CHAPTER 8: COASTS AND OCEANS

KEY POINTS

- The Natural Heritage Trust is providing $106 million to the year 2000–01 for *Coasts and Clean Seas*. Activities include the Clean Seas Programme, Introduced Marine Pest Programme, Coastal and Marine Planning Programme, Fisheries Action Programme and the Oceans Policy development.

- Over 400 community groups are being supported yearly by Coastcare funding to enhance coastal management and protection.

- Activities are underway, supporting the United Nations International Year of the Ocean in 1998 (see Chapter 2).

- Australia's Oceans Policy, developed to promote the conservation and ecologically sustainable use of Australia's ocean resources, will be finalised in 1998.

- The Great Australian Bight Marine Park (Commonwealth Waters) was declared in April 1998. The Park is second only in size to the Great Barrier Reef Marine Park and the largest marine protected area in Australia's temperate waters.

Australia's marine and coastal environments are rich in natural and cultural resources and are a focus for much of Australia's economic, social, tourism and recreational activity. The Commonwealths expenditure, aimed at the protection, conservation and sustainable use of Australia's coastal and marine environments is set out in Table 8.1.

PROTECTION AND MANAGEMENT OF OUR COASTS AND OCEANS

Coasts and Clean Seas

Under *Coasts and Clean Seas* the Government will provide $27.7 million from the Natural Heritage Trust during 1998–99. The aim is to accelerate activities in the national interest to achieve the conservation, sustainable use and repair of Australia's coastal and marine environments. *Coasts and Clean Seas* is a suite of programs designed to help tackle coastal and marine pollution problems, address threats to marine biodiversity and habitat degradation, and promote sustainable use of Australia's coastal and marine areas, including estuarine areas.

The Commonwealth's objectives for *Coasts and Clean Seas* are:

- to protect the marine environment from the negative impacts of human activities;

- to actively involve stakeholders in decision making;

- to promote sustainable management and use of coastal and marine resources;
- to maintain and protect marine and coastal biodiversity;
- to maximise benefits from the sustainable use of coastal and marine environments; and
- to promote an integrated approach to institutional policy and programme development and implementation.

Table 8.1: Coasts and Oceans — New Measures and Programme and Tax Expenditure Estimates

Description	1997–98 $m	1998–99 $m	1999–00 $m	2000–01 $m	2001–02 $m
NEW MEASURES					
Great Barrier Reef Marine Park Authority funding offset	1.2	1.2	1.2	1.2	1.3
Capital Refurbishment — Australian Institute of Marine Science	–	2.0	3.0	3.6	3.0
PROGRAMME AND TAX EXPENDITURE ESTIMATES					
Protection and Management of our Coasts and Oceans					
Coasts and Clean Seas					
Australia's Oceans Policy development	1.4	–	–	–	–
Marine Species Protection Programme	2.0	2.3	1.7	1.7	na
Marine Protected Areas	1.5	1.7	1.6	1.7	na
Clean Seas	8.5	16.5	14.1	13.5	na
Coastcare	5.8	5.3	5.5	5.4	na
Fisheries Action Programme — marine component (a)	1.4	1.4	2.4	1.4	–
Capacity Building	0.5	0.6	0.5	0.5	0.2
Coastal and Marine Planning Programme	2.2	1.8	1.7	1.9	na
Coastal Monitoring Programme	1.2	1.2	0.7	0.8	na
Introduced Marine Pests Programme	1.7	0.8	0.8	0.8	na
Australian Coastal Atlas	1.1	1.1	0.3	0.3	na
National Oil Spill Atlas	1.0	na	na	na	na
Torres Strait Planning Strategy /International	0.2	0.3	0.1	0.1	na
Control of Marine Pests (b)					
AQIS Ballast Water Programme	0.3	0.3	0.3	0.4	0.4
CSIRO Centre for Research on Introduced Marine Pests	1.4	1.4	na	na	na
Integrated Marine Management					
Great Barrier Reef Marine Park Authority	15.1	12.0	11.9	11.9	11.8
Marine Environment Protection Measures					
National Water Quality Management Strategy	na	na	na	na	na
London Convention — Dumping at Sea	na	na	na	na	na
Regional International Environmental Protection	na	na	na	na	na
Australian Maritime Safety Authority	na	na	na	na	na
Management of our Marine Resources					
Sustainable Fisheries Management					
Fisheries and Aquaculture subprogramme	0.2	0.2	0.2	0.2	0.2
Australian Fisheries Management Authority	9.3	9.2	9.1	9.1	na
Sustaining Australia's Remote Area Fisheries	0.4	na	na	na	na
Commission for the Conservation of Southern Bluefin Tuna	0.3	0.3	0.3	0.3	0.3
Fisheries Extension and Training Samoa	0.9	1.0	–	–	–
Illegal Fishing Response Initiatives	4.1	–	–	–	–

Table 8.1: Coasts and Oceans — New Measures and Programme and Tax Expenditure Estimates continued

