Parliament of the Commonwealth of Australia

The Injured Coastline

Protection of the Coastal Environment

Report of the House of Representatives
Standing Committee on Environment, Recreation and the Arts

April 1991

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The Country now comes from Bugarri-Garri (dreamtime). It was made by all the dreamtime ancestors, who left their tracks and statues behind and gave us our law, we still follow that law, which tells us how to look after this country and how to keep it alive.

The true people followed this law from generation to generation until today that is why this country is still good and gives us plenty, we never take more then we need and respect each others areas.

Today everybody, all kind of people walk through this country, now all of us together have to respect and look after this land, when we look after it proper way, this land stays happy and it will make all of us happy.

Paddy Roe, Law-Keeper, Custodian, Broome Region
7 February 1991

Forwarded to the Committee during its visit to Broome in February 1991 by Mr Paddy Roe, OAM, Goolarbooloo Elder, Yawuru People.

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* Mr Gear was initially appointed to the Committee on 16 May 1990 and was replaced by Dr Charlesworth on 8 June 1990. He was reappointed to the Committee on 6 March 1991, replacing Mrs Darling.

TERMS OF REFERENCE

That the Committee inquire into the environmental degradation of the Australian coastline and coastal waters, with particular reference to:

- causes, effects and costs of pollution, sewage disposal, coastal land degradation and resource depletion;
- management of urban water resources;
- impacts on tourism, fishing and other industries dependent on the coastal zone and coastal waters;
- the adequacy of existing management regimes;
- administrative arrangements, legislative measures and development policies required to ensure sustained use and environmental protection;
- review of previous parliamentary reports relating to the coastal zone; and
- the role of the Commonwealth Government in ensuring proper management of the coastal zone.

CONTENTS

ABBREVIATIONS

AEC	Australian Environment Council
ANPWS	Australian National Parks and Wildlife Service
ANZEC	Australian and New Zealand Environment Council
APEA	Australian Petroleum and Exploration Association
ASTEC	Australian Science and Technology Council
CONCOM	Council of Nature Conservation Ministers
CSIRO	Commonwealth Scientific and Industrial Research Organisation
EIA	Environmental Impact Assessment
EIS	Environment Impact Statement
EPA	Environment Protection Agency
ERA Committee	House of Representatives Standing Committee on Environment, Recreation and the Arts
GBRMPA	Great Barrier Reef Marine Park Authority
RAC	Resource Assessment Commission
SPCC	State Pollution Control Commission (New South Wales)

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

1 The Committee's report on the protection of the coastal environment comes at a very important time. As the pace of development and population growth along the coastline accelerates, so do concerns about the consequences of such development and the effects of increased human activities upon one of our greatest resources and assets, the beautiful Australian coast.

2 In recent times a huge amount of attention has been devoted to the condition of the waters off Sydney's famous beaches, particularly Bondi beach. The Committee believes that what is happening to the coastal environment at Bondi, or Broome in Western Australia, or Glenelg in South Australia, or Burnie in Tasmania or at Cairns in north Queensland are now matters of national interest and concern because problems are being experienced all along the coastline. Bondi is a national symbol of Australia and a symbol of how we as Australians have degraded the coastal environment, used the oceans as a sink and failed to really appreciate the value, beauty and importance of something we actually love very much, our coast.

The Committee's Findings and Proposals for Commonwealth Action

3 The Australian coast is extremely large and has given the impression that as a resource it is inexhaustible. However the relatively recent proliferation of demands upon the coastline has raised awareness about its limits. The absence of a national perspective towards the entire Australian coastline could lead to national interests being undervalued or even lost for future generations, as the existing ad hoc, hodge-podge pattern of development slowly nibbles away at a precious and beautiful resource, the natural coastline.

4 The management of the Australian coastline, its resources and the offshore waters is shared between the Commonwealth, State and local governments. The Committee believes that existing coastal management arrangements are fragmented and poorly coordinated and fail to encompass a holistic approach. There has been a tendency in coastal management to focus on specific issues and see the solution merely in terms of resolving the specific problem. Such a perspective has been revealed to be too narrow. There is a pressing need for improved co-ordination at all levels of government as well as inter-disciplinary co-ordination.

5 The fragmented structure of decision-making by public agencies operating within existing coastal management arrangements is reflected by the following organisational problems: the multiplicity of public agencies, existence of arbitrary administrative boundaries and the failure to consider cumulative effects of decisions (the tyranny of small decisions). In order to overcome these organisational and structural problems, the Committee concludes that regional coastal management plans, based upon the total catchment management approach, should be developed by State and local governments.

6 Indeed, to overcome these problems, the difficulties being experienced by local government in dealing with the pace of development on the coastline and the general community concern about the condition of the coastline and coastal waters, the Committee recommends that:

> **The Commonwealth develop without further delay a national coastal zone management strategy in co-operation with the States and Territories and local governments to provide a framework for the co-ordination of coastal management throughout Australia. The strategy should incorporate agreed national objectives, goals, priorities, implementation and funding programs and performance criteria.** *(Recommendation 8 - paragraph 6.24)*

7 The Committee envisages that the national strategy would encompass a hierarchy of planning systems involving national, state, regional and local management plans, derived from the preceding level, and which are consistent with the principles of sustainable development. The Committee recommends that:

> **Responsibility for developing the national coastal strategy in cooperation with the States and Territories and local governments should be vested with the existing National Working Group on Coastal Management. However, the composition of the NWG should provide for a broader representation of interested parties, involving local government.** *(Recommendation 10 - paragraph 6.29)*

8 Provision should be made in the National Strategy for the allocation of federal funds to State and local governments for the preparation of local, regional and State coastal management plans and coastal works that support the national objectives and goals. Financial support schemes that may be provided to State and local governments must, however, incorporate specific performance criteria (such as adequate provision for public participaton in the preparation of coastal plans) in order to qualify for initial and further grants. The Committee recommends that:

> **The Commonwealth provide financial assistance to State and local governments as part of a National Coastal Zone Management Strategy. The provision of such funding would be based upon fulfilment of certain performance criteria, which ensure that State, regional and local plans are consistent with the agreed national objectives and work towards achieving those objectives.** *(Recommendation 9 - paragraph 6.26)*

9 The Committee believes that the appropriate role for the Commonwealth is to provide national policy guidance and practical support to the other two levels of government. The Committee does not believe it is necessary to establish a new special purpose federal agency. The Committee strongly supports the proposed establishment

of a Commonwealth Environment Protection Agency which the Committee believes should be the federal body responsible for administration of the national aspects of the coastal strategy, national environmental guidelines and standards (such as water quality) and assessment of financial grants to State and local governments for coastal management in terms of the agreed performance criteria. The agency would also be responsible for improving co-ordination of the Commonwealth's involvement and responsibilities in the coastal zone. The Committee recommends that:

> **The Commonwealth Government designate the proposed Environment Protection Agency as the federal body responsible for coastal matters and with responsibility to provide a focus for the Commonwealth's role and activities in the coastal zone.** *(Recommendation 11 - paragraph 6.31)*

10 The Committee also believes that the Commonwealth should enact a Coastal Zone Management Act which establishes its interest in the coastal zone, following agreement with the States and local government on the development of a national coastal management strategy. The Committee recommends that:

> **Following preparation and development of a national coastal zone management strategy the Commonwealth enact legislation which sets out:**
> a) **a federal interest in the coastal zone;**
> b) **agreed national objectives;**
> c) **agreed national environmental guidelines and standards (including standards for water quality and industrial waste discharges); and**
> d) **financial assistance schemes to assist the States and local governments to formulate coastal management plans and policies that are consistant with the objectives and goals of the national strategy.** *(Recommendation 12 - paragraph 6.37)*

11 The Committee is aware that there are presently limited alternatives to the discharge of sewage into the ocean. It is also aware that the discharge of industrial wastes into sewerage systems is causing major technical difficulties regarding treatment and disposal. The lack of alternative wastewater technologies and approaches to the existing systems of discharge of sewage and industrial wastes into the oceans is a matter of concern to the Committee. The Commonwealth is the largest contributor to marine and environmental research in Australia. The Committee believes some of the present funding should be specifically directed to the research and development of new wastewater treatment technology and disposal. The Committee recommends that:

> **A proportion of existing Commonwealth environmental research funding be specifically directed to encouraging the research and development of new wastewater treatment technology as an alternative to ocean disposal.** *(Recommendation 3 - paragraph 5.31)*

12 The presence of toxic substances in the marine environment caused by industrial and sewage discharges, and the bio-accumulation of these substances and their possible entry into the food chain, also require closer investigation. The Committee recommends that:

> **Adequate funding be provided to existing Commonwealth and State research programs investigating the likely impacts of the bio-accumulation of toxic substances in the marine environment.** *(Recommendation 4 - paragraph 5.33)*

13 The Committee is of the opinion that the re-use of treated wastewaters should be further encouraged and incentives provided to industries and enterprises to encourage the greater use of wastewater where suitable. Furthermore, where the activities of individuals, companies, groups or public agencies do not comply with established regulations and guidelines for the discharge of effluent, the responsible authority should be required to inform the public immediately that it has breached the existing standards, and to continue to inform the public until the breach has been rectified.

14 The Australian and New Zealand Environment Council (ANZEC) and the Australian Water Resources Council (AWRC) are, the Committee is advised, presently preparing water quality guildines. The Committee recommends that:

> **National water quality guidelines based upon the assimilative capacity of the receiving waters be prepared as expeditiously as possible. Where public or private bodies discharge effluent into waters in a manner inconsistent with or in breach of such standards, public notification and explanation be a mandatory requirement.**
> *(Recommendation 5 - paragraph 5.36)*

> **ANZEC and/or AWRC should develop national standards for waste discharges from all types of industry, based upon the use of pollution equipment utlizing the Best Available Technology Economically Achievable. Public participation in the formulation of these standards should be encouraged and provision made for incorporation in the proposed federal legislation. Such standards should be periodically reviewed by the proposed Environment Protection Agency in line with technological improvements in pollution control.** *(Recommendation 6 - paragraph 5.38)*

Furthermore, the Committee recommends that:

> **The objectives of the proposed national coastal management strategy should provide that the suggested industrial effluents standards be incorporated into existing State and Territory pollution laws, and that industry move towards utilising Best Available Technology for pollution control, at the earliest opportunity.** *(Recommendation 7 - paragraph 5.38)*

15 The Committee found that conflict is endemic in the coastal zone and is inevitable given the multitude of activities conducted in the area. Particular problems and controversies arise in the coastal zone (and with regard to the environment generally) as a result of the lack of public participation, the confrontationist procedures usually adopted in Australia to resolve these disputes and the failure of existing planning and regulatory schemes to adequately accommodate competing uses. Fundamental to the amelioration and/or resolution of environmental and coastal problems is the need for governments at all levels to accept the importance of *effective public participation in policy formulation.* The Committee recommends that:

> **Effective public participation in coastal zone management be encouraged at the local government level by a variety of mechanisms, such as: the preparation of local zoning plans in consultation with the community, environmental mediation procedures and the establishment of local consultative committees on specific projects and issues.**
> *(Recommendation 1 - paragraph 4.48)*

16 The Committee also found that there still is a lack of knowledge and understanding of coastal processes and poor communication channels between scientists and managers. Numerous suggestions were made that a national database inventory for the coast be established to consolidate existing information and overcome the problem of transfer of information between scientists and managers. The Committee believes it is important to take a broader view. The lack of data on the coastal zone is a reflection of the larger problem that Australia lacks baseline data over much of the continent. At present several Commonwealth agencies maintain information and databases which include material relevant to the coast. The Committee recommends that:

> **One of the existing Commonwealth databases should be the prime repository of such information concerning the coastal zone as has been prepared and collected by the various Commonwealth agencies. Arrangements for the transfer of information between Commonwealth agencies should to be improved and upgraded.**
> *(Recommendation 2 - paragraph 4.72)*

17 The Committee is well aware of the high levels of disillusionment and impatience within the Australian community about further public inquiries into the coastal environment when there has been little action as a result of earlier reviews. The Committee considers that there should be no new national inquiries dealing with the broad problems of the coastal zone until such time as it might be appropriate to review the implementation of initiatives taken after the completion of the ERA Committee's inquiry.

18 The Committee has developed and maintained close contact with the Resource Assessment Commission (RAC) regarding its inquiry into the coastal zone, and in this report identifies areas which the Commission may wish to explore further. The Committee believes that coastal management initiatives by the Commonwealth should

not await the report of the RAC inquiry into the coastal built environment. The Commission's report should be used amongst other things to improve, direct, assist and guide such policies, structures and plans as are in place or being prepared at the time of reporting.

19 Finally, with regard to specific matters brought to the Committee's attention, the Committee is most concerned about the introduction of exotic micro-organisms into Australian waters through ballast water discharged by foreign vessels, the disposal of wastes and rubbish at sea and the possibility of the introduction of animal diseases into remote areas of the north west by the activities of Indonesian fishermen. Existing Commonwealth practices with regard to these matters need to be examined and improved.

1. INTRODUCTION

The Inquiry

1.1 The House of Representatives Standing Committee on Environment, Recreation and the Arts (the ERA Committee) commenced its inquiry into the protection of the coastal environment in June 1989 at the request of the then Minister for Arts, Sport, the Environment, Tourism and Territories, Senator the Hon. Graham Richardson. When the House of Representatives was dissolved for the federal election in March 1990, the Committee ceased to exist. It was re-established by the new Parliament in May. On 13 June 1990 the inquiry was re-referred to the Committee by the new Minister, the Hon. Ros Kelly, MP. The terms of reference were unchanged. In addition, the new ERA Committee adopted an objective and goals for the inquiry and these are at Appendix A. The goals included:

- to identify particular areas along the coastline that are under environmental stress;
- to identify and propose specific measures that can be implemented quickly to overcome some of the major problems highlighted in the inquiry;
- to raise the position of environmental degradation of the coastal zone on the political agenda; and
- to identify activities and the appropriate role for the Commonwealth in the coastal zone.

1.2 The inquiry was advertised nationally, drawing a strong response. Almost 200 submissions were received. Public hearings, inspections and informal discussions were held in every capital city and in areas from where the Committee had received a large number of submissions about local environmental problems that reflected issues of national concern.[1]

1.3 During fourteen days of public hearings the Committee heard from 171 witnesses.[2] It also held informal discussions with a further 308 people. In July 1990, the Committee participated in an information seminar with staff at the Centre for Coastal Management at the University of New England, Northern Rivers.

1.4 During October 1990, approximately 45 people with particular expertise or interest in coastal zone issues were invited to a workshop at Parliament House, Canberra. This provided a valuable opportunity for representatives of industry, tourism operators,

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1 The inquiry program is at Appendix B, and a list of people and organisations that made submissions is at Appendix C.

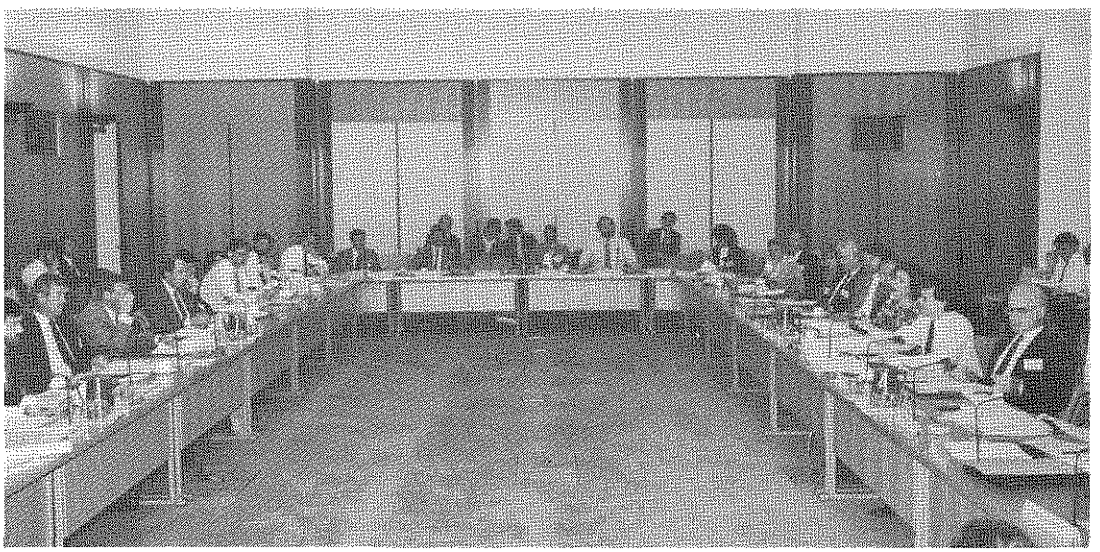
2 See Appendix D.

scientific authorities, community groups and all levels of government to discuss and hear various points of view about current problems.

