Environmental Resources Information Network (ERIN) is a national facility that collates, coordinates and makes environmental information public, and provides analytical tools for interpreting information, for policy developers and decision makers. Other natural resource data management agencies relevant to coastal zone management include CSIRO, Geoscience Australia, Australian Oceanographic Data Centre, the Australian Hydrographic Service, BoM, GBRMPA, the Australian Institute of Marine Science and the Australian Maritime Safety Authority. The Australian and New Zealand Land Information Council and the NLWRA have developed a natural resources information management toolkit, which could be used as a model for coastal and marine data management.





Objective: Coastal information needs are identified and processes that support information sharing arrangements are supported.

Actions to implement the objective	Intended timeframe	Responsibility
6.1.1 Promote cooperation between governments, universities and research institutions for provision of data and information.	2 years (ongoing)	MACC and NRPPC
6.1.2 Undertake an assessment of the need for a National Coastal Zone Database.	2 years	MACC and NRPPC
6.1.3 Undertake an assessment of coastal information needs, gaps and priorities to direct future data collection and research.	2 years	MACC and NRPPC

6.2 EDUCATION AND TRAINING

Education and training can play useful roles in ensuring that those with an interest in the coastal zone, from policy makers to beach users, are equipped with the knowledge, skills and motivation to conduct their activities in a manner that supports ecological sustainability. The integration of coastal management principles and practices within existing environmental programmes, through targeted education and training, can also strengthen environmental policy, planning and decision-making.

A range of education, training and information exchange activities are necessary in order to provide coastal managers with the expertise to work effectively within the dynamic and cross-sectoral nature of coastal zone issues. Support for training and professional development opportunities for coastal managers would enhance their management and technical skills, and improve their ability to deliver an integrated approach to coastal zone management.

Developing an understanding of Aboriginal and Torres Strait Islander peoples' traditional and cultural interests in the coastal zone can help to define appropriate education and training programmes for Aboriginal and Torres Strait Islander communities and provide an avenue for engaging in coastal management partnerships. Sea Country Plans will be considered as part of future regional planning and more broadly as a vehicle for more effective Aboriginal and Torres Strait Islander peoples' engagement in natural resources management.

Environmental and coastal management education and training in Australia is provided by a large number of organisations and is targeted at people with a range of roles in coastal zone management. Both universities and the vocational education and training systems offer courses for professionals, with varying degrees of emphasis on coastal zone management. Other providers include organisations falling under the banner of groups such as the Australian Marine Education Alliance, and the Marine Education Society of Australasia. The Australian Government also provides accredited natural resource management courses under the Trust. Many government agencies also run coastal education and training initiatives targeted at groups from schools through to business and industry. DEH seeks to coordinate much of this activity through groups such as the National Environmental Education Network.

Objective: Promote adequate coastal and marine skills and training, awareness and capacity for land managers, government and community and facilitate interchange of knowledge.

Actions to implement the objective	Intended timeframe	Responsibility
6.2.1 Identify priority coastal management education and training issues for national action.	2 years	MACC and NRPPC
6.2.2 Establish an online register of coastal management education and training programmes and delivery mechanisms.	2 years	MACC and NRPPC
6.2.3 Consult with Aboriginal and Torres Strait Islander coastal communities to identify national training needs and delivery mechanisms needed for their effective engagement in coastal management processes.	3 years	MACC and NRPPC



6.3 INCENTIVE MEASURES

A major finding of the 2002 Prime Minister’s Scientific, Engineering and Innovation Council report was that absence of appropriate economic signals is a key factor in the loss of biodiversity and ecosystem services. Market signals provide a significant driver to change through the cumulative effect across the landscape. Small changes in market signals can have large impacts on coastal zone outcomes.

The NRMCC has established the Market Based Instruments Task Group to investigate the use of incentives as a tool to achieve environmental outcomes. Other government activities that complement this approach include the Victorian Bush Tender programme, South Australian Naturelinks programme, NSW Environmental Services Scheme, state and local government biodiversity regulation and programmes, CSIRO’s research into the development of markets for ecosystem services, development of environmental management systems and management of national parks, Ramsar sites and the World Heritage Estate.

Objective: Support and encourage processes investigating the use of economic signals for driving coastal zone outcomes.

Actions to implement the objective	Intended timeframe	Responsibility
6.3.1 Promote the use of incentives aimed at industry to enhance ecosystem health, and to reverse the decline in coastal biodiversity, particularly in areas that have been identified as ‘biodiversity hot spots’.	5 years	Market Based Instruments Task Group

7 – MONITORING AND EVALUATION

The NRMCC has established the National NRM Monitoring and Evaluation Framework to assess progress towards improved natural resource condition through the development of accurate, cost-effective and timely information on the:

- ⊙ health of the nation’s land, water, vegetation and biological resources, and
- ⊙ performance of programmes, strategies and policies that provide national approaches to the conservation, sustainable use and management of these resources.