Coastal and Marine Research					
CSIRO Marine Research	20.7	22.1	22.1	na	na
Multi-use management of Exclusive Economic Zone	4.0	4.2	4.2	na	na
Marine living resources	6.4	6.8	6.8	na	na
Marine conservation management	2.2	2.6	2.6	na	na
Marine products and biotechnology	0.2	0.2	0.2	na	na
Estuarine and coastal waters	3.7	4.0	3.9	na	na
Oceanographic research vessel (c)	4.2	4.3	4.4	na	na
Fisheries Research					
Fisheries Research Development Corporation					
Resources sustainability	6.4	6.6	6.6	6.6	6.6
Ecosystem protection	2.2	2.9	3.2	3.2	3.2
Fisheries Resources Research Fund	0.3	0.4	0.3	0.3	0.3
Cooperative Research Centres (CRCs) (total)	12.1	12.0	9.4	2.4	2.0
CRC for Antarctica and the Southern Ocean	3.0	3.2	3.0	2.0	2.0
CRC for ESD of the Great Barrier Reef	2.2	2.2	2.0	–	–
CRC for Aquaculture	2.4	2.4	2.4	0.4	–
CRC for Catchment Hydrology	2.3	2.0	–	–	–
CRC for Freshwater Ecology	2.2	2.2	2.0	–	–
Australian Institute of Marine Science	16.4	18.5	19.7	20.3	19.7
ANSTO Environmental Dynamics Programme	0.4	0.4	0.2	na	na
Environmental Impacts of Petroleum Operations	0.1	0.1	0.2	0.2	0.2
Coastal and Marine Monitoring					
Monitoring Programmes					
AGSO Urban and Coastal Impacts	0.5	0.5	0.5	0.5	0.5
Antarctic Division Marine Programme (d)	na	na	na	na	na
Bureau of Meteorology	0.5	0.5	0.5	0.5	0.5
Royal Australian Navy Hydrographic Service	na	na	na	na	na
Australian Oceanographic Data Service	0.8	0.8	0.8	0.8	na
Port Hinchinbrook Independent Monitor	0.1	–	–	–	–

New measures are expressed in outturn prices and other expenditure and revenue figures are expressed in 1998–99 prices.
Programme and tax expenditure estimates include the effect of new measures.
– denotes nil; na denotes not available.

(a) See Chapter 5 for the inland waters component of the programme.
(b) Control of marine pests information appears under Coasts and Clean Seas Introduced Marine Pests Programme.
(c) This vessel has some non-CSIRO users, sometimes for non-environmental purposes.
(d) na does not reflect expenditure, it is due to the Antarctic Programme not being budgeted in the same way as other programmes. See Chapter 9 for total expenditure.

Australia's Oceans Policy development

An integrated management approach is essential to ensure the long-term conservation and sustainable use of Australia's marine environment. The Government provided up to $1.4 million over two years from 1996–97 to develop a comprehensive national Oceans Policy to improve the coordination and management of the wide diversity of marine-based activities. The Oceans Policy is being developed in close consultation with State, Territory and local governments and peak conservation and industry groups.

In conjunction with the Oceans Policy the Commonwealth is developing a Marine Science and Technology Plan that will establish strategies for integrated and innovative science, technology and engineering to support the sustainable management of Australia's marine environments. The Plan will complement the Oceans Policy by identifying needs and priorities for science, technology and engineering over the next ten to 15 years.

Marine Species Protection Programme

Under *Coasts and Clean Seas* $2.3 million will be provided during 1998–99 for the protection of marine species. $2 million has been identified from the 1997–98 budget for marine species protection proposals, including a major initiative on the development of Dugong Protection Areas in the Great Barrier Reef Marine Park. Significant funding has also been identified for cetacean proposals that complement Australia's objectives at the International Whaling Commission. A number of smaller proposals have been approved under the local and Commonwealth components of the Programme. These include proposals dealing with seals, dugong, sea turtles, seabirds and sharks.

The objectives of the Marine Species Protection Programme are:

- to take action to reduce the incidental deaths of marine species arising from fishing and other commercial and recreational operations and predation by introduced species;

- to reduce or manage the effects of disturbance on threatened or at-risk marine species arising from the use of the marine environment including industrial activities, pollution, fishing activities and tourism; and

- to increase the ability to manage adverse environmental impacts on the key habitats of marine species (see Box 8.3 for information on the Dugong Rescue Package).

BOX 8.1: AUSTRALIA'S OCEANS POLICY

The draft Oceans Policy developed under *Coasts and Clean Seas* addresses the planning, management and ecologically sustainable use of fisheries, shipping, petroleum, gas and sea bed resources within Australia's oceans. The Policy also addresses the continued conservation and protection of Australia's marine biodiversity and includes a surveillance strategy for the remote areas of Australia's Exclusive Economic Zone (EEZ), spaning over 11 million square kilometres of marine waters. A broad cross section of ocean interest and user groups, including industry, conservation, scientific and community groups, has participated in the development of the policy. A final Oceans Policy is due for release in 1998.