The Discussion Paper

1.5 Throughout the inquiry, the Committee wanted to ensure that it canvassed the views of as many people as possible and that the information it received was up to date. Aware of the heightened interest and activity concerning environmental issues Australia-wide, and mindful of the fact that more than 12 months had passed since the inquiry had been announced, the Committee decided in October 1990 to release for public comment a discussion paper, which had been prepared for the Canberra workshop, identifying those matters which the Committee believed to be the important issues in the coastal zone.

1.6 The discussion paper generated such an amount of interest that, despite having visited and held public hearings in every State, the Committee conducted three additional visits early this year to Byron Bay (New South Wales), Broome (Western Australia) and the Gippsland Lakes (Victoria). As the issues identified by the inquiry were outlined in the discussion paper and as they have also been mentioned in previous inquiries and reviews, this report aims to focus more on resolving the problems than on describing them.



Photograph 1 Workshop on the Coastal Zone, October 1990

The Coastal Zone - A Definition

1.7 The Committee was told throughout the inquiry that the difficulties of coastal management start with actually defining the coastal zone. The terms 'coastal zone' and 'coastal environment' encompass a broad range of concepts and, as might be expected, there are a great number of definitions.

1.8 There are three main approaches used to define the coastal zone:

Administrative: based on existing administrative boundaries, such as local government boundaries and offshore legislative boundaries.

Linear: based on arbitrary distances from a linear reference point. In New South Wales, for example, the coast is defined as the area one kilometre landward from the low water mark and three nautical miles to sea.

Biophysical: based on physical features such as a coastal mountain range, a major road or a natural ecosystem.

1.9 In practice, the coastal zone tends to be defined depending upon the purpose for which the definition is required; for example, for statistical purposes the coastal zone is often defined by local government areas. The New South Wales Government states in its submission that 'the coastal zone should be flexible and be defined by the specific issue affecting each particular part of the coast'.[3]

1.10 Indeed, this point was acknowledged by the predecessor to the ERA Committee, the House of Representatives Standing Committee on Environment and Conservation. It concluded in its 1980 report on Australian Coastal Zone Management that 'any definition of the coastal zone should be flexible, and should depend on the issue being confronted'.[4]

1.11 The ERA Committee also supports this view. However, to provide a focus for the purposes of this report, it uses the definition developed by the CSIRO in its submission to the inquiry:

> The coastal zone extends seawards to 12 nautical miles offshore or to the 100 metre depth contour, whichever is the furthest from shore, (except where overriding legislation is involved) and extends landwards to include all coastal lands, at least to the limit of those local government areas adjoining tidal waters.[5]

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3 *Submission* No. 164 - Government of New South Wales, November 1989.

4 House of Representatives Standing Committee on Environment and Conservation, *Australian Coastal Zone Management*, 1980, p.2.

5 *Submission* No. 22 - CSIRO, September 1989.

Earlier Reviews and Inquiries

1.12 There have been many inquiries and reviews into coastal issues, sometimes several at the one time. During the course of this inquiry, the Prime Minister, the Hon. R J L Hawke, AC, MP announced that the Resource Assessment Commission (RAC) would conduct an inquiry into the coastal zone, and the New South Wales Parliament conducted an investigation into coastal developments in that State. Perhaps the breadth and complexity of the issues are such that there will always be some controversy about causes and effects, costs and benefits, and rights and wrongs needing to be investigated. However, this does not necessarily justify further exercises in rediscovery. Now that the terms of reference for the coastal inquiry by the RAC have been formulated it would appear that its inquiry will complement the ERA Committee's investigation.

1.13 Within the Commonwealth arena, reviews directly or indirectly concerning the coastal zone have been conducted since 1968 by:

- The Senate Select Committee on Water Pollution (1970)
- The Committee of Inquiry into the National Estate (1974)
- The Parliamentary Joint Committee on the Australian Capital Territory (1984)
- The National Conference on Coastal Management (1986)
- The Review Committee on Marine Industries, Science and Technology (1989)
- The Industries Assistance Commission (1989)
- The House of Representatives Standing Committee on Environment and Conservation (1975, 1978, 1980, 1981, 1984, 1985, 1986).

1.14 More information about these reviews is given at Appendix E. However, the 1980 report of the House of Representatives Standing Committee on Environment and Conservation about management of the coastal zone requires special mention because many of the Committee's findings are still relevant eleven years later.

1.15 Following a more narrowly-focussed inquiry than the ERA Committee's investigation, the Environment and Conservation Committee identified the main problems of coastal management as: the maintenance of dune stability, erosion, pollution from sewage disposal into the ocean, recreation pressure, the difficulty in evaluating the costs and benefits of alternative land uses at particular locations and the associated conflicts between rival interest groups. It concluded that:

- while State and local governments had recognised the importance of the coast, they often lacked the resources to undertake research or preparation of management plans;

- there was a serious lack of information available on the coastal zone and a lack of understanding of coastal processes;

- much of the research data that had been collected was not readily available to interested parties;

- there are aspects of coastal planning where national interest should override State or local interests; and

- although the Commonwealth plays a significant role in the coastal zone and has many responsibilities in the area, there is no Commonwealth coastal policy.

1.16 The Committee suggested zoning as a method of ensuring an equitable distribution of coastal resources, where certain activities are permitted in particular areas and others are excluded. Such zoning decisions should not be made exclusively at a local level, but:

> Decisions in coastal management should be made at the lowest level of government capable of handling the problems. This would usually mean State, or local government with State advice. This form of decentralised decision-making is crucial to effective cooperation in management. However, decentralised decisions should be consistent with policies determined at higher levels...[6]

1.17 The Environment and Conservation Committee observed that several Government sponsored reports released in the mid 1970's stressed the need for a national coastal policy, as there was 'widespread concern in Australia over the continuing degradation of coastal resources due to over-exploitation and over-development'. The report noted most States had asked that the Commonwealth develop policies which would provide guidelines for State initiatives on coastal planning.[7] Furthermore, most State and local governments called for the Commonwealth to provide leadership in developing a national coastal policy with clearly stated goals and objectives.[8]

1.18 The Committee recommended that:

- the Commonwealth Government, in consultation with the States, develop and promulgate national policies and objectives for the conservation and preservation of the Australian coastline;

- the Commonwealth, jointly with the States, establish an Australian Coastal Management Council to:

  - foster cooperation between agencies involved in the coast;

  - establish research priorities and promote research programs;

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6 House of Representatives Standing Committee on Environment and Conservation, op. cit., p 3.

7 ibid., p 3.

8 ibid., p 17.

- establish a central register of information on the coastal zone;

- encourage the dissemination and exchange of information on coastal zone research; and

- establish criteria for the funding of research programs and guidelines for allocation of Commonwealth funds to the States for programs in accordance with national policies.

1.19 During November 1981 the Minister for Home Affairs and Environment, the Hon. I Wilson MP, indicated that the Commonwealth Government was sympathetic to the thrust of the Committee's recommendations, but did not accept them. Instead, the Commonwealth would use existing machinery such as the Australian Environment Council (AEC), which provided for Commonwealth/State consultation, to promote the wise management of Australia's coastal resources.

1.20 In 1984, the Commonwealth Government referred the matter of coastal zone management to the AEC. The Council agreed the following year to promote information exchanges and consider common objectives for coastal management. A coastal management liaison network was established, consisting of the Commonwealth, all States and Territories, New Zealand and Papua New Guinea, to promote the exchange of information on coastal management and provide a network of contacts. The AEC sponsored a national conference on coastal management at Coffs Harbour in 1986. Following the conference, the Council wrote to other Commonwealth and State advisory bodies seeking an exchange of information, but no further action was taken.

1.21 In conducting this inquiry, the ERA Committee was confronted at times with a great deal of scepticism and resistance to 'yet another inquiry into the coast'. The scepticism arose not only from the plethora of previous reports but from the lack of subsequent action by decision-makers, particularly at the Commonwealth level.

2. PRESSURES ON THE COASTAL ENVIRONMENT

2.1 The coast is unquestionably a very special place for Australians: it plays a large role in the national consciousness and is an area of intense economic and social activity. More than 75% of the Australian population lives within 50 kilometres of the coast. Population densities can be as high as 6,000 per square kilometre in metropolitan areas, yet vast stretches of coastline are sparsely populated or uninhabited. In this chapter, consideration is given to the major human activities which have an impact upon the coastal environment. Later chapters examine attempts to avoid or ameliorate the adverse effects on the coastline.

Providing a Place to Live

Population Pressure

2.2 The pace of development around the coastline is accelerating as Australia's population increases and people leave the major cities for higher quality environments in small urban centres along the coast. However, the very problems that have led people to move from the major cities in the first place, such as overcrowding and pollution, are now threatening the coastal areas. A region experiencing these problems is the north coast of New South Wales which is receiving people from all regions of the State, including inland and other coastal areas (see panel 2A).

2.3 Whilst the migration of people from inland areas to the coast and the major cities is not within the perview of this inquiry it is a possible matter for further investigation by government. It is a disturbing trend contributing to the static and declining populations of inland centres and additional pressures on the coastal zone.

2.4 The harsh summer climate of inland Australia is a major factor contributing to the popularity of coastal areas as a place to live. Therefore it is most likely that population growth will focus on the coast rather than inland areas. Appropriate policies must be in place to accommodate the future expected growth in population along the coastline. For instance, in Darwin the Committee was informed that the Northern Territory Government has prepared a land use structure plan for the future development of the Darwin region which recognises the special needs of the coastal zone and identifies suitable land sufficient for all land uses anticipated for a regional population of approximately one million.[1]

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1 *Submission* No. 190 - Government of Northern Territory, December 1990.

Urbanisation

2.5 The development of urban centres and townships generates demand for land for residential, industrial and commercial purposes and requires the provision of infrastructure services such as garbage and sewage disposal, water and electricity supplies, roads and transport facilities.

2.6 Linear, or 'ribbon', development is common along the coastline, alienating more of the coast than might otherwise be necessary to accommodate the population. Land blocks with a 'water view', or in close proximity to the seashore are highly sought after. Pollution control and the provision of infrastructure and services for ribbon development are generally more difficult and costly compared to centralised or nodal development. In other areas rural residential development and acreage living are popular and estates sometimes extend to the ocean front. These large homesites are usually unsewered and have few coordinated infrastructure services, making environmental management difficult and often ineffective.

2.7 Growing demand for residential development close to the sea has seen the proliferation of canal estate developments around Australia. This type of development was identified in numerous submissions as a matter of concern because these estates frequently displace natural wetland habitats. This is not a new issue, however, as the matter was raised by the Environment and Conservation Committee in its 1980 report, when the principal areas of canal development were Brisbane, the Gold Coast and the central coast of New South Wales. In 1990, the ERA Committee observed new developments at Chelsea in Victoria and Mandurah in Western Australia.

Sewage Disposal

2.8 The use of oceans and rivers by public authorities around Australia to assimilate effluent is probably the major contributor to pollution of the coastline. Disposal into the sea of effluent treated to a primary or secondary level takes place in each capital city in Australia, except Canberra, and in smaller communities all along the settled areas of the coastline. Along the New South Wales coastline, for instance, there are 46 sewage outfalls.[2] Victoria has approximately 17 outfalls discharging into its coastal waters and Port Phillip Bay.

2.9 Much attention in recent times has been focussed on the disposal of sewage into the ocean off Sydney. About 75% of Sydney's sewage is discharged directly to the ocean after primary treatment; the remaining 25% is discharged initially to inland rivers after secondary treatment. Problems are also evident in the other States. In South Australia, nutrient enrichment from the disposal of secondary treated sewage into the sea is seen as a major factor in the loss of seagrasses and the growth of nuisance seaweed in Gulf St. Vincent.[3]

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2 *Evidence*, Sydney, 15 November 1989, p 199.

3 *Submission* No. 145 - Government of South Australia, October 1989.

Panel 2A Population Pressure in Northern New South Wales

The population estimates for the year 2016 indicate that the largest non-metropolitan local government areas in New South Wales will be on the coast, such as Lake Macquarie, Coffs Harbour and Wollongong. The New South Wales Department of Planning has concluded that:

> the State can look forward to greater concentration of its population on the coastal fringe, dominated by a region of continuous urban development stretching from Port Stephens through Sydney and into Shoalhaven.[4]

The north coast region is experiencing a particularly high rate of population growth. The north coast of New South Wales, which accounted for 16% of the population growth of the State between 1981 and 1989,[5] has a population of approximately 390,000 which the Department of Planning expects to rise to about 645,000 by 2016. The Committee was told:

> the population [of the north coast region] is growing at around 5% per year by immigration ... people are coming here because it is a pleasant place to live. It has clear skies, open beaches, uncrowded amenities, largely pristine rainforests. By 2011, when the population has virtually doubled, the place will become so unpleasant to live in that the net migration in will be met by the net migration out.[6]

At a public hearing in Coffs Harbour in July 1990, the Committee heard how urban population growth and urbanisation had generated a great deal of local conflict about the use of certain coastal areas for urban and resort development.[7] Witnesses were concerned that the problems that led them to leaving the major urban centres would be repeated in these small coastal townships.

Urban Stormwater Runoff

2.10 Urban stormwater is another major source of coastal water pollution. The runoff flows into drains and stormwater channels which usually empty into natural waterways. Urban stormwater runoff can contain suspended solids, organic nutrients (nitrogen and phosphorus), pesticides, decaying organic matter, micro-organisms, surfactants and a considerable amount of plastics, rubbish and other floating litter. Research indicates that the general chemical and biological loads of urban runoff are similar to that of sewage.[8] Rarely, however, does it receive any form of treatment before entering rivers, bays or the

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4 Standing Committee on State Development, *Coastal Development in New South Wales*, Discussion Paper No. 2, November 1989, p 26.

5 Department of Planning, *Major Demographic Trends in New South Wales*, 1990.

6 *Information Seminar*, Centre for Coastal Management, Lismore NSW, 19 July 1990, p 70.

7 *Evidence*, Coffs Harbour, 20 July 1990, pp 660-680.

8 *Submission* No. 164 - Government of New South Wales, October 1989.

ocean. This leads to concerns about public health and short term contamination of swimming and bathing areas. Longer term problems include adverse effects on ecosystems, bioaccumulation of toxins within the food chain and changes to the nature and usage of coastal areas. Control of this form of pollution is difficult because it comes from a range of small and widely spread sources, including industrial waste discharges, road runoff and domestic wastes.

2.11 In Sydney, for example, urban runoff flows into the stormwater drainage system and then empties into the Harbour and the ocean via drainage outfalls which are often located on or near beaches. When Clean Up Australia held its first activity, the 'Clean Up the Harbour Day' in January 1989 more than 5,000 tonnes of rubbish was collected from the harbour and its foreshores. The stormwater system is also used as a 'safety valve' for the sewerage system. A review of the Water Board's Protection Program found that beaches around Sydney are significantly affected by sewer overflows.[9] This conclusion is supported by the Sydney Coastal Councils' submission to this inquiry, which observed that the water emanating from the drainage outfall at Bondi beach is heavily polluted by sewage bacteria and that raw sewage has been seen in the stormwater drain after heavy rains (see also panel 2B).[10]

Panel 2B **Stormwater and Lake Patawalonga, Adelaide**

Problems with urban runoff are also of concern in metropolitan Adelaide. Stormwater has been identified as a major source of faecal bacteria in Lake Patawalonga at Glenelg, which the Committee inspected in August 1990. Runoff from approximately 11 local government councils is directed into the Patawalonga via stormwater channels. The biological condition of the lake is such that the Council of the City of Glenelg has banned contact water sports. The polluted waters of the Patawalonga are flushed into the sea through loch gates at Glenelg beach. The discharge of these waters has led to a decline in seagrasses in the vicinity of the outlet and has also affected the quality of the local beaches.