In accordance with the National NRM Monitoring and Evaluation Framework, the Australian, state and Northern Territory governments agree to task the MACC with preparing an annual report to the NRMMC on progress in implementing the national approach to integrated coastal zone management.

Objective: Assess progress towards improved water quality, conservation of biodiversity and protection of economic base of the coastal zone.

Actions to implement the objective	Intended timeframe	Responsibility
7.1.1 Prepare an annual report to the NRMMC on progress in implementing the national approach to integrated coastal zone management.	Annual	MACC





GLOSSARY OF TERMS

ADAPTIVE MANAGEMENT

Adaptive management is a recognition that people do not have full control over or understanding of their environment. Regular revision of management arrangements to take account of unanticipated changes in outlook or condition is therefore essential.

ALERT LIST – SEE WEEDS OF NATIONAL SIGNIFICANCE

AUSTRALIAN LOCAL GOVERNMENT ASSOCIATION (ALGA)

ALGA is the national voice of local government, representing more than 700 councils across the country. In structure, ALGA is a federation of state and territory local government associations. See www.alga.asn.au.

AUSTRALIAN AND NEW ZEALAND ENVIRONMENT AND CONSERVATION COUNCIL (ANZECC)

ANZECC was made up of Australian, New Zealand and state and territory government ministers responsible for environment and conservation. The NRMCC, established in 2001, subsumed the work of ANZECC. NRMCC consists of the Australian, and New Zealand and state and territory government ministers responsible for primary industries, natural resources, environment and water policy.

BEST PRACTICE/BEST PRACTICE MANAGEMENT

Current recommended best practices for sustainable productivity outcomes.

BIODIVERSITY

Biodiversity is the variety of all life forms: the different plants, animals and micro-organisms, their genes and the ecosystems of which they are a part.

BIODIVERSITY HOTSPOTS

Biodiversity hotspots are areas under immediate threat from impacts such as salinity, land clearing, weeds and feral animals, and are strongholds for large numbers of Australia's unique plants and animals. The hotspots are home to 'endemic' species — in other words, native flora and fauna that are mostly restricted to one geographic locality. In October 2003, the Australian Government announced 15 national biodiversity hotspots, which were identified by the Australian Government's Threatened Species Scientific Committee, with input from recognised experts in the field of biodiversity conservation from each Australian state and territory. It is recognised that over time, hotspot areas will change in light of new knowledge about species distribution, threatening processes and landscape change, and it may be necessary to review the list from time to time. A hotspot fact sheet, maps and images are available at www.deh.gov.au

CLIMATE CHANGE

Climate change refers to any change in climate over time, whether due to natural variability or as a result of human activity. This usage differs from that in the United Nations Framework Convention on Climate Change (UNFCCC), which defines climate change as "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods". See also climate variability. See www.greenhouse.gov.au/science/guide/pubs/glossary.pdf.

CLIMATE VARIABILITY

Climate variability refers to variations in the mean state and other statistics (such as standard deviations, the occurrence of extremes, etc.) of the climate on all temporal and spatial scales beyond that of individual weather events. Variability may be due to natural internal processes within the climate system (internal variability), or to variations in natural or anthropogenic external forcing (external variability). See also climate change.

COASTAL ZONE

Includes coastal waters and those areas landwards of the coastal waters where there are processes or activities that affect the coast and its values.

COASTAL ZONE MANAGEMENT

Includes the protection, conservation, rehabilitation and ecologically sustainable development of the coastal zone through coastal planning, and managing coastal use and development.

COASTAL MORPHOLOGY

The physical structures, processes and patterns associated with the coast, including landforms, soils, geology and the factors that influence them.

DREDGE SPOIL

Dredging in Australian waters involves a range of sediments, which vary from coarse to fine, clean to contaminated. In areas remote from pollution sources, dredging programmes are likely to generate uncontaminated dredge spoil. In ports and harbours adjacent to urbanised or industrialised areas, sediments may contain high levels of contamination from heavy metals and a variety of organic compounds. Spoil is defined as contaminated if it fails toxicity testing or elutriate testing. (Refer National Ocean Disposal Guidelines For Dredged Material 2002).

ECOSYSTEM SERVICES

Organisms and environmental processes interacting to create a healthy environment for human beings, from production of oxygen to soil formation and maintenance of water quality.

ECOSYSTEM BASED APPROACH TO MANAGEMENT

Aims to ensure the maintenance of:

- ⊙ ecological processes in all coastal and marine areas, including for example, water and nutrient flows, community structures and food webs, and ecosystem links,
- ⊙ coastal and marine biological diversity, including the capacity for evolutionary change, and
- ⊙ viable populations of all native coastal and marine species in functioning biological communities.