Marine Protected Areas

The development of the National Representative System of Marine Protected Areas is one of the Government's key marine priorities. The Commonwealth will provide $1.7 million during 1998–99 through the Marine Protected Areas Programme for development of marine protected area strategies, research and survey projects, and public awareness programmes specifically to help expand the existing system of marine parks and reserves. Conservation and resource use, including by extractive industries, will be accommodated within multiple-use marine reserve arrangements where appropriate. In the Great Barrier Reef Marine Park operations for the recovery of minerals are prohibited by legislation.

In 1997–98, $600,000 of programme funding was provided for the operation of the Marine and Coastal Community Network which facilitates community education, consultation and involvement in marine and coastal issues.

The Commonwealth is committed to acceleration of action towards achieving the National Representative System of Marine Protected Areas through this programme and declarations of protected areas in Commonwealth waters. A programme of potential candidate areas is being currently explored with relevant stakeholders. The Commonwealth has supported the development of an Interim Marine and Coastal Regionalisation for Australia as a valuable classification tool to identify representative areas that should be placed in the national system (see Chapter 3).

BOX 8.2: DECLARATION OF THE GREAT AUSTRALIAN BIGHT MARINE PARK (COMMONWEALTH WATERS)

The Great Australian Bight Marine Park (Commonwealth Waters) was declared in April 1998. The Park is the first to be declared by the Commonwealth in southern temperate waters and provides protection for the endangered Southern Right Whale, the Australian Sea Lion and a large sample of the extraordinary marine life which inhabits the sea floor. These include a range of bottom-dwelling plants and animals such as sponges, marine algae, sea cucumbers and delicate lace corals many of which do not occur anywhere else.

Covering 2,290,989 hectares the Park is second only in size to the Great Barrier Reef Marine Park and the largest marine protected area in Australia's temperate waters. The Park will complement a marine park proclaimed in 1996 by the South Australian Government in State waters.

Management arrangement for the park provides an excellent example of a multiple-use approach under which the conservation needs of the area are sensibly balanced against its other attributes, in particular its natural resources.

The Park is a major contribution to the development of Australia's National Representative System of Marine Protected Areas. The Government is determined to speed up the process of ensuring Australia's marine environment is protected and further declarations in Australia's huge Exclusive Economic Zone are planned in the near future.

Australia already has declared over 300 marine-protected areas covering an area of almost 500,000 square kilometres, or 5 per cent of Australia's marine waters. The extent of coverage has increased by more than 17,000 square kilometres with the declaration of the Great Australian Bight Marine Park (Commonwealth waters). The Great Barrier Reef Marine Park constitutes most of the declared marine park area. In December 1997 the Gumoo Woojabuddee Section of the Great Barrier Reef Marine Park was proclaimed. The section is approximately 350 square kilometres in area.

In March, Environment Australia and the Australian Petroleum, Production and Exploration Association (APPEA) signed an historic agreement to increase and improve communication and cooperation. This cooperation will be facilitated through an annual

work plan. Among other institutions, APPEA, Environment Australia and the Western Australian Department of Conservation and Land Management have jointly announced their intention to work towards the development of a multiple-use conservation strategy to protect environmental and heritage values of Commonwealth waters surrounding Montebello and Barrow Islands off the North West Shelf. It is anticipated that this initiative may provide a model for cross-jurisdictional management of multiple objectives in the marine environment.

Clean Seas

Point and diffuse sources of wastewater and stormwater pollution associated with activities such as urban development and poor catchment management are major causes of reduced water quality in estuaries along the coast.

Under *Coasts and Clean Seas*, the Commonwealth will provide $16.5 million during 1998–99 to directly address wastewater and stormwater pollution sources. The programme has two elements, a publicly advertised grants component for projects up to $250,000; and a Commonwealth component for a small number of projects of national significance. The programme is focused on providing funds for on-ground work using best-available or innovative approaches to wastewater management including reuse. Projects that can be used as demonstration models in similar locations around Australia are particularly encouraged. All three spheres of government, industry, water authorities, the community and scientific organisations are the programme's major stakeholders.

In 1997–98 the Clean Seas Programme has contributed to the rehabilitation of Lake Macquarie in New South Wales, through construction of artificial wetlands to treat stormwater outfall and reduce pollution entering the lake.

Coastcare

Coastcare is the community cornerstone of *Coasts and Clean Seas*. $5.3 million is being provided by the Government during 1998–99 to enhance the programme's achievements in coastal management and protection. Coastcare provides the opportunities and resources for community groups to undertake coastal management projects. Coastcare is a cooperative Commonwealth, State and local government programme, with Coastcare grants jointly funded by the Commonwealth and the States.

For example, in 1997–98 the Stanley Peninsula Land and Coastcare group and Australian Bulk Minerals received a grant of nearly $100,000 to rehabilitate and enhance degraded areas surrounding the Port Latta pelletising plant in Tasmania which has been operating for 30 years. In New South Wales funds were allocated to an Ocean Watch Australia project to encourage fishermen to reduce fishing industry wastes on beaches. In Queensland funds were allocated to the Darumbal-Noolar Murree Aboriginal Corporation for erosion protection works and revegetation of cultural sites on the coast and islands of Shoalwater Bay.