Providing a Place to Work

Industrial Pollution

2.12 Industries have for many years discharged or disposed of effluent and wastes either directly into rivers and oceans or into sewerage systems. The effluent may include metals, organochlorines, chemicals, animal wastes, by-products of food processing and other waste products. Some of the effects on the coastal environment include degradation in water quality of oceans and rivers, the potential concentration of toxic chemicals in fish, the contamination of sediments, a loss of resources including damage to fisheries, greater strain on existing infrastructure and a reduction in the recreational amenity of coastal areas.

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9 Camp Dresser & McKee International, *Review of Sydney's Beach Protection Program*, 1989, p 2-7.

10 *Submission* No. 137 - Sydney Coastal Councils, September 1989.

2.13 There are several well-known areas of serious industrial pollution in Australia. The Committee's attention was brought in particular to the condition of Botany Bay in New South Wales, Cockburn Sound in Western Australia, the Derwent and Tamar rivers in Tasmania and the north west coast of Tasmania around Burnie and Devonport (see panels 2C and 2D).

2.14 The CSIRO mentioned in its submission that heavy metal discharges are potentially very damaging pollutants of the marine environment and that other industrial wastes of concern are organic compounds such as pesticides, PCBs, pulp-mill by-products and petroleum hydrocarbons. These pollutants are known to be toxic to marine creatures and in low concentration may cause disorders such as internal and external deformities and breeding abnormalities.

Panel 2C **Industrial Pollution in Cockburn Sound**

Cockburn Sound is characterised by a heavy concentration of industry along the coastal strip between Fremantle Harbour and Cape Peron. The region has developed in the absence of formal planning guidelines. Among the industries located in the area are iron and steel works, an oil refinery, an alumina refinery, a cement works, chemical plants, meat and fish processing sites, abattoirs, power stations and facilities for ship maintenance, fishing and tourism.

Cockburn Sound Conservation Committee, a body consisting of representatives of the local government councils and several State authorities, noted in its submission that 'many of these industries have been the cause of severe pollution in the Sound, which has resulted from poor environmental control by successive governments. Significant accumulation of contaminants in the ground water, sediments and biota of Cockburn Sound has diminished the utility of these resources'.[11] The Conservation Committee concluded that the local coastal area and marine environment has been 'placed at risk due to poor environmental planning and poorly considered developments, which have used the Sound as a sewer for waste without attempting waste minimisation or recycling schemes'.[12]

Environmental studies have shown that industrial development has placed considerable stress on the marine environment of the Sound. Industrial discharges have resulted in a massive loss of seagrass meadows (about 80%) and heavy metal contamination of marine sediments and animals in the Sound.[13]

11 *Submission* No. 84 - Cockburn Sound Conservation Committee, September 1989.

12 ibid.

13 Environment Protection Agency, Western Australia, Bulletin 364, November 1988.

Panel 2D Industrial Pollution in Tasmania

Tioxide Australia Pty Ltd operates at Burnie in north west Tasmania. The Company processes ilmenite (iron and titanium) to produce titanium, which is used in paints, and discharges its effluent into Bass Strait. Tioxide mentioned in its submission to the Committee that control of the quality of wastewater from the plant is difficult. The effluent is discharged into Bass Strait by pipeline three kilometres offshore where it is neutralised by the seawater. The effluent contains iron sulphate which, when mixed with seawater, forms a very dilute iron oxide that can discolour beaches and in-shore waters.[14]

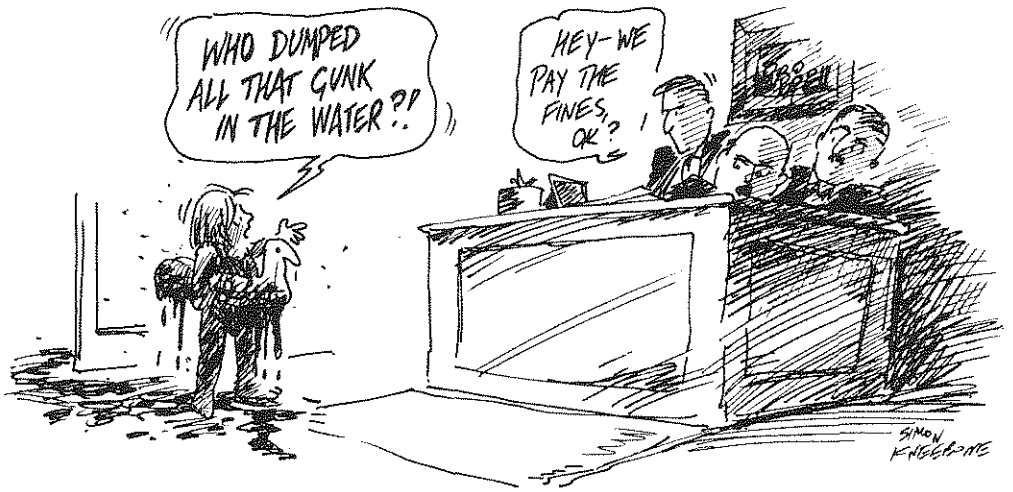
Tioxide Australia Pty Ltd contracted CSIRO to undertake a survey of the waters surrounding its discharge point to determine the levels of heavy metals in fish and marine sediments. Benthic surveys of the seabed sediments and local species identified that the effluent had a minor local impact. The levels of metals in fish were found to be low and there was no evidence of significant contamination of the sediments. The primary impact of the effluent was the noticeable visible discolouration of the inshore waters.

The Electrolytic Zinc Company of Australasia Ltd (Pasminco EZ) informed the Committee of the reduction in heavy metal discharges from its Hobart plant that had been achieved since the 1970's, when there was widespread concern about the high levels of mercury and other heavy metals in the Derwent. The company undertook several projects including the introduction of a mercury removal plant and a contaminated water plant. These and other projects cost $23 million (May 1989 prices) and, according to the company, they have had a very pronounced effect on reducing the discharge of metals to the Derwent.

A representative of Pasminco EZ told the Committee, at a public hearing in Hobart in September 1990, of the results of an analysis of shellfish and flathead samples from the river that were released by the Tasmanian Department of the Environment in 1988. These results showed that concentrations of mercury had declined to well below Public Health regulations and that the Derwent satisfied the local guidelines for levels of metals in swimming quality water. The company representative suggested that the current problem for the Derwent is the level of faecal contamination from sewage systems discharging into the river.

The Committee also held informal discussions with these companies and Associated Pulp and Paper Mills at Burnie and Wesley Vale. The Committee found all three companies concerned about the environmental effects of the discharge of effluent from their plants. The companies stressed that the recent change in community concern about the environment had affected their operations but existing practices could not be changed relatively quickly. All three companies had in recent times spent considerable sums on equipment to improve the quality of the effluent discharges. A significant factor mentioned by all the companies that would have a major impact on operations, was the State Government plan to introduce new pollution standards by 1994 and phase out the existing Ministerial exemption system.

14 *Submission* No. 19 - Tioxide Australia P/L, August 1989.



Transport

2.15 As the coastal zone is the focus of a high proportion of Australia's economic activity, transport links are a feature along the coast.

2.16 Marine transport is of vital importance because ports remain the principal means of transport of goods into and out of Australia. The Port of Melbourne, the busiest port in Australia, handled merchandise worth more than $23 billion in 1987-88, representing 27% of the total value of Australia's international trade.[15]

2.17 Commercial ports require deep protected water and suitable flat land and they need to be in close proximity to markets and support services, including road, rail and pipeline systems. Port operations may conflict with other uses of the coast and have serious effects upon water quality, natural habitats and public access.

2.18 Maritime activities continually place coastal waters and harbours at risk of pollution by the various forms of liquid hydrocarbons, chemicals, bulk and packaged noxious substances and waste products either carried or generated on board ships.

2.19 The primary risk to the coastal environment by ship sourced pollution is from oil spills. In 1986 there were 142 marine oil spills. Almost 90% of these occurred within port limits, and 50% required clean up action.[16] In order to deal with such contingencies, the Commonwealth and States have developed the National Plan to Combat Pollution of the Sea by Oil in co-operation with private industry. The Plan is funded by a levy on commercial shipping using Australian ports.

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15 *Submission* No. 173 - Government of Victoria, May 1990.

16 *Submission* No. 142 - Department of Transport and Communications, October 1989.

2.20 Three further problems that were brought to the Committee's attention were: waste and rubbish disposal from shipping; ballast water discharge; and the use of anti-fouling paints on ships.

2.21 The dumping of rubbish, litter and refuse by marine vessels at sea which then fouled local beaches was raised in submissions from Geraldton in Western Australia, East Geelong in south western Victoria, and Yeppoon in Queensland.[17] This problem is also a matter of concern in the remote north east of Western Australia. It was mentioned in the submission of the Wyndham Shire Council[18] and by aboriginal communities during the Committee's visit to the Cape Leveque peninsula north of Broome who were concerned about the impact of the activities of Indonesian fishermen in the region. The Department of Primary Industries and Energy mentioned that, apart from polluting beaches, the disposal of wastes from foreign vessels can pose a quarantine risk. Wastes from marine vessels are presently disposed under controls imposed by the Quarantine Act; however, even though the Department notes this is likely to become less acceptable on environmental grounds, at present dumping at sea is also an acceptable option.[19]

2.22 Ballast water discharged from Japanese woodchip carriers appears to be responsible for the introduction into Hobart waters of an exotic microscopic algae, toxic dinoflagellate phytoplankton.[20] Another two species have become established in Port Phillip Bay, Melbourne and at Port River, Adelaide, probably from the discharge of ballast water by international shipping.[21] Blooms of these toxic dinoflagelate phytoplankton led to the occurrence of 'red tides' in Port Phillip Bay and at Port River. Not only do they discolour water, toxic dinoflagelates can cause health problems for humans who consume contaminated shellfish and seafarm products.[22] CSIRO is conducting research into the ballast water problem and the Australian Quarantine and Inspection Service advised the Committee that it is developing control procedures in consultation with environmental and industry interests.[23]

2.23 The Committee is most concerned about the introduction of exotic micro-organisms into Australian waters through ballast water discharged by foreign vessels, the disposal of wastes and rubbish at sea and the possibility of the introduction of animal diseases into remote areas of the north west by the activities of Indonesian fishermen in that region. Existing Commonwealth practices with regard to these particular matters need to be examined and improved.

2.24 More than 70% of the vessels in the world's deep-ocean fleets, and many small recreational craft, use anti-fouling paints based on a toxic organic compound, tributyltin

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17 *Submission* No. 115 - Greenhead Ratepayers and Progress Association, September 1989.
Submission No. 32 - Ms G Palmer, August 1989.
Submission No. 2 - Livingstone Shire Council, Qld, June 1989.

18 *Submission* No. 160 - Shire of Wyndham-East Kimberley, WA, November 1989.

19 *Submission* No 129 - Department of Primary Industries and Energy, October 1989.

20 ibid.

21 *ibid.*

22 *Submission* No. 122 - CSIRO, September 1989.

23 *Submission* No. 129 - Department of Primary Industries and Energy, October 1989.

(TBT) to keep the hull and bottom of ships free from barnacles and other marine organisms. TBT anti-foulants are widely used in Australia. Oyster farmers in the Hawkesbury River in New South Wales were concerned about the effect upon oysters and research conducted by CSIRO showed that oyster shell deformities and high concentration of TBT are connected.[24] Subsequently, the State governments of New South Wales, Queensland, Victoria and Tasmania banned the use of TBT-based anti-fouling paints in vessels less than 25 metres in length.

2.25 This matter was mentioned to the Committee by a variety of people and organisations, including the South Australian Fishing Industry Council, which requested that uniform legislation concerning the use of TBT apply to all States.

Agriculture and Forestry

2.26 The coastal zone is an area of intensive agricultural production with approximately one-third of the coastal lands being used for agricultural and pastoral purposes.[25]

2.27 Runoff from agricultural areas carries soil particles, nutrients contained in fertilisers and pesticides into coastal waters. The sediments carried by rivers may blanket those organisms that inhabit the bottom of the sea and can also contribute to high levels of turbidity in coastal waters.

2.28 The high levels of nitrogen and phosphorus carried in agricultural runoff can lead to the eutrophication of estuaries.[26] Nutrient loadings in most of the estuaries of Western Australia, for example, have generated considerable concern. The problem is most evident in the Peel-Harvey estuary, where a study conducted in 1982 found a relationship between the level of superphosphate application to agricultural lands and phosphorus input to the river. The nutrients caused excessive growth of blue-green algae which led to offensive odours and unsightly scums in the estuary and a reduced crab and prawn catch.[27] In order to ameliorate this problem, the State Government has undertaken an engineering solution, at a cost of some $55 million, to excavate a channel (known as the Dawesville cut) to allow waters to flush through the estuary.

2.29 In Victoria, eutrophication caused by nutrient rich agricultural runoff has occurred in the Gippsland lakes. Runoff laden with fertilisers and sediment is implicated as the probable cause of seagrass disappearance in Westernport Bay in Victoria. The impact of sediment and rubbish in Port Phillip Bay has led to the need for constant dredging of resultant siltation.[28]

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24 *ECOS,* Summer 1989-90.

25 Department of the Arts, Heritage and Environment, *State of the Environment in Australia 1985,* p 139.

26 Eutrophication is a process whereby nutrients entering waterways accelerate algae growth on the water surface. This algal cover deprives deeper waters of oxygen and light, killing most marine organisms.

27 Department of the Arts, Heritage and Environment, op cit, p 137.

28 *Submission* No. 151 - Geelong Environment Council (Inc), October 1989.

2.30 The then Department of Arts, Heritage and Environment reported in the *State of the Environment in Australia 1985* that clearing of forests for woodchipping, with inadequate controls during the operation, had caused an increase in the levels of turbidity, erosion and large scale nutrient export at Twofold Bay in New South Wales and Mallacoota Inlet in Victoria. The report noted that forestry practices were improved to reduce the effects of these problems.

2.31 A matter of considerable concern to the Great Barrier Reef Marine Park Authority (GBRMPA) is the effect of nutrients (nitrogen and phosphorus) on the coral reef. The Authority noted that:

> increased nutrient levels have been shown to cause progressive degradation of the biological communities of coral reefs ... these changes are accompanied by massive weakening of the reef structure itself.[29]

Increased phosphorus levels reduce the structural strength of coral and increased levels of nitrogen reduce the ability of some coral species to compete with algae and other organisms.

2.32 Monitoring by GBRMPA has shown that the levels of nitrogen and phosphorus in some near shore areas of the Marine Park at times exceed levels which can cause stress or death to some species of coral. Apparently, runoff from farmland and discharge of sewage are the dominant sources of these nutrients.[30] The Authority commented that if the levels of these two nutrients continue to rise then a gradual degradation of corals of some parts of the reef will occur.

2.33 GBRMPA is also concerned about the turbidity of waters in the Marine Park since it does affect the health of some coral species. Soil erosion from adjacent coastal farmlands is contributing to the turbidity problem as the eroded material is deposited into reef waters. GBRMPA is working with various government agencies, private groups and the farming community to change farming practices.[31]

Fishing

2.34 The value of Australia's fishing industry in 1989-90 was $837 million. Aquaculture, or fish farming, for the same period was valued at $220 million.[32] Approximately 25,000 people were employed in the catching and processing of fish products in 1987. There were 9,000 licensed vessels in 1985 and, in most fisheries, owner-operator enterprises dominate.

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29 *Submission* No. 125 - Great Barrier Reef Marine Park Authority, October 1989.

30 It was reported in *The Australian*, 15 January 1991 that GBRMPA had directed island resorts along the Reef to upgrade the sewage treatment systems within 5 years, to provide for the removal of phosphorus and nitrogen from the effluent.

31 GBRMPA, *Annual Report, 1989-1990*, p 2.

32 *Comments on Discussion Paper*, Department of Primary Industries and Energy, January 1991.

2.35 Australia declared a 200 nautical mile fishing zone in 1979, resulting in a fishing zone of 9 million square kilometres. Under the Offshore Constitutional Settlement which came into effect in 1983, jurisdiction over different fisheries is divided between the Commonwealth and State governments. In general, the Commonwealth is responsible for management of fisheries involving offshore areas and State governments are responsible for inshore fisheries and those offshore fisheries occurring in waters adjacent to single States.

2.36 The Australian fishing industry is small and fisheries are not particularly productive because Australian waters, with the exception of Bass Strait, St Vincent's Gulf and the Gulf of Carpentaria, are generally low in nutrients and fish stocks. A significant recent trend is a gradual decline in the total fisheries production since 1983-84. Australia appears to have reached or gone beyond the maximum production achievable in the majority of its fisheries.[33] To meet this and other problems in the industry, the Commonwealth is establishing an Australian Fisheries Management Authority.