ESTUARY

An estuary is broadly described as a semi-enclosed coastal water body where saltwater from the open sea mixes with freshwater draining from the land or where marine and fluvial sediments occur together. See www.coastal.crc.org.au/pdf/estuaries_brochure.pdf

ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

The Australian Government Department of the Environment and Heritage administers the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). Under the EPBC Act, the Commonwealth can:

- ⊙ list key threatening processes: processes which may threaten the survival, abundance or evolutionary development of a native species or ecological community processes such as foxes, feral cats, feral pigs, fire ants and root rot fungus, and



- © develop and implement threat abatement plans: plans which provide for the research, management, and any other actions necessary to reduce the impact of Listed key Threatening Processes on a listed threatened species or ecological community.

GROUND WATER

Water stored underground in rock crevices and pores; water that supplies springs and wells.

INTERGOVERNMENTAL COASTAL ADVISORY GROUP (ICAG) – SEE MINISTERIAL COUNCILS

INDICATOR

Environmental indicators are physical, chemical, biological or socio-economic measures that best represent the key elements of a complex ecosystem or environmental issue. Indicators have a well-understood meaning and can be measured regularly.

Environmental indicators can help focus and rationalise monitoring programmes by drawing attention to the critical measures required to evaluate environmental trends and conditions.

INVASIVE SPECIES

An invasive species is a species occurring as a result of human activities beyond its accepted normal distribution and which threatens valued environmental, agricultural or personal resources by the damage it causes.

KEY THREATENING PROCESS – SEE *ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999*

KNOWLEDGE

Includes scientific, social and traditional Aboriginal and Torres Strait Islander peoples' knowledge.

MACC (MACC) – SEE MINISTERIAL COUNCILS

MARPOL 73/78

International Convention for the Prevention of Pollution from Ships 1973 as modified in 1978. This international agreement regulates operational discharges from ships and also obliges governments which agree to the Convention to ensure that adequate waste reception facilities are provided in ports, boat harbours and marinas, and bulk liquid terminals.

MINISTERIAL COUNCILS

The particular importance of ministerial councils in the Australian context is to facilitate the implementation, nationally, of plans and proposals which would not otherwise be possible because of the limitations imposed by the division of constitutional powers between Australian, state and territory governments.

AUSTRALIAN TRANSPORT COUNCIL (ATC)

The ATC consists of the Australian/ state/ territory and New Zealand government ministers responsible for transport. The Council is the peak government forum to consult and provide advice to governments on the coordination and integration of all transport and road policy issues. The ATC objective is to achieve a transport system that is efficient, safe, sustainable, accessible and competitive.

NATURAL RESOURCE MANAGEMENT MINISTERIAL COUNCIL (NRMMC)

The NRMMC consists of the Australian/ state/territory and New Zealand government ministers responsible for primary industries, natural resources, environment and water policy. The Council is the peak government forum for consultation, coordination and, where appropriate, integration of action by governments on natural resource management issues. The agreed objective of the Council is to promote

the conservation and sustainable use of Australia's natural resources. Papua New Guinea and the ALGA participate in meetings as observers.

The Natural Resource Management Standing Committee supports the NRMCC in the achievement of its objectives and develops cooperative and coordinated approaches to matters of concern to the council. Department Heads or Chief Executive Officers of the government agencies responsible for natural resource policy issues are members of the Natural Resource Management Standing Committee. Papua New Guinea is an observer.

MARINE AND COASTAL COMMITTEE (MACC)

The MACC is a sub-committee of the Natural Resource Management Standing Committee. The MACC:

- © advises and supports the Natural Resource Management Standing Committee on issues of national significance relating to the conservation and ecologically sustainable development of marine and coastal ecosystems and resources,
- © provides an ongoing framework to consider issues related to sustainable industry development in the marine and coastal zone,
- © focuses on the need for an integrated and strategic approach which is capable of delivering outcomes,
- © establishes subordinate structures/ taskforces to advance the Committee's work programme and direct, monitor and review their work, and
- © liaises with the Policy and Programmes Committee and other bodies, as appropriate, on matters relevant to the activities of the MACC.

INTERGOVERNMENTAL COASTAL ADVISORY GROUP (ICAG)

Peak advisory body on matters of national coastal significance to the Natural Resource Management Ministerial Council (through the MACC and the Natural Resource Management Standing Committee). Membership comprises representatives from the Australian, state and Northern Territory governments and the ALGA.

NATIONAL INTRODUCED MARINE PESTS COORDINATING GROUP (NIMPCG)

The NIMPCG of the MACC is responsible for the development of the National System for the Prevention and Management of Marine Pest Incursions.