Coastcare key achievements include:

- over 400 projects funded in the last year, addressing key environmental issues such as area management plans, erosion control, rehabilitation of wildlife habitats, heritage assessment, flora and fauna monitoring;

- Commonwealth funding of 23 Coastcare facilitators across the country to work with the community on management and protection of the coast; and

Fisheries Action Programme

The Commonwealth aims to protect and restore fisheries habitats such as mangroves, estuaries and seagrass beds and to raise awareness of associated issues. The Commonwealth has allocated $1.4 million during 1998–99 from *Coasts and Clean Seas* to support the marine component of the national Fisheries Action Programme. The programme is linked closely to Landcare and Coastcare and will address fisheries and marine environment issues such as aquatic pest control, marine and estuarine habitat rehabilitation and the development of sustainable fishing practices and management plans. A further $3.8 million has been allocated to the Fisheries Action Programme over the life of the Natural Heritage Trust from the National Rivercare Initiative for similar community-based work in river catchments (see Chapter 5).

Capacity Building

The Commonwealth will provide $600,000 during 1998–99 for the Capacity Building Programme. This programme comprises a range of measures to deliver skills and knowledge to a broad range of coastal managers, including community and industry, to enhance coastal management decision making and awareness. Components of this programme include industry and recreational codes of practice, educational and promotional programmes, indigenous community programmes and electronic information databases. A short-course professional development and training programme for the broad spectrum of coastal managers is being delivered. A wide range of courses are being delivered in conjunction with State and local government, TAFE and other educational institutions.

Coastal and Marine Planning Programme

The Commonwealth will provide $1.8 million during 1998–99 under *Coasts and Clean Seas* for the Coastal and Marine Planning Programme.

Through quality planning, the Coastal and Marine Planning Programme aims to improve the management of potential and existing pressures in the coastal zone. Pressures include increased recreational use, expanding urban development or increased port and marine activity. These pressures can lead to negative environmental impacts such as reduction in water quality, reduced fish-breeding environments, and reduced water bird habitats.

The Coastal and Marine Planning Programme will reduce barriers to quality planning in coastal regions. This will be done by resolving conflict between uses such as fishing, boating, agriculture, industry and urban development. The programme will broaden

sectoral or narrow responses to issues, identify roles and responsibilities of the spheres of government and the private sector, and identify and deal with social, economic or institutional impediments to quality planning.

Programme objectives will be met by funding the development of quality planning in coastal regions and by undertaking initiatives that support sharing the knowledge and experiences of those participating in the programme. For example, the North West Tasmanian Municipal Region of Councils has been funded under this programme to prepare an integrated coastal management plan. This is in response to a history of coastal, marine and water-quality management planning which was based on uncoordinated decision making and actions by many agencies and planning authorities.

During 1997–98 a multiple-use strategic plan was being developed in cooperation with the Queensland Government, for the Southern Gulf of Carpentaria. The Plan will assist in managing the differing and competing uses of resources in the region, with the aim of minimising the potential impacts of these activities on the Gulf's marine waters and to provide guidance to stakeholders for the sustainable developments of the Gulf.

Coastal Monitoring Programme

The Commonwealth will provide $1.2 million during 1998–99 for the Coastal Monitoring Programme to assist coastal managers and the wider community in identifying significant threats to key coastal environments and habitats and, over time, in assessing the effectiveness of policies designed to protect them. A regional monitoring network is being developed with pilot sites established in the Alligator Rivers region and at Jervis Bay. Further sites may be added as suitable locations are identified. A directory of Coastal and Marine Monitoring is being developed on the Internet to provide coastal managers with information on monitoring in Australia.

The major focus in 1998–99 will be to expand the range of information available in the directory and make it accessible to all Internet users. The monitoring programme will also fund a range of other projects through both a publicly advertised and Commonwealth component grant process. Indicative priorities for 1998–99 for the publicly advertised grants include seagrass loss, water quality in estuaries and coastal lakes, mangrove and salt marsh loss in developed areas, eutrophication and coastal reefs.

Introduced Marine Pests Programme

Under *Coasts and Clean Seas*, the Commonwealth has committed $800,000 during 1998–99 for an Introduced Marine Pests Programme that will directly address the impacts on the marine environment of exotic pest species that breach existing quarantine barriers. The programme is focusing on systematic detection and response to new marine pest incursions, practical measures to reduce the environmental and economic impacts of existing marine pests, techniques to remove and eradicate threatening introduced species and on raising public and industry awareness of possible preventative activities.

A ready response capability is being established under the programme to enable the Commonwealth and State and Territory agencies, with support from community and industry groups, to immediately provide resources and expertise to address fresh

outbreaks of exotic marine pests. The Commonwealth has supported emergency control action by State agencies and community groups to counter incursions in Port Phillip Bay and south of Hobart of the northern Pacific seastar and Japanese kelp, two of the most significant marine pests in Australian waters.

In addition to *Coasts and Clean Seas* funding for the Introduced Marine Pests Programme, the Commonwealth is also funding essential research and ballast water management programs to counter the threats to the marine environment posed by introduced exotic pests. Ballast water from ships is a major vector for the introduction of exotic marine pests. The Australian Quarantine and Inspection Service (AQIS) is the leading Commonwealth agency for all matters concerning the management of ballast water, including barrier control measures.