2.37 The South Australian Fishing Industry Council, as noted above, mentioned that disposal of waste and rubbish from ships, ballast water discharge and use of anti-fouling paints are of concern to the fishing industry because of the effect upon the marine food chain. The fishing industry is also concerned about the impact of coastal developments on water quality, the destruction of mangrove areas and seagrasses, water pollution from sewage discharges and agricultural runoff.[34]

2.38 Approximately 4.5 million Australians enjoy recreational fishing each year.[35] According to the Australian Recreational and Sport Fishing Confederation, total expenditure on recreational fishing for 1989-90 was in the order of $3.1 billion. The Confederation is concerned about the conservation of fish breeding grounds, principally estuaries, mangroves and wetlands.

2.39 Aquaculture is an industry that has excited considerable interest in recent years but, apart from the pearling and Sydney rock oyster industries, it is an immature industry with few experienced operators, a small research base and an estimated 1,700-2,000 persons in employment. The Review Committee on Marine Industries stated that fish farming offers a major opportunity to Australia, since it has considerable competitive advantages such as the long coastline, relative lack of pollution, wide range of climates, absence of serious disease and the ability to sell off-season to Europe, USA and Japan. The significance and possible future importance of the fledging industry is well reflected in the rapid increase in value of aquaculture, which has risen from $105 million in 1987-88 to $220 million in 1989-90,[36] the major factors being Sydney oysters ($60m), pearl oysters ($70m) and salmonoids ($50m).

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33 Review Committee on Marine Industries, Science and Technology, *Oceans of Wealth*, 1989, p 16.

34 *Submission* No. 56 - South Australian Fishing Industry Council, September 1989.

35 *Submission* No. 161 - Australian Recreational and Sport Fishing Confederation, November 1989.

36 During its visit to North Queensland the Committee inspected the experimental prawn ponds of the Mosman Hill Company Limited. The company was optimistic about the venture, in which it has invested $1 million and hopes to produce 6000 tonnes of prawns per year. The company is also contributing to a research program at the Australian Institute of Marine Sciences on prawn spawning.

Mining

2.40 Mining in the coastal areas of New South Wales and Queensland for mineral sands has been carried out for over 100 years. Currently, mining takes place primarily in Queensland, New South Wales and Western Australia. Australia has vast reserves of mineral sands and is now the world's largest producer, with export earnings of $800 million in 1989. The industry employed 3,500 persons in 1990.[37]

2.41 Mining can significantly alter the coastal landscape and the chemical and physical environment and can lead to degradation of the ecosystem. It also can contribute to a decreased ability of waterways to self-purify, significantly alter flora and fauna communities, contribute to vegetation loss, and reduce the aesthetic quality and recreational amenity of waterways and coastal areas.

2.42 Conflicts between mining and conservation interests have been occurring since the 1960's at the Myall Lakes and other north coast areas of New South Wales, Stradbroke Island, Moreton Island and Fraser Island. Negative community reaction in the 1970's, primarily on aesthetic and environmental grounds, severely restricted the operations of the industry. It was mentioned at the 1986 Coastal Management Conference at Coffs Harbour that '45% of the known economic mineral sands resources on Australia's east coast have been frozen because of environmental considerations'.[38] Contributing to this was the decision by the New South Wales Government to prohibit mining in national parks and reserves.

2.43 In its submissions to the Committee, the mineral sands industry emphasised its ability to rehabilitate coastal mining sites to required standards for wildlife or community use. The industry also argued that, as mining is a temporary land use which can be conducted without compromising long term alternative activities, the concept of multiple land use regimes should be adopted. The industry considers that it has the potential to make a major contribution to Australia's economy in the 1990's.[39] The Committee notes however that the existence of aboriginal song lines on the coast in the north of Western Australia would be a complicating factor for any mining activity in that region.

Oil/Natural Gas Exploration and Production

2.44 The principal areas of oil and gas production in Australia are Bass Strait and the north-west shelf while the offshore continental shelf is seen by the industry as the area with the greatest potential for oil discoveries. Currently, almost 90% of oil production is

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37 *Submission* No. 131 - Association of Mining and Exploration Companies Inc, September 1989.
Submission No. 187 - Australian Mineral Sands Producers Group, October 1990.

38 National Conference on Coastal Management, Coastal Management and Mining, Australian Mining Industry Council, 1986.

39 *Submission* No. 130 - Association of Mining and Exploration Companies Inc, September 1989.
Submission No. 189 - Australian Mineral Sands Producers Group, November 1990.

from offshore basins and 80-90% of all gas reserves are offshore.[40] Oil and gas production is Australia's largest marine industry with a production value in 1986-87 of $5.1 billion.[41] The various taxes and excises on oil contributed over 6% to Commonwealth revenue that financial year.

2.45 The primary environmental concerns about petroleum exploration and development are the effects of seismic surveys on marine life during the exploration phase and possible blow-outs or oil spills during production.

2.46 The Australian Petroleum and Exploration Association (APEA) told the Committee that the compressed air system is the most widely used seismic system and has negligible environmental effects or disturbance of marine life. With regard to oil blowouts or spills during production, at present all drilling programs under the Commonwealth *Petroleum (Submerged Lands) Act 1967* must incorporate protective devices and early warning systems to prevent/limit oil spills. All proposals for exploration or production wells must also have detailed oil spill contingency plans.[42]

2.47 The petroleum industry has its own contingency plan and resources to respond to spills at industry installations, known as the Marine Oil Spills Action Plan (MOSAP). The Plan is funded by the oil industry.[43] The industry recently announced that it will establish a marine oil spill response centre this year which will provide equipment and training to combat oil spills and be on 24-hour stand-by.[44]

2.48 APEA stressed to the Committee that the petroleum industry 'has an excellent environment record'. The Department of Primary Industries and Energy noted that, since the enactment of Commonwealth legislation in the mid-1970's, over 500 offshore exploration and development wells have been drilled without evidence of any significant effect on the environment. In addition, APEA has developed a voluntary code of environmental practice onshore and offshore to supplement Commonwealth, State and local government regulations. This code provides guidelines to assist in minimising or preventing damage to the environment as a result of petroleum exploration, development, production and/or abandonment.[45]

2.49 APEA also argued that, while petroleum projects may temporarily change the aesthetics of an area, these activities do not imply a long-term diminution of conservation values and are therefore compatible with most land uses, including those specific to coastal regions.

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40 Review Committee on Marine Industries, Science and Technology, op. cit., p 45.

41 ibid.

42 *Submission* No. 112 - Australian Petroleum and Exploration Association, September 1989.

43 *Submission* No. 129 - Department of Primary Industry and Energy, October 1989. Arrangements are in place for MOSAP resources to be used in the event of a ship sourced spill being beyond the capabilities of the National Plan to Combat Pollution at Sea operated by the Commonwealth and State Governments and vice versa.

44 *The Australian Financial Review*, 30 November 1990.

45 *Submission* No. 129 - Department of Primary Industries and Energy, October 1989.

Providing a Place to Relax

Tourism

2.50 The beautiful and extensive Australian coastline is a major tourist attraction both for domestic and for international travellers.

2.51 Tourism is a major economic activity in Australia, providing considerable employment opportunities and income. It is estimated that tourism activities contributed about 5.2% to gross domestic product in 1989-90 and accounted for some 448,000 jobs, or 5.9% of the workforce.[46] International tourism in 1988-89 generated foreign exchange earnings of $6.5 billion, displacing wool production as the nation's prime generator of export earnings.[47] Domestic tourism expenditure for the same period is estimated at $16.3 billion.[48]

2.52 The Government of New South Wales stated in its submission that, as an indication

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46 Bureau of Tourism Research, *Australian Tourism Data Card*, 1990.

47 However, whilst international tourism is estimated to generate foreign exchange earnings of some $6.5 billion, many inputs to tourism are imported and many tourist operations are foreign-owned and repatriate their profits. It has been argued that the net foreign exchange benefit to Australia is considerably less than appears at first sight. The Commonwealth and Queensland Governments announced in January 1991 that they are jointly funding a case study on the impact of foreign investment in tourism. Attention will be paid to, amongst other matters, the social impacts of foreign investment on local communities.

48 Bureau of Tourism Research, *Australian Tourism Data Card*, 1990.

of the importance of the coastal area for tourism, 50% of domestic travel is concentrated in this area (excluding Sydney). Over 36% of all hotel and motel rooms in the State are in coastal regions outside Sydney, and approximately $2 billion, or 12%, of total investment in New South Wales in tourism plant is committed for the coastal region.[49] The New South Wales Government concluded that the coastal regions are the most significant tourist visitation areas in the State.

2.53 The Committee received many submissions, particularly from Queensland, expressing reservations about the effects of tourism. The principal environmental concerns arise from the extensive array of coastal developments being proposed along the entire coastline, the cumulative effects of these developments and related infrastructure required to accommodate the predicted increase in tourist numbers, and the perceived inability of local and regional planning systems to cope with the scale of development in some areas.[50] Tourism can also lead to urbanisation and development of some of the most environmentally attractive areas. Other concerns relate to possible socio-economic effects on the local community, such as higher costs for land.

2.54 In as much as the tourism industry contributes significantly to environmental degradation, it carries with it the seeds of its own demise. Uncontrolled development associated with any attraction may result in destruction of the very qualities which attracted visitors in the first place. GBRMPA, in its submission, points out that the Great Barrier Reef is regarded as one of the nation's greatest attractions and that anything seen to threaten the natural qualities of the reef will have an effect on the related tourist industry. However, as was mentioned at the Committee's workshop by Mr Jim Wallace of Quicksilver Connections at Port Douglas, there is an increasing awareness amongst tourism operators about the potential effects of their activities on the natural environment and the need to protect the attraction.

2.55 Indeed, with regard to the Great Barrier Reef, Mr Wallace suggested that often the local residents (local tourists) are more likely to have a harmful impact on the reef. He mentioned that local boats are the main cause of anchor damage to the reef. Often these boats do not have sewage holding tanks and rubbish is frequently not disposed of responsibly from these vessels.[51]

2.56 In July 1990 the Australian Tourism Industry Association released a Code of Environmental Practice which raises the issues that should be considered when tourism infrastructure is being planned. Designed to complement existing legislation, the Code sets out broad principles for the tourism industry to follow in the establishment and operation of tourism related enterprises and forms a basis for raising industry awareness of environmental management.

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49 *Submission* No. 164 - Government of New South Wales, October 1989.

50 As at March 1990 the value of major tourist projects (of over $5 million) under construction in Australia was $8,800 million. (Bureau of Tourism Research, 1990)

51 Workshop, Canberra, 26 October 1990, p 54.

2.57 The Senate Standing Committee on Environment, Recreation and the Arts has recently recommenced its inquiry about the environmental impact of tourism developments particularly in the coastal zone and national heritage areas. It is also considering the role of foreign investment in tourism developments and the net benefits of overseas tourism. The RAC will also consider some of these matters in its inquiry into the use of the coastal zone for building, tourism and associated development.

Panel 2E Visual Detractions

Certain developments on lands adjacent to the coastline may constitute an 'eyesore'. Sewage treatment farms or tourist resorts may be aesthetically displeasing and detract from the natural beauty of the shoreline. Multistorey buildings located close to or on beach foredunes, or hotel resorts located close to headlands, may be inappropriate. These are matters of individual and community standards and taste but can represent a degradation of the visual quality of the coastal environment. This matter will be considered in some detail during the inquiry by the Resource Assessment Commission.

Recreation

2.58 The coast is the major focus of recreational activities for Australian and foreign tourists. The many leisure activities undertaken at the coast, such as fishing, swimming, surfing, sailing, windsurfing, camping, walking and picnicking usually require public facilities to be provided close to the foreshore. These include toilets and changing blocks, launching ramps, marinas, jetties, walkways and cycleways, caravan parks, camping grounds, car parks, sporting facilities and garbage collection and disposal services.

2.59 Local government councils that provide and maintain these facilities and services, which are used by visitors as well as by local residents, bear a considerable financial burden. A number of councils have argued that they should receive financial assistance for providing these facilities.[52]

Panel 2F The Importance of the Coast for Recreation

The importance and value of the coast for recreation was indicated in the report *Oceans of Wealth*, which noted that an estimated 1.85 million Australians are active surfcraft users and 54,000 recreational scuba divers gained certification in 1987.[53] Queensland and South Australia have the greatest ownership of boats per head of population. In South Australia, 1 in 19 persons owns a boat and there are some 66,000 registered and unregistered marine craft. In Queensland, some 500 cruise operators working from marinas generate $125 million per year.[54]

National parks, reserves and conservation areas along the coastline also provide for bushwalking and other forms of recreation and conserve significant features of the natural and cultural heritage of Australia.[55] In 1982 17,300 square kilometres (14%) of the Australian coastal zone was included in conservation areas. In New South Wales, for example, there are 36 national parks, nature reserves and state recreation areas immediately adjoining the coast. These reserves total some 160,000 hectares and occupy 33% (or 480 kilometres) of the New South Wales coastline.

One of the special features of the coast in Australia is that most of it is publicly accessible; for instance, in Western Australia the State has retained public ownership of 99.1% of the coastline and in Victoria more than 90% of the coast is in public ownership.

52 *Submission* No. 153 - Bayside Councils' Association, Victoria, November 1989
Submission No. 68 - City of Stirling, Western Australia, August 1989.
53 Review Committee on Marine Industries, Science and Technology, op. cit., p 37.
54 *Evidence*, Adelaide, 9 August 1990, p 778.
55 *Submission* No. 164 - Government of New South Wales, October 1989.

Protecting Coastal Properties

Coastal Engineering

2.60 The coastline is a dynamic environment continually reforming and changing as it is subject to natural processes such as wind and wave movement and erosion. Beaches and sand dunes erode and are rebuilt; sand dunes migrate inland as a result of wind attack; sections of the coastline are receding and moving inland.[56]

2.61 Coastal protection structures such as seawalls, groynes and breakwaters are used to protect coastal property and shorelines. Indeed such structures are now accepted features of the coastal environment and tend to characterise more intensely developed areas of the coastline. An often overlooked aspect of the design of such protection structures is an assessment of the associated environmental effects. Engineered 'solutions' to coastal stabilisation often foreclose the environmental resilience of the natural systems, and frequently fail to take into account ecological processes and create artificial systems that become increasingly difficult to maintain with time.

2.62 Protection works can have significant impacts on areas outside those being protected because they interfere with natural processes. Unless carefully designed and constructed, structural works, by reason of their location within the active beach zone, can have a number of unforeseen detrimental effects on amenity. Groynes can provide coastal protection and increase amenity by building a wider beach for example, but erosion tends to occur along the section of beach down drift of the groynes field.[57] The use of training walls and groynes to stabilise the entrance of the Tweed River in New South Wales has decreased the longshore drift of sand northwards to the beaches of the Gold Coast.

2.63 Most State governments have created an authority which has responsibility for the provision of coastal engineering works. It should be noted that until now there has been a tendency for coastal management to be dominated by engineers. It is evident that coastal management can no longer remain the domain of a single discipline but must involve the numerous other relevant disciplines.

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56 New South Wales Government, *Coastline Management Manual*, September 1990, p 28.

57 ibid.

Panel 2G Pressures upon Aborigines in Remote Areas

During its visit to Broome and aboriginal communities in the remote Cape Leveque peninsula (north of Broome) the Committee was informed of aboriginal concerns about the effects upon the coastline of increased tourist activities and developments, mineral exploration and the illegal fishing of trochus shells by Indonesian fishermen.

Aboriginal people in this area retain their traditional links with their law, land and resources. Traditional ceremonial activities are still practised and there are numerous sites of mythological and archaeological importance along the coast north of Broome. The entire coast of the peninsula from One Arm Point to La Grange (500 kilometres), covers an ancient song cycle, which reflects the travels and creative activities of ancestral beings and provides a means by which creation stories, ceremonies, laws and rituals are passed between communities. It was emphasised to the Committee that in this region there remains a unique living aboriginal culture focused on the coast.

Local aborigines are concerned that more tourists, tourist developments and mineral exploration will endanger or possibly destroy sites of mythological and cultural importance to them and perhaps disrupt the song cycle.