PRIMARY INDUSTRIES MINISTERIAL COUNCIL (PIMC)

The PIMC consists of the Australian/ state/ territory and New Zealand government ministers responsible for agriculture, food, fibre, forestry, fisheries and aquaculture industries/production and rural adjustment policy. The Council is the peak government forum for consultation, coordination and, where appropriate, integration of action by governments on primary industries issues. The agreed objective of the Council is to develop and promote sustainable, innovative and profitable agriculture, fisheries/aquaculture, and food and forestry industries.

The Primary Industries Standing Committee supports the Primary Industries Ministerial Council in the achievement of its objectives and develops cooperative and coordinated approaches to matters of concern to the Council. All Department Heads or Chief Executive Officers of the government agencies responsible for agriculture, food, fibre, forestry, fisheries and aquaculture industries/production and rural adjustment policy issues are members of Primary Industries Standing Committee. Papua New Guinea is an observer.



NATIONAL

In the context of this document, national coastal zone management means coastal zone management undertaken cooperatively between the Australian, state and Northern Territory governments.

NATIONAL INTRODUCED MARINE PESTS COORDINATING GROUP (NIMPCG) – SEE MINISTERIAL COUNCILS

NATIONAL ACTION PLAN FOR SALINITY AND WATER QUALITY (NAP)

At the meeting of the Council of Australian Governments in November 2000, the Australian, state and territory governments agreed to the NAP. This programme, the first of its kind, tackles two of Australia's most serious environmental issues, salinity and water quality.

The NAP provides for Australian, state and territory governments to jointly invest \$1.4 billion. These funds are to support the actions of communities and land managers in priority regions across Australia to manage salinity and improve water quality through comprehensive natural resource management plans and investment strategies. In essence, achieving national objectives through regional solutions to regional problems.

The goal of the NAP is to motivate and enable regional communities to:

- © prevent, stabilise and reverse trends in dryland salinity affecting the sustainability of production, the conservation of biological diversity and the viability of our infrastructure, and
- © improve water quality and secure reliable allocations for human uses, industry and the environment.

Read more about the NAP at www.napswq.gov.au and www.nrm.gov.au

NATURAL HERITAGE TRUST (THE TRUST)

In 1996, the Australian Government established the Natural Heritage Trust to help restore and conserve Australia's environment and natural resources. The Trust has total funding of \$3 billion over 12 years to 2007–08. At least \$350 million will be spent on measures to improve Australia's water quality.

Through the Trust, the Australian Government takes a long-term, coordinated approach to tackling the major environmental challenges facing our nation. The Trust will deliver important resource condition outcomes including improved water quality, less erosion and improved soil condition, improved estuarine health, improved vegetation management, more sustainable agricultural practices, and better protection for threatened ecosystems. It does this by providing funding for environmental and natural resource management activities at a community level, a regional level and a national/state level. Read more about the Natural Heritage Trust at www.nht.gov.au/ and www.nrm.gov.au

NATURAL RESOURCE MANAGEMENT MINISTERIAL COUNCIL (NRMMC) – SEE MINISTERIAL COUNCILS

OCEANS POLICY SCIENCE ADVISORY GROUP (OPSAG)

The Oceans Policy Science Advisory Group contributes to and provides scientific advice on the implementation and further development of Oceans Policy and Regional Marine Planning, and promotes a more coordinated and integrated approach to marine science across the Commonwealth in relation to regional marine planning and implementation of Oceans Policy.

PRIMARY INDUSTRIES MINISTERIAL COUNCIL (PIMC) – SEE MINISTERIAL COUNCILS

**THREAT ABATEMENT PLAN – SEE
ENVIRONMENT PROTECTION AND
BIODIVERSITY CONSERVATION
ACT 1999**

WASTE RECEPTION FACILITY

Any system or even any container that can receive ship-generated residues and mixtures containing oil, noxious liquids, sewage and garbage.

**WEEDS OF NATIONAL
SIGNIFICANCE AND ALERT
LIST WEEDS**

Weeds are among the most serious threats to Australia's natural environment and primary production. Weeds reduce farm and forest productivity, displace native species and contribute significantly to land degradation. The cost of weeds to agricultural industries alone has been estimated at more than \$4 billion a year.

Twenty of Australia's most significant weed species are on the list of Weeds of National Significance. These 20 species (including alligator weed and bitou bush) were selected due to their invasiveness, impacts to primary production and the environment, potential for spread and socioeconomic impacts. The list of Weeds of National Significance can be found at: www.deh.gov.au/biodiversity/invasive/weeds/wons.html

The purpose of the Alert List of National Environmental Weeds is to identify those species that are in the early stages of establishment and have the potential to become a significant threat to biodiversity if they are not managed: www.deh.gov.au/biodiversity/invasive/weeds/alert-list.html

Definitions have been extracted from other reports such as the National Water Quality Management Strategy, Australian Catchment, River and Estuary Assessment 2002, Environmental indicators for national state of the environment reporting — local and community uses, and DEH and DAFF web sites.