The Commonwealth provides around $300,000 each year to administer improved ballast water management arrangements, including the implementation of the Australian Ballast Water Management Strategy. A key component of the Strategy is the Ballast Water Research and Development Programme. Funding of $1 million was provided for this programme by the Introduced Marine Pests Programme for 1997–98, with funding of $1 million each year to be provided for the two years from 1998–99 and 1999–2000 via a levy on commercial shipping.

The Ballast Water Research and Development Programme is currently focused on developing a risk-assessment-based Decision Support System for use as a management tool by AQIS and other relevant authorities in Australian ports, preparation of a ballast water awareness programme for the maritime industry, development of compliance monitoring arrangements and research into improved ballast water treatment methods.

The Commonwealth will provide funding of around $1.4 million in 1998–99 to the CSIRO Centre for Introduced Marine Pests for essential research to support control, eradication and risk-assessment measures involved with initiatives under the Introduced Marine Pests Programme and the Australian Ballast Water Management Strategy.

Australian Coastal Atlas

The Australian Coastal Atlas (ACA) Project is a major national initiative being facilitated by the Environmental Resource Information Network (ERIN) of Environment Australia. The Government will provide $1.1 million during 1998–99 for the project. The aim is to implement a distributed, World Wide Web, interactive Geographic Information System (GIS) disseminating coastal information as on-line maps and dataset descriptions (metadata) across the Internet for the user community by the various Commonwealth and State/Northern Territory agencies. Approximately 100 agencies nationwide are currently involved with the ACA through the mechanism of nominated responsible State Nodes. Several Commonwealth Nodes will also be established in 1998–99 to further build the national system.

National Oil Spill Atlas

The National Oil Spill Atlas is being developed through the Australian Maritime Safety Authority (AMSA) with the active participation of the States and the Commonwealth. The Atlas will expand the current State-based coastal resource atlas to provide a national

uniform database system for oil spill incidents to protect Australia's marine and coastal environments.

Torres Strait Planning Strategy/International

Commonwealth initiatives underway in the Torres Strait will assist the fulfilment of environmental obligations by parties to the Torres Strait Treaty while helping the Torres Strait Islanders to sustainably manage their marine and coastal environment. The Commonwealth will provide over $300,000 during 1998–99 for the development of a Strategy for the Planning of Resource Integration in the Torres Strait. The Strategy is being developed in cooperation with the Torres Strait Regional Authority to ensure the protection and sustainable use of the Torres Strait region's coastal, marine and cultural values.

Integrated Marine Management

Great Barrier Reef Marine Park Authority

The Great Barrier Reef Marine Park is the world's largest marine protected area and is a world leader in integrated, multi-use marine management. In 1998–99 the Commonwealth will provide $12 million to the Great Barrier Reef Marine Park Authority (GBRMPA) to manage the marine park. Conservation of the Great Barrier Reef is the Authority's primary obligation. The Authority's challenge is to ensure that valuable tourist and commercial fishing industries worth around $1.3 billion each year, plus other important uses such as shipping and recreational boating, continue to operate on an ecologically sustainable basis.

There is significant indigenous cultural relationship with the marine park which predates non-indigenous involvement in the area. All major planning exercises for the marine park include processes for consultation with indigenous communities. Field management of the Marine Park is implemented through the day-to-day management programmes, many of which are carried out by the Queensland Department of Environment.

The critical management issues for the Marine Park are:

- conservation and World Heritage — this is a high priority issue and involves protection of threatened species, provision of a system of protected areas and understanding the effects of large-scale disturbances such as Crown-of-Thorns. The Authority is the Commonwealth agency responsible for the conservation and presentation of the World Heritage values associated with the Great Barrier Reef;

- tourism and recreation — tourism is the main commercial use of the Marine Park valued at over $1 billion to the Australian economy each year and bringing over 1.2 million visitors to the Great Barrier Reef. Management is aimed at reducing tourism impacts while providing diverse tourist opportunities;

- fisheries — the Authority in collaboration with Queensland fisheries management agencies, is working to obtain a better understanding of the impacts of fishing activities on the Great Barrier Reef through a research programme into the effects of

fishing, monitoring fishing catch and effort; identifying major or critical habitats and actively supporting technology to reduce fishing by-catch; and

- water quality and coastal development — the Authority is working with Queensland and local governments on management arrangements to reduce sediment, nutrient and other land-based runoff that impact on the health of adjacent marine areas. Maintenance of water quality to ensure the health of the reef is a high-priority issue. Long-term monitoring programs are being conducted to determine the state of the water quality throughout the reef and assess threats from pollution. The Authority is working with the Australian Maritime Safety Authority on improving oil spill contingency planning and response, navigational aids and ship reporting systems.

BOX 8.3: DUGONG RESCUE PACKAGE

Dugong are one of the values for which the Great Barrier Reef was World Heritage listed and Australia has an international responsibility to protect dugong.