3. MANAGEMENT OF THE COASTAL ZONE : EXISTING REGIMES

3.1 The management of the coastline, its resources and the offshore waters is shared between the Commonwealth, State and local governments, so current management regimes are both complex and interwoven. In this chapter, the existing management regimes are described, with particular reference to local and State arrangements in New South Wales and Western Australia as examples. The difficulties both inherent to, and created by, the existing framework of coastal management at each level of government are also discussed. Chapter 4 examines the principal issues of the coastal zone, including the problems identified in this chapter, and the solutions suggested to the Committee.

Local Government

3.2 The powers and responsibilities of local government are prescribed by State legislation and vary accordingly from State to State. These responsibilities include such matters as:

- strategic planning;
- land use planning and regulation;
- land management;
- residential and industrial planning and regulation;
- road construction and maintenance;
- water supply and sewerage;
- recreation and related facilities; and
- traffic management.

3.3 Local government therefore has traditionally had responsibility for the development and control of land within the coastal zone. State government agencies, however, usually monitor coastal development and they have undertaken many of the major public works on the coast.

3.4 Land use planning by local government provides the basis for coastal management in all States. In New South Wales, for example, the *Environmental Planning and Assessment Act, 1979* gives local government prime responsibility for planning, so local

councils are the planning and development consent authorities responsible for the management of coastal land. Councils are also responsible for preparing Local Environmental Plans (LEP's), in consultation with the State Department of Planning. LEP's zone land for specific purposes, such as residential, commercial, recreation or environmental protection.

3.5 Local government in New South Wales is therefore the primary authority responsible for granting consent to most coastal developments (sometimes in consultation with State agencies). Permissible developments and the need or otherwise for council consent are usually specified by the LEP. In some circumstances, land uses specified in an LEP may be expanded or restricted by various State Environmental Planning Policies and Regional Environmental Plans.

3.6 When considering development applications, local councils in New South Wales must have regard to matters set out in the Environmental Planning and Assessment Act and the provisions of any State planning policy, including the Coastal Policy. Certain types of development which have a significant affect on the environment, however, have been 'designated' under the Act. In these cases, an environmental impact statement must be lodged with the development application. Provision is made in the Act for appeal to the Land and Environment Court.

3.7 At times, a particular type of development is prohibited by local land use plans or, in large projects involving numerous uses, one or more of the uses may be prohibited. If so, the developer has to obtain the local council's support to prepare an LEP to change the zoning and allow the complete development to proceed. The council must advertise the preparation of the LEP, and the Director of Planning may require the council to have the developer prepare an environmental study.

3.8 In Western Australia, the State government has retained public ownership of the majority of the coastline by means of a policy of not alienating State land and by resuming foreshore reserves when freehold land is subdivided. Local government is usually responsible for this land and is regarded as the custodian of the coast, with the State government taking an advisory role.[1]

3.9 Local government councils in Western Australia have primary responsibility for land use planning under various State Acts dealing with coastal lands and they bear a large proportion of the responsibility for planning and management of the extensive Western Australian coastline. Coastal management plans have been formulated so that land use planning and resource management are melded into a tool to guide development.

3.10 The coastal management plans are generally prepared by the State in conjunction with local authorities, although several councils have initiated coastal plans themselves. Public participation in the process is encouraged. A coastal management plan contains policies and working plans to guide the development of a particular area. Specifically it

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1 *Submission* No. 109 - Government of Western Australia (CMCC), September 1989.

provides guidance on subdivision and development control, reservation of Crown land, works programs, road construction, regulation of off-road vehicles, declaration of soil conservation districts and creation of marine reserves. A coastal management plan goes further than a conventional land use plan or town planning scheme. In addition to incorporating land use planning principles to establish a pattern of zones and reservations, these plans make specific management recommendations necessary to achieve objectives for the utilisation, conservation, protection or restoration of coastal resources. Coastal management plans have been prepared and adopted by 24 of the 45 local councils on the Western Australian coastline. However, because local governments lack resources to fund coastal works programs, none of these plans has yet been fully implemented.[2]

3.11 Local government in all States is at the forefront of the difficult decision-making that effects the coastal zone. Accordingly, when there is controversy about the coastal environment, rightly or wrongly it is local councils that bear the brunt of community conflict. Decisions that might initially have seemed to be isolated or minor, such as the upgrade of a road or the approval of a new hotel, are now being recognised as having wider environmental implications.

State Government

3.12 While a number of issues affecting management of the coastal zone transcend State boundaries, such as aspects of the national heritage and fisheries, coastal zone management is nevertheless regarded as a State responsibility.

3.13 The Committee received submissions from the Northern Territory Government and the governments of all States. Those which provided the most comprehensive information about their role in coastal management were the governments of New South Wales and Western Australia. The arrangements within these States are described in detail here because they provide an illustration of the problems with the existing management regimes. It is emphasised that, by doing so, no criticism of these particular arrangements is intended.

Coastal Management in New South Wales

3.14 The New South Wales Government's wide-ranging responsibilities for coastal management are undertaken by at least 19 departments and authorities:

> *The Department of Planning* is responsible for environmental planning and assessment. It administers the *Environmental Planning and Assessment Act 1979*, which provides for three-tier State, regional and local environmental plans. The Department is also responsible for a policy framework for planning and development within coastal areas and implements a program of coastal land acquisition under the coastal lands protection scheme.[3]

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2 ibid.

3 *Submission* No. 164 - Government of New South Wales, October 1989.

The Public Works Department is the State's construction body and authority on coastal engineering as well as consultant and policy adviser to local government for the protection, maintenance and enhancement of the coastal zone, estuaries and waterways. It administers and manages several programs which impact directly on the coastal zone, including the Country Towns Water Supply and Sewerage Program and the Coastline Hazard Program which also provides for beach improvement projects.

The Department of Lands, as owner and manager of public lands, is responsible for the vast majority of public coastal foreshore lands because all ocean beaches in New South Wales are in crown ownership. It also owns the bed of all estuaries, embayments and oceans to the limit of State waters.

The Soil Conservation Service is involved in ensuring soil and landscape stability and preventing land degradation on coastal lands and has developed considerable expertise in coastal dune management.

The State Pollution Control Commission is responsible for measures to protect the environment and for coordinating the activities of public authorities in respect of such measures. It also administers an approval and licensing system for the discharge of pollutants into waterways.[4]

The National Parks and Wildlife Service is the authority responsible for 36 national parks, State recreation areas and other reserves which adjoin the coast, representing 33% of the coastline.

The Department of Agriculture and Fisheries is responsible for the management of agricultural and livestock resources and for the regulation of fisheries and fish habitats.

The Department of Minerals and Energy has authority for the administration and regulation of exploration and mining activities including mineral sands mining in New South Wales.

The Coastal Committee of New South Wales includes representatives of government agencies, local government and a community group. It is a statutory body responsible for monitoring implementation of the New South Wales Coastal Policy and has a co-ordinating role between State and local government.

The Sydney Water Board is responsible for water supply, sewerage and certain drainage facilities in the Sydney, Illawarra and Blue Mountains region.

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4 The New South Wales Government has recently announced its intention to establish an Environment Protection Agency which would take over the responsibilities of the Commission later this year.

Other government agencies with an interest in coastal zone management in New South Wales are: the Department of Business and Consumer Affairs; the Fish Marketing Authority; the Forestry Commission; the Hunter Valley Conservation Trust; the Hunter Water Board; the Lake Illawarra Authority; the Maritime Services Board; the Tourism Commission; the Waste Management Authority; and the Department of Water Resources.[5]

3.15 The New South Wales Government stated in its submission that:

> there are a multiplicity of programs administered by State agencies and local government aimed at managing specific coastal resources or local problems. These include the coastline *hazards program, waterways program, estuary management program, beach protection* program, fisheries facilities program, dune care program, coastal lands acquisition scheme etc....
>
> A battery of legislative controls is also aimed at specific aspects of coastal resource management. A few examples include, the Coastal Protection Act, Clean Waters Act, Recreational Vehicles Act, Soil Conservation Act, Crown Lands Act, Mining Act, Fisheries and Oyster Farms Act."[6]

3.16 As noted above, overall planning and coordination is achieved through the *Environmental Planning and Assessment Act 1979* which controls land use and the development approval process. It provides for State environmental planning policies and regional and local environmental plans.

3.17 State Environmental Planning Policies (SEPPs), developed by the New South Wales Department of Planning, identify matters of significance for State environmental planning, such as major economic developments. Although State policies provide a framework for local planning, they do not always take precedence. The State government may agree to a later local plan which may vary a State policy because of local circumstances.

3.18 The three most relevant SEPPs in evaluating any proposed coastal development are:

SEPP No. 14 Coastal Wetlands
SEPP No. 19 Urban Bushlands
SEPP No. 26 Littoral Rainforests

3.19 Regional Environmental Plans (REPs) are also prepared by the Department and aim to balance the needs for development and employment with the need to protect the significant environmental qualities of particular regions. Once approved, REPs become law and directly influence local environmental plans. The plans can cover either large geographical regions or a relatively small area. REPs affecting coastal development

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5 Standing Committee on State Development, *Coastal Development in New South Wales, Discussion Paper No. 2*, November 1989, p 95.

6 *Submission* No. 164 - Government of New South Wales, October 1989.

include: the North Coast REP, the Central Coast Plateau REP, and the REP for Gosford Coastal Areas. Therefore as indicated earlier in this section, under the provisions of the State legislation responsibility for administering the State's environmental planning system is shared between local government and the State government.

Panel 3A New South Wales Coastal Policy

In September 1990 the New South Wales Government released its Coastal Policy, the primary aim of which is to 'protect the coastline and beaches for the enjoyment of future generations and to ensure that coastal development is balanced, well-planned and environmentally sensitive'.[7]

The policy covers the entire coast of New South Wales excluding the Sydney metropolitan region, the City of Newcastle and the City of Wollongong. While it is not legally binding on local government councils, they are required to take the provisions of the policy into account when considering development applications and preparing local environmental plans. For the purposes of the policy, the coastal area covers the one kilometre landward strip from the low water mark and extends three nautical miles to sea.

The principal elements of the policy are:

- The continuation of the existing State program to bring unique coastal land into public ownership; public access to beaches will be ensured.
- Urban coastal development will be limited primarily to areas adjacent to existing towns and cities.
- Major tourist developments will generally be clustered around identified tourist growth centres to minimise intrusion on the coastline.
- The height and concentration of developments will be sensitive and appropriate to the local environment.
- Representative coastal species and ecosystems will be protected through continuation of existing wetland and littoral policies.
- A coastline hazards policy to assist local government in dealing with natural coastal hazards and processes.

Responsibility for monitoring the implementation of the policy rests with the Coastal Committee, which the New South Wales Government established to 'overcome the fragmentation of responsibility and ad hoc decision making that has hampered coastal management in the past'.[8]

7 Government of New South Wales, *Coastal Policy for New South Wales*, 1990.
8 ibid.

Coastal Management in Western Australia

3.20 The Western Australian coastline extends some 12,500 kilometres. Again, a number of government agencies, operating under a variety of Acts, have the task of planning and implementing coastal policy. Coastal management in Western Australia combines land use planning and resource management. The goal of coastal planning and management in the State is to achieve a balance between the protection of the environmental quality and provision for the social and economic needs of the community (See panel 3B). Coastal zone management is achieved by means of a set of policies derived from the following legislation:

- A Town Planning and Development Act which deals with land subdivision, development, and provision of access.

- A Marine Act which controls engineering and port administration.

- An Environmental Protection Act which deals with the impact of developments and the management of coastal waters. The Conservation and Land Management Act is used as a basis for the conservation of marine habitats and the establishment of marine parks.

- A Soil and Land Conservation Act which deals with coastal dune management and soil conservation.

3.21 Other legislation which is relevant to coastal management includes:

- The Land Act, which deals with the reservation, management, sale and leasing of Crown land.

- The Local Government Act.

- The Mines Act which deals with mining and resource development in coastal areas.

3.22 A Coastal Management Coordination Committee (CMCC) was formed in 1982 to advise the government on coastal planning, co-ordinate State government activities on the coast and act as a steering committee for the preparation of coastal plans. The Committee is composed of those agencies involved in the coastal zone in Western Australia, viz[9]:

- Department of Planning and Urban Development

- Department of Marine and Harbours

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9 In 1990 the Municipal Association of Western Australia became a member of the Committee.

. Department of Agriculture

. Environment Protection Authority

. Department of Land Administration

. Department of Conservation and Land Management

. Department of Local Government

. Tourism Commission

Two other government agencies that are not members of the Committee but have involvement in coastal matters are the Department of Fisheries and the Water Authority of Western Australia.

3.23 The CMCC, in its submission to the inquiry, stated that 'no coastal management system is perfect; however, with the benefits apparently exceeding the disadvantages at present, Western Australia's approach is generally considered to be successful'.[10]

10 *Submission* No. 109 - Government of Western Australia (CMCC), September 1989.

Panel 3B Western Australian Government Position Paper on Coastal Planning and Management

In 1983, the Western Australian Government published a Position Paper on Coastal Planning and Management in Western Australia with the following goals and policies:

The goal of coastal planning and management is to achieve a balance between the protection of environmental quality and provision for the social and economic needs of the community.

- The Government recognises that the coast is a dynamic environment which requires specialised planning and management.
- Before coastal land is allocated for a particular use the physical capability of the land to support that development should be carefully considered.
- Public access to the coast should be controlled in such a way as to permit its use as a resource and yet minimise costly environmental damage.
- The coast is a visual resource which should be carefully managed. Development which is in harmony with the sensitive nature of the coast should be encouraged.
- Coastal residential development should be concentrated in nodes. Linear coastal residential developments will be discouraged.
- Haphazard squatter shack developments are unacceptable. Public (rental) chalet developments for short term use may be acceptable if properly planned, regulated and serviced.
- Places of unique landscape, scientific and cultural significance should be conserved and managed, including geomorphological, ecological, anthropological and historic sites.
- Coastal waters support primary food production upon which fish depend. Their habitats, and particularly areas of high biological productivity, should be protected.
- Technical advice and limited funds may be made available to local authorities to stabilise important degraded areas.
- The State has no obligation to safeguard buildings endangered by coastal erosion, which have been erected without regard for local capability advice.

Commonwealth Government

3.24 The Commonwealth Government enacted in 1973 the *Seas and Submerged Lands Act* which vested sovereignty over the seabed and territorial waters in the Commonwealth. The Act was challenged by the New South Wales Government in the High Court of Australia. The Court upheld the constitutional validity of the Act based on the external affairs power (Sec 51 {xxix}) and the so-called 'nationhood' power, declaring Commonwealth responsibility for offshore waters and the seabed extending from the low water mark to the limits of the territorial sea (then three nautical miles.)[11]

3.25 A few years later negotiations took place between the Commonwealth and the States about the return to the States of proprietary rights in the seabed. In 1980, the Commonwealth enacted legislation granting the States power to three nautical miles from the low water mark on the coast and a statutory title to the seabed of these waters.[12] Complementary legislation was enacted by all States. Under the Offshore Constitutional Settlement, which came into effect in February 1983, co-operative arrangements have been agreed in relation to petroleum, minerals and fisheries.

3.26 During November 1990, in accordance with provisions of the UN Law of the Sea Convention, the Commonwealth extended the limits of its territorial sea to twelve nautical miles. Beyond these territorial waters is the Australian Fishing Zone, a Commonwealth responsibility extending 200 miles seaward.

3.27 While the constitutional responsibilities of the Commonwealth for the coastal zone are quite limited, there is a great deal of Commonwealth legislation that relates to the coast. The New South Wales Government mentioned in its submission that at least 36 relevant statutes have been enacted by the Commonwealth, some of the more significant of which are:

- *The Australian Heritage Commission Act 1975.* Numerous sites of national significance on the coast such as lighthouses, wetlands, Fraser Island and north-east Cape York are listed on the Register of the National Estate.

- *The World Heritage Properties Conservation Act 1983* provides for the protection and conservation of areas that are recognised as part of the cultural and natural heritage of the world, and includes areas such as the Great Barrier Reef, Kakadu, Lord Howe Island and South West Tasmania.

- *The Environmental Protection (Sea Dumping) Act 1981* gives effect to the Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters, relating to the dumping of wastes at sea.

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11 *Off-shore Sovereignty Case* (NSW v Commonwealth {1975} 8ALJR).

12 *Coastal Waters (State Powers) Act 1980*
Coastal Waters (State Title) Act 1980.

- *The Whale Protection Act 1980* protects whales and other cetaceans in the coastal zone and Commonwealth waters.

- *The Fisheries Act 1952* provides for the regulation and licensing of fishing in Australian waters.

- *The Sea Installations Act 1987* applies to offshore structures such as floating hotels and tourist pontoons in Commonwealth waters, to ensure that such installations are operated safely and are consistent with protection of the environment.

3.28 The Commonwealth has also developed a range of responsibilities through becoming a party to several international agreements and conventions which cover such matters as the protection and conservation of wildlife and habitats, the prevention of marine pollution, and the protection of world heritage properties in Australia.[13]

3.29 National co-operation on coastal matters can be facilitated by several Commonwealth - State Ministerial Councils which consider aspects of coastal issues. The Australian and New Zealand Environment Council (ANZEC) is currently developing national water quality guidelines, which will include water quality criteria relating to particular water use such as potability, swimming, ecosystem maintenance, effluent guidelines, and a model water quality management program. Each particular water use will have a set of numerical and narrative criteria which will have to be satisfied to support that specific use. ANZEC has also established a working group to consider a structure for uniform national environmental law enforcement encompassing common penalties and fees to deter pollution offences.

3.30 Both the Council of Nature Conservation Ministers (CONCOM) and the Planning Ministers' Conference may deal with coastal management matters but the Committee has been advised that neither has done so.

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13 Such as the Convention on Wetlands of International Importance (RAMSAR) and the Convention for the Protection of the Natural Resources and the Environment of the South Pacific. Both of these conventions explicitly require parties to protect coastal environments.

Panel 3C The Commonwealth as a Coastal Manager

Great Barrier Reef Marine Park

A Commonwealth agency, the Great Barrier Reef Marine Park Authority (GBRMPA), is responsible for the control, care and development of the Great Barrier Reef Marine Park, which was established under Commonwealth legislation. Day-to-day management of the Park is carried out by the Queensland Department of Environment and Heritage through the Queensland National Parks and Wildlife Service. Under co-operative arrangements formulated between the Commonwealth and Queensland Governments, a multiple use management system is practised in the region. Zoning plans have been prepared for the entire Park, which comprises 344,000 square kilometres. Extensive public participation has been encouraged in both preparation and review of these plans.

The legislation provides for two consultative fora: a Ministerial Council to coordinate Queensland and Commonwealth policies concerning the reef, and a Consultative Committee. The Consultative Committee represents a wide cross-section of interests in the reef and provides advice to both the GBRMPA and the Federal Minister.

National Parks

The Australian National Parks and Wildlife Service (ANPWS) manages several parks and reserves declared under the Commonwealth *National Parks and Wildlife Conservation Act 1975*. In addition, it develops and administers programs to promote terrestrial and marine conservation in areas under State and Territory jurisdiction and is responsible for national wildlife conservation programs, many of which give effect to international treaties and agreements relating to marine and migratory species and their habitats.

The main national parks which the Commonwealth manages in the coastal zone are Kakadu National Park and Ningaloo Marine Park. Ningaloo Marine Park is the only such area to have been declared jointly under Commonwealth and State legislation. The ANPWS is also responsible for Christmas Island National Park, Elizabeth and Middleton Reefs Marine Nature Reserve in the Tasman Sea and the Coringa-Herald, Lihou Reef and Ashmore Reef National Nature Reserves in the Coral and Timor Seas.

Recent Initiatives

Resource Assessment Commission

3.31 As mentioned above, the Prime Minister, the Hon. R J L Hawke, AC, MP, announced in July 1989 that the Resource Assessment Commission would conduct an inquiry into coastal development issues. The Commission consulted extensively with State governments and interested parties about the terms of reference for the inquiry, which require it to investigate the use of the coastal zone for building, tourism, residential and marine development. The inquiry is expected to last for approximately 18 months.

National Working Group on Coastal Management

3.32 In July 1989 the Prime Minister also announced the establishment of the National Working Group on Coastal Management. Appointments to the Working Group and finalisation of its terms of reference were delayed pending the establishment of the Resource Assessment Commission inquiry into coastal issues. The Department of Arts, Sport, the Environment, Tourism and Territories advised the Committee in December 1990 that it is intended that the Group provide a structure to maximise cooperation with the State and Territory governments on national coastal issues.[14]

Commonwealth Environment Protection Agency

3.33 The Commonwealth Government is presently working towards the establishment of a federal Environment Protection Agency (EPA) in cooperation with the States and Territories to upgrade the role of the Commonwealth in protection of the environment.

3.34 It is envisaged that the proposed EPA will have the following functions:

- oversight environmental quality concerning pollution control, the ozone and hazardous substances;
- facilitate an integrated approach to recycling, waste minimisation and the prevention and minimisation of pollution;
- conduct and foster research on environmental matters and technological innovation relating to environment protection;
- monitor and develop databases on the environment and maintain a public emissions register for industry.

Problems with Existing Management Systems

Problems at Local Government Level

3.35 Coastal management in Australia is complex, fragmented, unco-ordinated and interwoven between various layers of government agencies and programs. One of the major difficulties is the existence of so many public agencies in each State, each with different responsibilities and interests regarding the coast. For example in New South Wales this problem is reflected by the existence of 30 local government councils along the coastline, each interacting with some of the 19 State agencies that have coastal responsibilities, and occasionally Commonwealth agencies. Furthermore, the goals of State agencies operating with different corporate objectives and priorities from those of

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14 *Evidence*, Sydney, 12 December 1990, p 1308.

local government may seem remote from local interests and needs and at times generate confusion within the local community.

3.36 Local government has prime 'on-the-ground' carriage of coastal management under the existing land use planning system. However, the problem with coastal land use planning is that administrative responsibility is fragmented between local councils, each determining land use priorities within its particular administrative boundaries. Planning at the local government level is therefore confined to the boundaries of the particular council. Presently there is a great risk of little or no attention being paid to planning or the consequences of local developments in a broader regional context. This point was acknowledged by the Australian Local Government Association in its submission when it stated that local governments 'need to know of the regional plans of State agencies and to co-ordinate their own planning with that of bordering local government'.[15]

3.37 While it is at the level of local government that many decisions about the coast which have environmental impacts are made, councils rarely have adequate information and resources to carry out coastal management. Local government is also disadvantaged by a shortage of skilled technical staff to assess adequately the likely environmental impact of development projects and to conduct coastal management, and is at times dependent upon professional advice from State agencies about coastal management matters regarding planning, development and natural hazards. It is also restricted in its activity by the limited information available on coastal processes and the lack of practical guidelines for planners and engineers involved with coastal land use and management decisions.[16] Furthermore, as was stated by the Western Australian Municipal Association, local government bodies are under considerable pressure to respond quickly to development proposals and, as a result of this and inadequate information and resources, some decisions made by local government may in the long term have a detrimental effect on the coast.[17]

3.38 Finally, conflict is endemic in the coastal zone under the current management system and in some areas such conflict over land use has created a great deal of distrust, controversy and disenchantment among competing interest groups. Public participation in local land use decision-making is often limited to the environmental impact assessment procedures which do not always satisfy the demands of the community.

Problems at State Government Level

3.39 At the level of State government, a multitude of agencies and programs, often with competing and conflicting objectives and priorities, are involved in the coastal zone. There is an absence of focus, common purpose, vision or even co-ordination, as State Departments often pursue narrowly defined, agency specific goals at the expense of a

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15 *Submission* No. 134 - Australian Local Government Association, October 1989.

16 ibid.

17 *Evidence,* Perth, 23 November 1990, p 1118.

broader view.[18] Poor co-ordination between government agencies has led to conflicting advice being given to local government about coastal matters. State arrangements also tend to be focussed on the terrestrial environment and there appears to be inadequate integration of the terrestrial and marine components of management regimes.

3.40 It was suggested to the Committee that State activities are constrained by an inadequate policy base and inadequate processes for the evaluation of particular developments and their cumulative impact in a regional planning framework.[19]

Problems at the Commonwealth Level

3.41 Notwithstanding constitutional limitations, the Commonwealth is an active player in the coastal zone through several agencies such as GBRMPA, the Department of Defence, the Department of the Arts, Sport, the Environment, Tourism and Territories, the Department of Primary Industries and Energy and the Department of Transport and Communications.

3.42 Even at the Commonwealth level there appears to be no objective or focus for its roles and responsibilities in coastal matters; rather, the Commonwealth's activities in this area are ad hoc, specific and related to particular responsibilities and issues. Additionally there is apparently little co-ordination between Departments of State about the Commonwealth's numerous activities in the coastal zone. This is despite the suggestion of the House of Representatives Environment and Conservation Committee in 1980 that Commonwealth involvement in the coastal zone should be co-ordinated and guided by national policies and goals.[20]

3.43 That existing management systems are confused and not operating well is reflected in the following response to the Committee's discussion paper:

> There are many examples of confused administration of coastal management issues in Australia. The discharge of untreated sewage in a manner that spoils beaches and fishing, the plethora of approvals and permits required for waterfront development, the scarcity of regional environmental studies in coastal regions, the lack of marine parks, the spread of coastal subdivisions across once beautiful viewscapes, and the threats from unsuitable developments on many parts of the coast, are evidence enough of the confusion.[21]

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18 A striking example of the fragmentation and lack of coordination that characterises the coastal zone amongst agencies at all levels was the appearance of the New South Wales Government at the Committee's public hearing in Sydney in December 1990. Representatives of the Water Board, the State Pollution Control Commission, the Departments of Public Works and Agriculture and Fisheries appeared. Despite the invitation being forwarded by the Committee to the Cabinet Office almost two months before, it appeared that none of the agencies had liaised or co-ordinated with each other about how, on behalf of the Government, they would co-ordinate their address to the Committee.

19 *Submission* No. 191 - Professor A Gilmour, Macquarie University, January 1991.

20 House of Representatives Committee on Environment and Conservation, *Australian Coastal Zone Management*, 1980, p 35.

21 *Submission* No. 191 - Professor A Gilmour, Macquarie University, January 1991.

3.44 In light of these problems and other issues, it was frequently stressed to the Committee that there is now a need for a far-sighted vision of the nation's coast and its resources, and that this vision should form the basis of decision-making in Australia's coastal management. The next chapter discusses what the Committee considers are the principal issues in the coastal zone and solutions that were suggested during the course of the inquiry to ameliorate these problems.

Photograph 2 Reef Walking, Great Barrier Reef

4. MANAGEMENT OF THE COASTAL ZONE: ISSUES

4.1 The existing coastal management arrangements are inherently fraught with difficulties arising from having a number of agencies working in different ways and for different reasons to solve complex and controversial problems. These difficulties are exacerbated by a lack of adequate information, resources and expertise, especially at the local government level where many of the crucial decisions are made.

4.2 In gathering written evidence and during discussions and hearings in all States and many regions of Australia, the Committee was informed of a diverse range of local problems. It soon became apparent, however, that there were issues common to almost all cases and that these issues arise either directly or indirectly from the way in which governments have approached the task of coastal management:

- Problems arising from decision making structures whereby a multiplicity of public agencies, many of which operate within arbitrary jurisdictions, make decisions about the coastal zone without always recognising the cumulative effects or long term implications.

- Conflict among users in the coastal zone and community disillusionment with existing avenues of public consultation.

- Lack of action by public bodies despite numerous reviews into the coastal zone.

- Lack of information and poor communication channels between scientists and managers.

- Difficulties in assessing the economic value of the environment and quantifying the costs of pollution.

Fragmented Structure of Decision Making

Multiplicity of Public Agencies

4.3 As was discussed in Chapter 3, local councils often have to liaise with several State government agencies and, at times, Commonwealth bodies when considering development projects. The Cairns City Council told the Committee that it had to consult with five State authorities about a development proposal on nearby Green Island: the Cairns Port Authority, the National Parks and Wildlife Service of Queensland, the Beach Protection Authority, the Land Administration Commission and the GBRMPA.[1] Indeed, a multiplicity of public agencies involved in the coastal zone seems to occur in all States (see figure 1).

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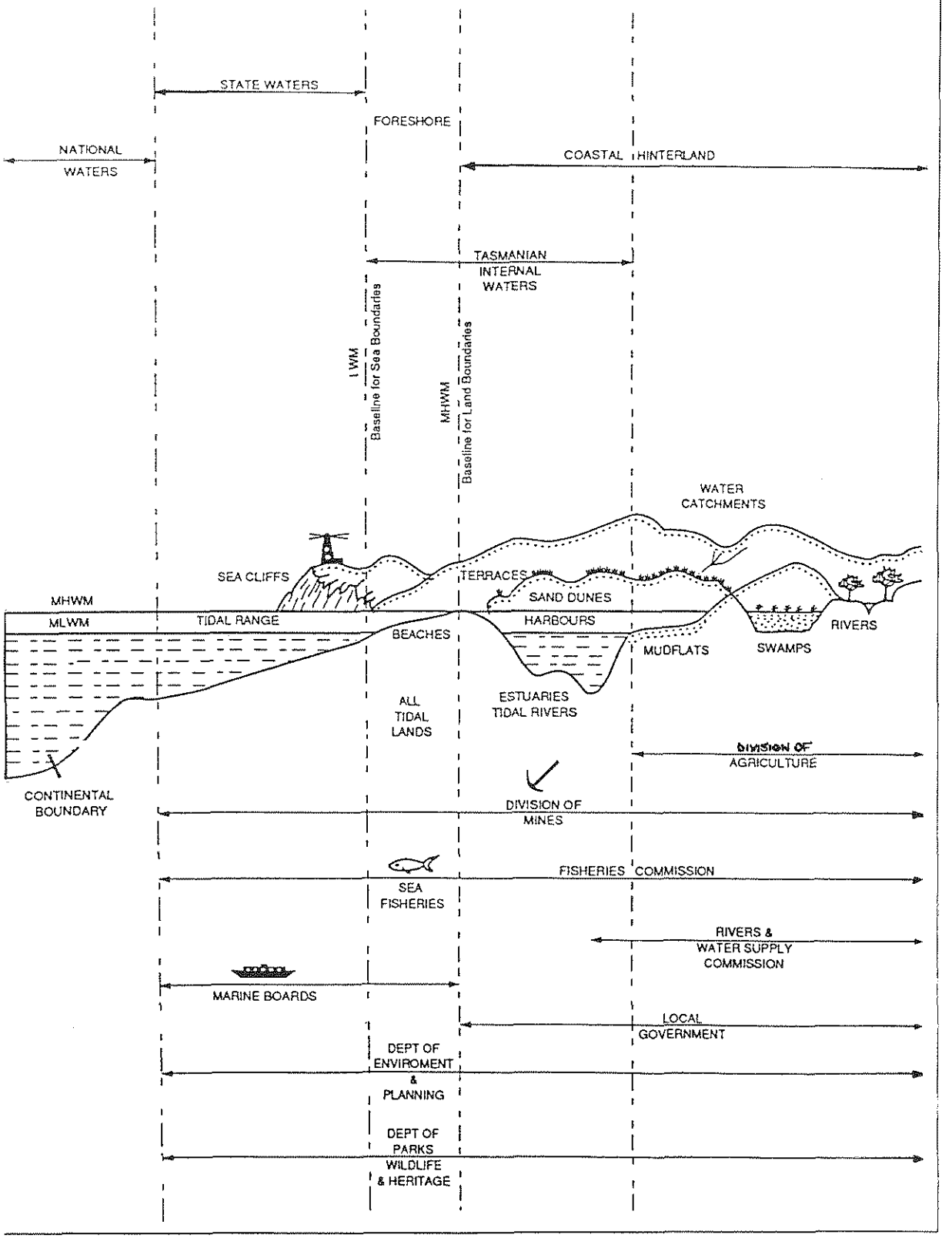
1 *Evidence*, Cairns, 29 June 1990, p 506.