In 1997 the Great Barrier Reef Ministerial Council agreed to establish the world's first chain of dugong sanctuaries as part of an emergency strategy to halt the decline in dugong numbers in the southern Great Barrier Reef region. Measures to implement the sanctuary system entered into force on 12 January 1998. Under these measures forms of mesh netting that represented a risk to dugong will be prohibited in Zone A Dugong Protected Areas. In Zone B areas, relevant fishing practices will be modified.

Every effort has been made to minimise the impact on the commercial fishing industry. Ex gratia payments have been provided to fishers affected by the decision.

Marine Environment Protection Measures

National Water Quality Management Strategy

The Commonwealth is supporting the implementation of the National Water Quality Management Strategy which features guidelines and recommended control measures to maintain water quality standards (see Chapter 6).

London Convention — Dumping at Sea

Commonwealth legislation strictly regulates the dumping of waste at sea. Australia is a party to the London Convention, an international convention that promotes effective control of pollution from ocean disposal which is hazardous to human health, could harm marine life, or interfere with other uses of the sea. The Government has agreed to sign a new protocol to the convention that incorporates the polluter pays and precautionary principles. The new protocol restricts the type of waste that can be dumped at sea to a list of seven items including dredge material, vessels and platforms.

Regional International Environmental Protection

Australia has considerable expertise in marine environmental management, which it is promoting as a resource in overcoming transboundary pollution problems in the Asia-Pacific region. This will assist in ensuring that the risk of pollution from Australia's neighbours is minimised, the health of the ocean environment is enhanced and the awareness and uptake of relevant Australian environmental management techniques is maximised.

The Commonwealth has contributed nearly $100,000 in 1997–98 towards Australian participation in regional fora supporting implementation of the Global Programme of Action for the Protection of the Marine Environment from Land-based Activities. These fora work to protect the marine environment and its resources and include the Coordinating Body of the Seas of East Asia (COBSEA), the United Nations Environment Programme's Regional Seas Programme, and the Asia Pacific Economic Cooperation Marine Resource Conservation Working Group.

Australia is assisting Pacific and Indian Ocean Island states in coastal and marine environment protection and management. Assistance is targeted at sustainable resource management and institutional strengthening of key coastal management institutions. For example, over $3 million has been provided to Tonga for the sustainable management of the largest lagoon system in that country. Similarly, Papua New Guinea is being assisted through the $10 million Western Province Coastal Zone Management Planning Project. Australia is also planning to assist the Maldive Islands to the value of $1.2 million to develop and prepare management plans for a revised system of marine protected areas and to establish community managed protected areas which will better protect marine biodiversity and manage conflicts between the Maldives' tourism and fisheries industries.

Since 1985 Australia and Papua New Guinea have been party to the Torres Strait Treaty which establishes a Protected Zone between the two countries. The Environment Management Committee jointly chaired by PNG and Environment Australia reports on environmental protection requirements for the Protected Zone to the Treaty's Joint Advisory Committee. The Treaty covers, among other things, the moratorium on mining and drilling of the seabed, protection of the marine environment, customary rights of traditional inhabitants and conservation, management and utilisation of commercial fisheries. Significant financial support has gone into fulfilling the numerous obligations placed on Australia by this Treaty covering a range of environmental management initiatives. For example in 1997–98, funds have been allocated to develop Indigenous Protected Areas and up to $200,000 has been allocated for heavy metal testing in traditional seafoods.

The Australian Maritime Safety Authority

The Australian Maritime Safety Authority (AMS) is a statutory authority responsible for maritime safety, that is primarily funded by the shipping industry from fees and levies, but also receives Commonwealth funding for search and rescue operations.

AMSA provided around $3.7 million in 1997–98 from shipping levies to work with State governments, shipping, oil and exploration industries to implement the National Plan to Combat Pollution of the Sea by Oil.

Around $15 million is provided each year by AMSA from inspection fees and levies to ensure compliance with Port State and Flag State controls that seek to protect life, property and the marine environment from unseaworthy vessels.

Up to $4 million has been spent by AMSA over the past two years on the Outer Route survey of the Great Barrier Reef and the ship reporting system for the Great Barrier Reef and Torres Strait regions.

MANAGEMENT OF OUR MARINE RESOURCES

Sustainable Fisheries Management

The Commonwealth provides leadership in ensuring that fisheries resources are managed in accordance with the principles of ecologically sustainable development. The Commonwealth's Fisheries and Aquaculture sub-programme develops policies and legislation for the sustainable management of Australian fisheries and aquaculture. This includes addressing the environmental impacts of fishing. It takes a leading role in managing Australia's participation in fisheries working groups for regional agreements, such as APEC, and international bodies such as the Commission for the Conservation of Southern Bluefin Tuna and the Indian Ocean Tuna Commission.

Fish stocks in the Australian Fishing Zone are managed jointly by the Commonwealth and States depending on agreed arrangements. The Commonwealth will provide to the Australian Fisheries Management Authority (AFMA) $9.2 million in 1998–99, of which $1 million is specifically for research. This represents approximately 50 per cent of AFMA's annual operating budget (with the remaining 50 per cent provided by industry). AFMA is the Commonwealth statutory body responsible for the day-to-day management of Commonwealth fisheries resources. At a broad level, AFMA is charged with maintaining, and managing the sustainable use of, Commonwealth fisheries resources on behalf of the whole Australian community and key stakeholders, such as the commercial fishing industry.