Figure 1 **Agency Involvement in Coastal Management, Tasmania**



4.4 Regardless of how well each agency operates according to its charter, the fact that there are so many public agencies is a major factor contributing to the fragmentation and poor coordination that characterises coastal management. GBRMPA commented that:

> The essence of the problem of coastal zone management is that different government agencies act so as to maximise the achievement of their specific goals, without any effective mechanism for ensuring that the sum of all of the actions by the various agencies provides a solution or program which is ecologically, socially and economically sustainable. ...
>
> Mangroves are cleared for development without adequate consideration of the effects on fisheries. Farming practices are adopted which maximise short term profits to farmers but which cause land degradation and adverse effects on streams and the sea. Wetlands are drained and filled for agriculture without consideration of the effects on species diversity. Rivers are 'improved' by engineers without consideration of the biological effects.[2]

4.5 The Committee was advised that attempts to provide co-ordinating structures to improve management have so far had mixed success,[3] and numerous submissions put forward suggestions to overcome this problem.

4.6 It was commonly proposed, for example, that new institutions be established at the State or federal level to deal specifically with coastal management matters. Some submissions urged the Commonwealth to establish an Australian Coastal Management Council, as recommended by the House of Representatives Standing Committee on Environment and Conservation in 1980. Professor Gilmore of Macquarie University suggested the creation at the State level of a Coastal Commission with a small staff which, among other things, would be responsible for the development of coastal policies in collaboration with government agencies and local government, and the co-ordination within the State of State and federal coastal programs.[4]

4.7 In contrast, the Cairns City Council stressed that new institutions for coastal management must be avoided and the Centre for Coastal Management at the University of New England argued that the most realistic solution to these structural problems is through the redirection of existing systems rather than the development of new institutions.[5] The Australian National Parks and Wildlife Service suggested that better management could be achieved (now) by the development and implementation of co-operative management plans and agreements involving State, local and national authorities. Similarly, the Australian Institute of Marine Science suggested the preparation of regional development plans as a means of uniting the approaches of the various agencies involved in the coast.

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2 *Submission* No. 186 - Great Barrier Reef Marine Park Authority, November 1990, (additional submission).

3 *Submission* No. 54 - Centre for Coastal Management, University of New England, Northern Rivers, September 1989.

4 *Submission* No. 191 - Professor A Gilmour, Macquarie University, January 1991.

5 See *Submission* No. 54 - Centre for Coastal Management, University of New England, Northern Rivers, September 1989.

4.8 Indeed, the preparation of regional coastal management and development plans was proposed as a means of overcoming not only those co-ordination problems that arise because of the multiplicity of agencies, but also the related problems caused by arbitrary administrative boundaries and the *tyranny of small decisions.*

Arbitrary Administrative Boundaries

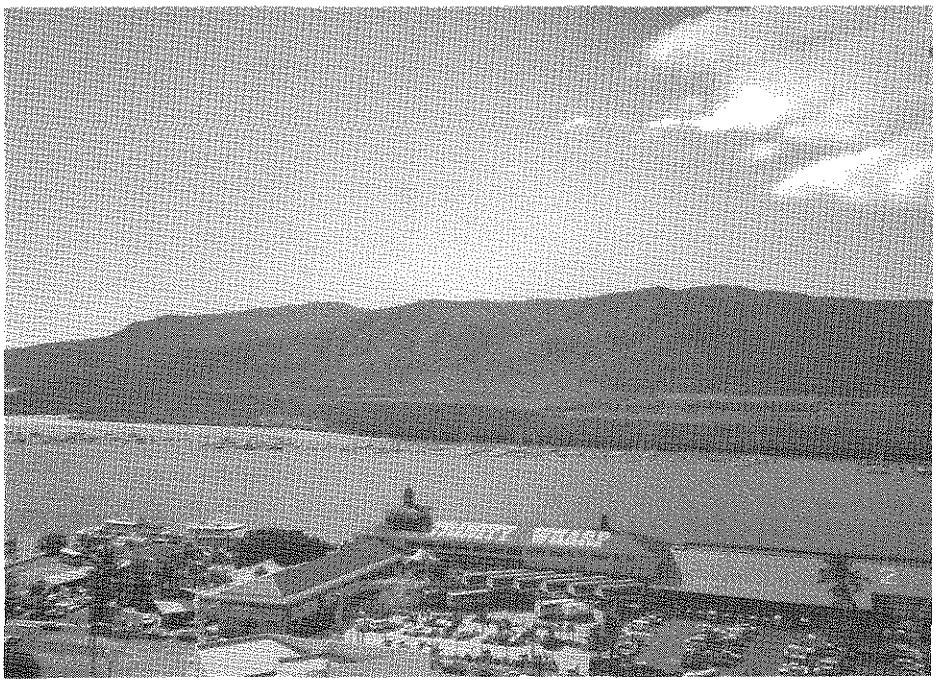
4.9 Jurisdictional boundaries at local, regional and State levels frequently do not reflect any particular physical, geographical or ecological feature, and they fail to take into account natural processes and phenomena which operate beyond these arbitrarily determined human limits.[6] Failure to recognise the ecological boundaries of coastal systems considerably weakens the effectiveness of any management regime and has led to unforeseen destruction of coastal habitats.[7]

Panel 4A Coastal Management and Administrative Boundaries in Cairns

A proposal has been put forward to Mulgrave Shire Council in the far north of Queensland to develop wetlands on the eastern side of Trinity Bay, directly across the inlet from the city of Cairns. The proposal, on a 1,000 hectare site known locally as the 'CSR land', is for a major urban development to accommodate 15,000 people. Cairns City Council is concerned about the consequential impacts on the Trinity Bay inlet, local mangroves and the city itself. Although physically just across the river, the proposed development is beyond the city boundaries, and the Cairns Council therefore had no role in considering it. This reflects another aspect of the problem of arbitrary boundaries.

6 For instance fisheries do not respect the three mile State/Commonwealth inland seas boundary. This fact necessitated the development of special arrangements between the States and Commonwealth concerning the regulation of fisheries as provided by the Offshore Constitutional Settlement.

7 *Submission* No. 54 - Centre for Coastal Management, University of New England, Northern Rivers, September 1989.



Photograph 3 Trinity Bay Inlet, Cairns

The Tyranny of Small Decisions

4.10 The *tyranny of small decisions* refers to the cumulative effects of a number of small developments, where the environmental impacts of individual developments are negligible, but where the combined impact of the small developments on the local or regional community is significant. Major decisions concerning natural resources are made by the cumulative effect of numerous, almost insignificant, decisions. In effect, major decisions on land use or lifestyle may be made without the central issues ever being addressed.

4.11 The concept was often employed in evidence given to the Committee about the possible effects of local governments individually considering proposed tourism projects along the coastline without a unifying 'big picture' strategy.

4.12 The growing number of people who live, work and visit the coastal zone is placing a proliferation of competing demands on coastal resources. The Queensland Commercial Fishermen's Organisation recently identified 150 coastal development projects either under consideration or under development in that State. In 1989 there were at least 40 major projects proposed along the New South Wales coastline, worth a total of about $6 billion.[8]

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8 Colong Foundation for Wilderness Limited, *The Colong Bulletin,* May 1989.

Panel 4B The Tyranny of Small Decisions - The Disappearance of Wetlands

Wetlands have commonly been cleared or filled for the purposes of tourism or urbanisation. However, the cumulative effect of the many separate decisions by local governments to agree to proposals for new canal estates or tourism resorts is a severe reduction of wetland habitats in the coastal regions with negative economic consequences for recreational and commercial fisheries. At no stage was there a conscious decision by governments to reduce the amount of wetlands, yet more than 60% of coastal wetlands in southern and eastern Australian have been lost.[9]

In recent times, the importance of mangroves for shore stabilisation and protection, as water purifiers and most significantly as breeding grounds and nurseries for juvenile fish, has been recognised. One witness informed the Committee that Queensland commercial fishermen have assessed the value of one hectare of mangrove at $100,000 in terms of fishery production.[10]

4.13 Of particular concern in evidence given to the Committee was the perceived inability of local and regional planning systems to consider the cumulative impacts upon the coast and coastal systems of proposed tourism developments. The disappearance of wetlands is a striking example of this, as shown at Panel 4B. Many submissions claimed that the existing planning and management system simply considers tourism projects individually, without taking a regional or broader perspective.

4.14 While pressure for tourism development provides a good illustration of the *tyranny of small* decisions, the concept can apply to any number of activities in the coastal zone because of the absence of a broad regional or national perspective. A number of suggestions to overcome the problem focussed upon the importance of regional plans to ensure that both local and State authorities have a broad agreed framework or 'picture' within which to consider proposed projects. Regional plans could identify development and conservation areas and the 'carrying capacity' for particular developments. In order to take into account natural processes and thereby approach environmental units holistically, such plans would be based upon the total catchment management approach. This involves the co-ordinated management of land, water and other physical resources and activities within a river basin to minimise degradation and impact on features of the environment including water quality.

4.15 The Committee also received some evidence suggesting that the Commonwealth should be more involved in controlling and planning tourist developments. Specific development and management guidelines would be prepared in accordance with a national coastal strategy, or the Commonwealth could encourage the preparation of State-based strategic plans for tourist developments. On the other hand, the Mulgrave Shire Council put the view that the Commonwealth should limit its role simply to the

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9 CSIRO, *Australia's Environment and its Natural Resources: An Outlook*, 1990, p 8.

10 *Evidence*, Cairns, 29 June 1990, p 477.

promotion of tourism and not be involved in primarily local matters. It was also suggested that State governments institute 'blanket protection' for significant areas, such as wetlands, or develop adequate regional planning schemes.[11]

Conclusion

4.16 The development of regional coastal management plans, incorporating the total catchment management approach, has been suggested as a means of overcoming the three major difficulties arising from the fragmented nature of decision making which characterises the existing management system: the multiplicity of public agencies, arbitrary boundaries and the tyranny of small decisions. Regional plans would draw together the elements of management guidelines, conservation requirements, relevant legislation and reflect regional community aspirations as well as government policy. Frequently it was envisaged that regional plans should be one element of a national coastal management strategy, encompassing a hierarchy of strategic planning dealing with local, regional, State and national interests. The Committee supports this view, and its position is expanded in Chapter 6.

Conflict in the Coastal Zone and Public Participation

4.17 Conflict about the pace, type and necessity of development is endemic throughout the coastal zone. With the increasing population growth in coastal areas, the incidence as well as the intensity of conflict is increasing.

4.18 The House of Representatives Standing Committee on Environment and Conservation noted in 1980 that one of the most pressing problems for coastal management is that of 'adjudicating between non-compatible uses in an equitable manner'. This is as appropriate today as it was then, and as indeed is the following observation:

> The outcome of many conflicts between competing uses seems to depend on which pressure group is the most articulate and is best able to convince the determining body, often local government, that a certain location is absolutely necessary for a certain use.[12]

4.19 The Environment and Conservation Committee considered how conflict can be categorised according to how the preferred use of coastal resources would affect the environment. As shown in Panel 4C, particular activities were identified as either modifying or requiring the retention of natural features.

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11 As mentioned in Chapter 2 the use of the coastal zone for tourist, marina and resort development will be examined by the Resource Assessment Commission.

12 House of Representatives Committee on Environment and Conservation, *Australian Coastal Management*, 1980, p 14.

Panel 4C Report of the House of Representatives Standing Committee on Environment and Conservation Report - Competing Uses of Coastal Resources

Uses Requiring Retention of Coastal Features

Uses that require retention of coastal features are: tourism, recreation, scientific and educational research and conservation, all of which depend on the natural attributes of the coast. Once an area is committed to such an activity, it effectively precludes the simultaneous use of that area by an activity that requires an alteration in coastal features or coast-modifying use.

Moreover, activities requiring retention of coastal features may not be compatible. Declaring areas for conservation or scientific purposes may require restrictions on recreation and tourism. Conflicts will still occur between users whose primary aim is to maintain the coast in its natural state. Conflict is not always one of development versus conservation.

Uses that Modify Coastal Features

Activities that modify the coastline include mining, forestry and intensive agriculture, secondary industries and tertiary industries such as transport and communications and urban development.[13]

4.20 In a recent report entitled *Australia's Environment and its Natural Resources*, the CSIRO observed that:

> Given the Australian penchant for coastal recreation and increasing real incomes, it is a most reasonable scenario to foresee the coastal zone from Cairns to Adelaide continuing to be our major setting for resource and environmental conflict, competition and controversy. ...
>
> The pervasive coastal issue for many years is likely to be the impact of interest group demands and their associated externalities on a resource (ie the coastal zone) which is essentially fragile in its scenery, landforms, water-bodies and vegetation...[14]

4.21 The Committee frequently heard about intense local conflicts among interest groups concerning different uses of coastal lands. It was told of controversies concerning a major tourist and marina development at Magnetic Island at Townsville; a proposed 1,000 hectare development to cater for 15,000 people on wetlands in Trinity Inlet at Cairns; and opposition to an ocean outfall being constructed at Ninety Mile beach in Victoria which is to carry wastewater from the Latrobe Valley into Bass Strait. A particularly contentious issue, as shown at Panel 4D, was the proposed development of Bonville Beach, south of Coffs Harbour in New South Wales.

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13 ibid.

14 CSIRO, *Australia's Environment and its Natural Resources*, 1990, p 20.

Panel 4D A Major Local Conflict - Bonville Beach, Coffs Harbour, New South Wales

At its public hearing at Coffs Harbour in July 1990, the Committee observed at first hand the degree and intensity of conflict that can be generated between different interest groups about the proposed use of coastal areas. A long standing matter of local controversy at Coffs Harbour is a proposed development scheme for an area south of the city known as Bonville beach.

Following the abandonment of a controversial proposal by a private developer to build a major beachfront resort at Bonville, the Coffs Harbour City Council is considering that the area be used for residential purposes and that it include a coastal park and a conservation area.[15]

Local environmental groups at the public hearing were extremely critical of the urban development proposal. They felt that urbanisation of the area would be totally inappropriate, particularly since various environmental studies commissioned by Council identified the Bonville area as one of four important littoral rainforests in New South Wales. Other special features of the Bonville catchment are that it has extensive wetlands, it is the least polluted waterway in Coffs Harbour Shire, and it is a major fish nursery. Council, it was claimed, had not taken into account these factors when considering the development proposal for Bonville.[16]

The environmental representatives also argued that often they were not 'against development' and they were not opposed to other developments in the Coffs Harbour area, but for them 'Bonville was inappropriate for development either as a resort or more recently for urbanisation.'[17] These groups were particularly critical of the operation of the local planning system.

It was suggested that the existing local and regional planning schemes need to be dramatically improved and that greater assistance should be provided to local government to assess proposed development projects. As one witness said to the Committee:

> one of the things that we should not lose sight of is that local councils are not making decisions solely for the local community. They are making decisions which are national; not just state but national.[18]

4.22 The intensity of conflict which the Committee repeatedly witnessed around the coast suggests that existing environmental assessment procedures and land use planning and zoning procedures are not working satisfactorily. It also indicates a great degree of dissatisfaction within the community about the nature and effectiveness of public involvement and participation in local decision making.

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15 *Evidence*, Coffs Harbour, 20 July 1990, p 659.

16 ibid., p 601-653.

17 ibid., p 607.

18 ibid., p 619.

Environmental Impact Assessment

4.23 State land use planning and zoning instruments provide for environmental impact assessment (EIA) procedures to address wider community interests and to resolve conflicts. However, the Committee has heard considerable criticisms of the EIA process both as a means of determining objectively and scientifically the implications for the environment of proposed developments, and as a means of producing accurate data on the basis of which informed decisions about the best long-term solutions can be made.

4.24 It could be that too much reliance is placed on scientific analysis to provide answers. The Committee has been told, for example, that:

- It is difficult to make reliable predictions about the possible environmental impacts of a proposed project because generally the precise nature of a development is not well known at the EIA stage.

- Few biological systems are sufficiently understood to determine which are the critical components, and the precise response of a species or habitat to a suite of toxicants or physical modifications is difficult to predict accurately.[19]

- The science of impact assessment is not well developed in Australia because there is no clear consensus on how impacts can be predicted, and there is often inadequate baseline data available.

- The terms of reference and guidelines prepared by the proponent for the EIA can limit the environmental consultant in conducting the assessment.

4.25 Furthermore, EIA procedures themselves are seen by some to be inadequate. These perceived inadequacies include:

- There is no period of mandatory monitoring of biological, physical or chemical effects after construction or land use change.

- The environmental impact statement is prepared by the proponent.

- Some environmental impact statements have been prepared by persons without adequate training or qualification.

- Little or no assessment is made of the financial and economic capability of the proponent.

- The existing process focuses upon particular proposals rather than placing the development in a wider context and looking at the possible cumulative effects.

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19 *Submission* No. 123 - CSIRO, September 1989.