The Commonwealth has allocated funding for projects such as Sustaining Australia's Remote Area Fisheries to develop a policy framework for the conservation and management of the fisheries resources of the remote areas of the Australian Fishing Zone (AFZ) and adjacent high seas, within the context of Oceans Policy. Funding was also provided for Australia's contribution under International Treaty towards the operation of the Commission for the Conservation of Southern Bluefin Tuna.

The Commonwealth makes significant contributions to regional fisheries management to enhance sustainable fishing practices. The Commonwealth, through the aid programme is providing $1 million during 1998–99 for a Samoa programme on improved fishing techniques and sustainable development of local fish and shellfish resources.

The Commonwealth will provide $4.1 million in 1997–98 as additional funding for an Australian Defence Force and Australian Fisheries Management Authority joint

operation to apprehend illegal foreign fishing vessels in the Australian Antarctic fisheries.

COASTAL AND MARINE RESEARCH

The Commonwealth is funding extensive research and development essential for the multiple use of Australia's marine and coastal environments. Organisations such as the CSIRO and the Australian Institute of Marine Science (AIMS) play a leading role, along with other key Commonwealth-supported research programmes in organisations such as the Australian Antarctic Division, the Bureau of Meteorology, the Great Barrier Reef Marine Park Authority, Cooperative Research Centres and the Australian Geological Survey Organisation (AGSO).

BOX 8.4: ROLE OF RESEARCH IN GREAT BARRIER REEF MARINE PARK MANAGEMENT

The Great Barrier Reef Marine Park Authority has a responsibility to protect, conserve and allow for reasonable use of the Great Barrier Reef Marine Park. Knowledge of the Reef has improved enormously since the Authority was established 22 years ago. However, this is a relatively short time to collect the data necessary to fully understand a marine ecosystem of the complexity and size of the Great Barrier Reef region which covers approximately 344,000 square kilometres.

As part of its performance assessment, the Authority reports to Parliament on the effectiveness of its management of the Great Barrier Reef. The recent Australian National Audit Office report on 'Commonwealth Management of the Great Barrier Reef' suggests that the Authority does not have adequate scientific data to enable an assessment to be made of the effectiveness of its management of the reef at this time. The Authority acknowledges that there are critical data shortfalls but that these can only be improved through commissioning research over time.

Responding to these identified information needs, the Authority commissions relevant research (from agencies such as AIMS or CSIRO, universities and consultants), scrutinises the results and ensures that the results are interpreted in a way which is meaningful to management.

Funds available for research have declined over the last decade and agencies are working closely together to ensure that research funding is spent on relevant, unique and targeted programmes in response to critical issues. For example the Authority is a partner and thus represented on the board of the CRC for Ecologically Sustainable Development of the Great Barrier Reef along with AIMS, James Cook University, tourism groups and fisheries managers. The Authority is then able to influence the CRC programme to meet some of its information needs which have been identified by the specific issues groups and for overall management purposes.

CSIRO Marine Research

The CSIRO is a major contributor to Commonwealth-funded marine research and development. The CSIRO's allocations on marine research in 1998–99 include:

- $4.2 million to develop strategies for multiple-use management of Australia's EEZ through better understanding of the resources and processes involved;
- $6.8 million to undertake research on marine living resources around Australia (northern, southern and internationally shared);
- $2.6 million to improve evaluation and management of marine biodiversity;
- $200,000 to research value-added marine products and biotechnology;
- $4 million to develop measures for the improved health of estuarine and coastal waters; and
- $4.3 million for an oceanographic research vessel.

Fisheries Research

The sustainable management of fish stocks and habitats in Commonwealth and international waters is dependant on ongoing fisheries research. A significant proportion of Commonwealth funding provided for marine and coastal research is dedicated to research to support sustainable fishing practices. The CSIRO and AIMS, along with organisations such as the Fisheries Research and Development Corporation, Bureau of Resource Sciences and the Australian Antarctic Division conduct and support fisheries-related research in a number of fields.

The Commonwealth has allocated $2.9 million in 1998–99 to the Fisheries Research and Development Corporation, established within the research and development corporation policy framework operations. It aims to provide a planning and funding mechanism for increasing industry investment in, and improving the cost-effectiveness of fisheries research for both State and Commonwealth-managed programs, and facilitating the dissemination, adoption and commercialisation of the results of research and development. The role of the Fisheries Resources Research Fund is to appropriate funds, amounting to $400,000 in 1998–99, to organisations primarily ABARE and BRS to conduct fisheries research into issues of public interest, including environmental issues such as ecosystem protection.

Commonwealth-supported fisheries research in areas such as fish stock assessment, non-target species interactions and environmental impacts allows Australia to make significant contributions to various international marine-based agreements such as the Convention for the Conservation of Southern Blue Fin Tuna and the Convention for the Conservation of Antarctic Marine Living Resources.

Cooperative Research Centres

There are five Cooperative Research Centres (CRCs) undertaking research on aspects of the environment relevant to coasts and oceans. Three of these are covered in other chapters of this report, namely the CRC for Antarctica and the Southern Ocean (Chapter 9), the CRC for Catchment Hydrology (Chapter 5) and the CRC for Freshwater Ecology (Chapter 5).

The CRC for Ecologically Sustainable Development of the Great Barrier Reef is investigating the status of the Great Barrier Reef environment and its relationship to a wide range of regional and local, external and internal stresses, including environmental,

social and engineering problems associated with increasing use of the region by tourists, recreational and commercial fishermen. The CRC has undertaken a shipping risk analysis that provided the basis for the Commonwealth Department of Transport's policy to move current concentrations of bulk shipping away from the inner route of the Great Barrier Reef. The CRC has also provided key research into dugongs that has directly led to the establishment of new dugong protection areas and the development of strategies to reduce the impact of gillnetting on dugongs.

Research at the CRC for Aquaculture is directly aimed at providing a technological basis for an environmentally and internationally competitive aquaculture industry. The CRC has made a major breakthrough for the Pacific oyster industry; researchers have discovered evidence of a single gene that results in faster-growing and meatier oysters.

Australian Institute of Marine Science

The Australian Institute of Marine Science (AIMS) conducts scientific research in all tropical Australian seas and coastal regions. The Institute has established a long-term environmental monitoring programme, built skill and knowledge in resource assessment (especially in tropical mangrove and coral reef systems) and is recognised as a leader in setting environmental assessment standards.

BOX 8.5: AIMS: SIGNIFICANT RESEARCH OUTPUTS

In conjunction with BHP Petroleum (BHPP) AIMS released a publication on the benthic habitats of the Central Timor Sea entitled *The Big Banks Shoals of the Timor Sea — An Environmental Resource Atlas*.

The Long Term Monitoring project at AIMS has continued to monitor the status of reefs on the Great Barrier Reef using both broad-scale and intensive surveys. The project is designed to provide long-term quantitative geographic data about coral algae, reef fishes and Crown of Thorns starfish over the extent of the Great Barrier Reef.

A national review of Fisheries Habitat has been published based on extensive interviews with researchers and managers and a comprehensive literature review.

AIMS has reorganised its research programme to focus on problems of national significance. Eight major projects include: human impacts on coastal marine ecology; sustaining coral reefs; monitoring change in tropical marine biota; marine biochemistry of contaminants, supporting tropical fisheries, predicting the coastal marine environment; and marine biotechnology and marine bioproducts.

The Government will commit $11.3 million to the first four years (to the year 2001–02) of a six-year capital refurbishment programme AIMS. The funding is for the refurbishment of existing infrastructure and research capacity, the construction of a new laboratory wing and the replacement and refurbishment of research vessels. AIMS' existing buildings and vessels have deteriorated from age and exposure to sea air in a tropical environment and require upgrading to keep pace with advances in marine science.

Australian Nuclear Science and Technology Organisation

Australian Nuclear Science and Technology Organisation's (ANSTO) research relating to activities aimed at the protection, conservation and sustainable use of Australia's coastal and marine environments include nearly $400,000 in 1998–99 on projects contributing to the sustainable development of the coastal zone through an enhanced understanding of anthropogenic inputs to the sea through man-made structures and river systems. This is based on radiotracing and nuclear analysis.

Environmental Impacts of Petroleum Operations

The Commonwealth, through the Bureau of Resource Sciences subprogramme on Environmental Impacts of Petroleum Operations provide advice and undertake research relating to impacts of offshore petroleum exploration and drilling. Over $100,000 has been allocated for the subprogramme in 1998–99.

COASTAL AND MARINE MONITORING

Monitoring Programmes

In 1998–99, nearly $500,000 has been allocated for the AGSO Urban and Coastal Impacts project. The objective of the project is to develop monitoring and management strategies for estuaries and coastal waters adjacent to urban centres to ameliorate and manage the effects of pollution.

Long-term baseline monitoring studies are necessary to increase understanding of the marine and coastal environment, assess impacts of human activities and support research across a range of environmental issues. The CSIRO and AIMS regularly collect a range of baseline monitoring data including physical oceanographic data on temperature, salinity, oxygen and nutrients from vessels and satellites and coastal water-quality data from monitoring stations around Australia.

The CSIRO, the Australian Antarctic Division and the Bureau of Meteorology collaborate on the acquisition and analysis of sea surface and climate data from ships, drifting buoys and satellites. The Bureau of Meteorology is the major focus for Australian planning towards participation in the Global Ocean Observing System (GOOS) and the Global Climate Observing System (GCOS). During 1997, a plan for the Australian Climate Observing System, a contribution to GCOS and its ocean module, was completed.

Under the joint Deed of Agreement between the Commonwealth and the State of Queensland an independent monitor has been appointed to oversee the private development of Port Hinchinbrook. The costs are to be shared between the two governments with the Commonwealth providing $100,000 in 1997–8.