- There appears to be little consistency from State to State or from project to project within a State, as to the type of project which requires an EIA and which does not.

- Most EIA legislation does not require a developer to investigate alternative sites, and eventually a site may be developed if a sufficient number of development applications are made.

- A development application can still be made in sensitive and/or environmentally inappropriate areas (e.g. wetlands).

- As no single authority controls broad land use decisions, there is little likelihood of linking the effects of numerous development applications. As a result a pattern of continuous 'ribbon development' along the coast is considered likely.

4.26 Regardless of the validity of these criticisms of the EIA procedures, criticism has also been directed at how these procedures are implemented. Views were expressed to the Committee that:

- Local government councils experience a lack of resources and expertise to adequately assess environmental impact statements.

- Property rights seem to take precedence over environmental concerns.

- Local councils, when faced with a development application, may have only a limited choice to approve or reject a proposal.

- Environmental consultants who lean towards development rather than conservation are more likely to be appointed to prepare an EIS.

4.27 Finally, a major concern is the nature and effectiveness of public participation in the EIA process. As the representative of the North Coast Environment Council explained at the public hearing in Coffs Harbour:

> community input to EIS (environmental impact statement) evaluation is consistently disempowered because public comment is sought far too late in the procedure. The complexity of the system makes it hard for the public either to understand what they can do, or to bring about many meaningful changes.[20]

4.28 There is generally only one opportunity for public review of a proposal and it is difficult for members of the public to object if their views are not adequately addressed in the assessment of environmental impact statements by public bodies; nor is there a formal mechanism by which the public can determine if commitments made by a

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20 *Evidence*, Coffs Harbour, 20 July 1990, p 614.

developer or government in an EIS are in fact followed.[21]

4.29 Public participation and involvement in coastal land use planning and environmental impact assessment is basically reactive. Local community groups essentially respond to local government environment plans, proposed projects or other decisions which affect them. Participation on specific projects occurs towards the end of the decision-making process, rather than towards the beginning.

4.30 Clearly there is widespread disenchantment with the existing procedures for public involvement in EIA, particularly the late stage at which it is solicited (when decisions are at times seen as a fait accompli), and the actual effectiveness of the public contribution. Dissatisfaction is also evident with the public inquiry process which was seen by a participant at the Committee's meeting at Byron Bay in January 1991 as merely a 'patting on the head of the community'.

4.31 These criticisms are not necessarily new. The then Industries Assistance Commission (now the Industries Commission) also noted problems with existing EIA procedures in its 1989 report on *Travel and Tourism*, in which it identified the following problems:

- different levels of government have different priorities that lead to conflicts;
- there is scope to by-pass aspects of review or the process altogether;
- EIA's often focus on narrow scientific issues without due regard to wider economic and social implications.

4.32 When public participation in coastal management was considered at the 1986 Conference on Coastal Management at Coffs Harbour, the Conference referred to EIA procedures as cumbersome and EIA documents as often being post-hoc justifications of an inevitable decision. It recommended that:

- the process of public participation be accepted as an integral component in the development of coastal management strategies. The opportunity for public participation should occur at all stages of the decision making process, including policy formation, feasibility analysis and environmental impact assessment;
- inclusion of delegates from (recognised) N.G.O.'s on policy and decision making committees and agencies be endorsed as a desirable component of public participation;
- local communities be involved to the maximum possible extent in policy formulation and the development of coastal zone management programs.

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21 The Special Premiers' Conference in October 1990 decided that an intergovernmental agreement on the environment should be drafted for the next meeting in April-May 1991, and that the agreement should encompass a national approach to EIA procedures and greater streamlining of EIA and other approvals processes.

Transparency of Planning Decisions

4.33 In *Travel and Tourism*, the Industries Assistance Commission suggested the most general reform to reduce conflict would be to improve the transparency of the current review mechanisms.[22]

4.34 According to the Commission, transparency comes from public involvement in review and planning to ensure that a wide range of interests is heard and that information is gathered about the costs and benefits of proposals. Transparency involves the chance to scrutinise decisions, to minimise the opportunities for private interests to override public interests. An important feature of transparent review mechanisms is the publication of plans, intentions and guidelines. In these ways, transparency provides a discipline on the use of discretion by administrative bodies.

4.35 The need for greater and more effective involvement of the community in decision-making was clearly acknowledged by the Industries Assistance Commission. It also suggested that greater predictability about the community's requirements, the circumstances that trigger an EIA, and the content of an EIA, would help reduce the costs and delays incurred in disputes about development proposals.

Funding of Community Groups

4.36 Several conservation and environmental groups suggested that the Commonwealth should facilitate greater public participation by providing additional funding to local community and environmental groups, so they could assess and participate in the decision-making process. It was also stressed that such groups often have members with considerable local knowledge and expertise, which constitutes a valuable resource.[23]

Environmental Mediation

4.37 The Commission of Inquiry into the Conservation, Management and Use of Fraser Island and the Great Sandy Region, and the Cabinet Office of New South Wales, recently published *Public Issue Dispute Resolution*, a discussion paper which, among other things, points out that the reliance placed on tribunals or specialist courts to review and resolve environmental disputes raises the very critical question of whether it is 'legitimate to give judges the job of deciding "policy" or "merit" issues'. The discussion paper concluded that:

> It is the task of Government, supported by its administrative structures, to find an appropriate process by which a community can articulate its views and which will yield decisions which can be implemented in the best overall interests of that community.[24]

4.38 For the foreseeable future, State governments are seen as having the main role in developing and implementing environmental conflict management and dispute resolution

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22 Industries Assistance Commission, *Travel and Tourism*, 1989, p 18.

23 Workshop, Canberra, 26 October 1990.

24 Commission of Inquiry into Fraser Island and the Cabinet Office of New South Wales, *Public Issues Dispute Resolution*, 1990, p 271.

procedures. There certainly appears to be a need for better conflict resolution or environmental mediation procedures to be developed.

4.39 Alternative dispute resolution (ADR) processes have gained widespread usage in North America. ADR refers to a diverse range of voluntary approaches that allow disputing parties to meet face to face in an effort to reach a mutually acceptable resolution of a dispute. Environmental dispute resolution (EDR) refers to the utilisation of ADR principles to environmental disputes. EDR procedures are widespread in North America and are used to resolve conflict over such matters as land use, resource management, water resources, use of public land and air quality. It was suggested to the Committee that such procedures could offer much to coastal management.[25]

4.40 The Committee strongly supports the examination and development of local environmental dispute resolution procedures to help reduce the endemic conflict in the coastal zone. It is remarkable that people living in Broome, Coffs Harbour, Cairns and Glenelg look to the Commonwealth for support because they feel alienated in existing procedures at the local or State government levels. While it is noteworthy that the Commonwealth is not considered too remote to understand local issues, it would be far preferable for agencies which have clearer jurisdiction over matters and are designed to be more directly representative of local interests to be seen by more of their constituents to be effective.

Multiple Use Planning

4.41 The Association of Mining and Exploration Companies advocated that the concept of multiple land use planning should be adopted more widely because productive land is in relatively short supply and should be put to as many uses as feasible in order to satisfy as many community needs as possible.[26] Competing land uses would be decided by a cost/benefit approach.

4.42 Again, the idea is not new. Multiple land use planning, where environmentally acceptable, was supported by the 1986 Coffs Harbour Coastal Management Conference, and has been implemented by the Great Barrier Reef Marine Park Authority. The Marine Park is a multiple use protected area. Zoning plans have been prepared for the entire reef to separate incompatible activities and to ensure that all reasonable uses are permitted in a significant proportion of the areas and which they do not cause unacceptable environmental impacts. The Authority has encouraged extensive participation in the preparation of these plans from the earliest stages by the public and by user groups.

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25 *Submission* No. 191 - Professor A Gilmour, Macquarie University, January 1991.

26 *Submission* No. 131 - Association of Mining and Exploration Companies Inc, October 1989.

4.43 Zoning was mentioned by the House of Representatives Standing Committee on Environment and Conservation in its 1980 report as one means of ensuring more equitable distribution of coastal resources and mitigating conflict. It stated that:

> Conflicts between rival users will inevitably arise and machinery to resolve these conflicts must be developed. The answer does not appear to be the establishment of additional authorities with limited powers or cumbersome licensing requirements, but rather in developing long-term plans which recognise public and professional input.[27]

4.44 Indeed, numerous interest groups have said that if particular areas were zoned or identified for particular uses it would set ground rules for everyone and they would know what is permitted in which area, and the reactive and intense conflict experienced along the coast would be reduced.

Conclusions

4.45 Controversies often arise in the coastal zone, and with regard to the environment generally, as a result of frustrated public participation and because of confrontationist procedures usually adopted in Australia to resolve these disputes.

4.46 Fundamental to the amelioration and/or resolution of environmental and coastal problems is the need for governments at all levels to accept the importance of *effective public participation in policy formulation.* This is essential to the success of any management plans prepared by State and local governments concerning the coastal zone.

4.47 With regard to EIA of development projects at the local level, greater public participation and environmental mediation will assist in obtaining community acceptance of the approval process and in overcoming the disappointments and frustration experienced by coastal developers. However, much greater attention needs to be devoted to the needs of residents in the immediate area around proposed developments. Facilities need to be designed with them in mind as well as the 'out-of-town' users.

4.48 The Committee recommends that:

> (1) **Effective public participation in coastal zone management be encouraged at the local government level by a variety of mechanisms, such as: the preparation of local zoning plans in consultation with the community, the development of better environmental mediation procedures and the establishment of local consultative committees on specific projects and issues.**

Lack of Action by Government Agencies

4.49 While there have been many inquiries and conferences dealing with various aspects of coastal management during the past 20 years, there has been a lack of subsequent

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[27] House of Representatives Standing Committee on Environment and Conservation, op. cit., p 15.

action by government, and particularly the Commonwealth Government. The apparent failure of public authorities to act upon the recommendations and findings of previous reviews has contributed to a great deal of dissatisfaction, disillusionment and scepticism with the public inquiry process. The State Council of the National Parks Association of New South Wales Inc informed the Committee that there is:

> a great deal of dissatisfaction amongst our members in that so many government inquiries, public and academic seminars have produced so little improvement in the rapidly deteriorating coastal environment of Australia.[28]

4.50 A striking illustration of this community disillusionment and dissatisfaction occurred at the Committee's public meeting at Byron Bay in January 1991. A representative of the North Coast Environment Council criticised this inquiry as merely an example of the Commonwealth 'being seen to be doing something but actually doing nothing'. It was argued that the problems being experienced along the coastline, such as pollution caused by the ocean disposal of sewage and industrial wastes, were identified years ago and are well known, but there has been a lack of political will to solve them.

4.51 Other reasons advanced as to why there has been little action by government agencies are based on the complexity of the issues. The very nature of the problems being experienced on the coast means that a range of different disciplines are involved in their resolution: geophysics, geomorphology, environmental science, biochemistry, marine biology, oceanography, hydrology and engineering. The 'soft' disciplines such as law, planning, geography and economics are now also relevant to solving coastal zone issues. Furthermore, it is argued, the coastal zone exhibits a diverse variety of habitats and each habitat has distinctive characteristics necessitating a unique management policy. No single management option would be applicable to all coastal regions and habitats.[29]

4.52 Again, the structure of decision making is also identified as a reason for inaction. The Committee was told, for example, that:

- The structure of government in Australia, with three tiers of administration and a multiplicity of public agencies, does not facilitate a broad, national nor holistic perspective of the coast. Additionally, competition for resources by these public agencies has been so intense that little priority has been given to coastal management until recently.

- Coastal management is primarily a State responsibility and the focus has been on the State level rather than the national level.

- While there have been numerous Commonwealth inquiries dealing with the coast, often the prime responsibility for the matters identified in these inquiries lies with the States and in the past States may have been offended by Commonwealth interference in matters traditionally their responsibility. Moreover, the New South

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28 *Comments on Discussion Paper*, National Parks Association of New South Wales Inc, January 1991.

29 *Submission* No. 79 - Division of Environmental Studies, Griffith University, September 1989.

Wales Government pointed out that it has received little funding or resources from the Commonwealth to implement Commonwealth directives regarding obligations under various international agreements.[30]

- Local government, which is the level of government actually responsible for implementation of coastal protection measures, has in many cases limited resources and technical expertise to address coastal management matters.

Conclusion

4.53 During the course of this inquiry, a Committee of the New South Wales Parliament has been inquiring into coastal development in that State, the Prime Minister announced that a National Working Group on Coastal Management would be established, the Senate Committee on Environment, Recreation and the Arts recommenced its inquiry into the environmental effects of tourism and the RAC commenced preparations for an inquiry into coastal issues. The Committee is well aware of the high levels of disillusionment and annoyance within the Australian community about the announcement of further inquiries when there has been little action as a result of earlier reviews. It is now time for the Commonwealth to begin several policy and planning initiatives concerning coastal management before the existing problems experienced along the coast become worse. These need not await the report of the RAC, which may not be completed for another two years and will focus upon the built environment. The RAC report should be used to improve, direct, assist and guide such policies, structures and plans as have been developed and put in place.

4.54 The Committee considers that there should be no new national inquiries dealing with the broad problems of the coastal zone until such time as it might become appropriate to review the implementation of initiatives that are taken after the completion of this inquiry.

Gathering and Distributing Information on the Coastal Zone

4.55 A variety of organisations conduct scientific research activities on the coastal and marine environments. The Commonwealth has several agencies that undertake research, such as the Australian Institute of Marine Science, the Bureau of Mineral Resources, the Australian Nuclear Science and Technology Organisation and the Marine Laboratories and Divisions of Oceanography and Fisheries of the CSIRO. Research is also carried out by State bodies such as the Victorian Institute of Marine Sciences, a number of museums, and various fisheries research laboratories and departments. Several universities also conduct research into marine and coastal processes.

4.56 Commonwealth Government expenditure on marine science research and development was estimated at $72.5 million in 1988 by the Review Committee on Marine Industries, Science and Technology, which believed that important research areas may

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30 *Submission* No. 164 - Government of New South Wales, October 1989.

have been overlooked because of a lack of co-ordination of effort.[31] Indeed, the House of Representatives Standing Committee on Environment and Conservation observed in 1980 that:

> . There is a serious lack of information available on the coastal zone.
>
> . A considerable amount of independent research relating to the coastal zone is undertaken by various Commonwealth, State and local government bodies and by academic and industry institutions. Research and data collection is usually aimed at solving other than coastal zone problems, and is often not comparable. Much of the work undertaken is not readily available to others conducting investigations in allied fields.[32]

4.57 In a report it completed last year on the nature of environmental research in Australia, the Australian Science and Technology Council (ASTEC) found that there are numerous Commonwealth and State databases on a range of environmental matters and that:

. expenditure on environmental research and development totalled $222 million in 1986-87, of which 85% was funded by the Commonwealth, either through its agencies or through grants to universities;

. there is a trend away from long term, strategic baseline research towards more short term management oriented research; and

. it is difficult to identify where the research and development money is being spent.[33]

4.58 Under existing arrangements whereby Universities apply to various bodies for research funding, including the Australian Research Council, the money is provided on the basis of excellence of research. It was stated to the Committee that, in effect, the research community is directing the focus of the primary research conducted in this country.[34] ASTEC has suggested that the Commonwealth could overcome this by identifying priority research areas.

4.59 A point often repeated to the ERA Committee during the inquiry, primarily by research bodies and conservation groups, was that despite a significant expenditure on marine research and development there still is a great lack of data on the Australian coastal environment.[35] There is, for instance, a major gap in understanding and

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31 Review Committee on Marine Industries, Science and Technology, *Oceans of Wealth 1989,* p 140.

32 House of Representatives Standing Committee on Environment and Conservation, op. cit., 1980, p ix.

33 ASTEC, *Environmental Research in Australia,* Canberra, 1990.

34 *Evidence,* Sydney, 12 December 1990, p 1358

35 *Submission* No. 54 - University of New England, Northern Rivers, September 1989.
Submission No. 123 - CSIRO, September 1989
Submission No. 149 - Australian Marine Sciences Association Inc
Submission No. 151 - Geelong Environment Council, October 1989

knowledge of heavy metals and organic contaminants, such as non-biodegradable polychlorinated biphenyls (PCB's) and chlorinated hydrocarbons (dioxins) and their potential effects upon marine and terrestrial flora and fauna. Both heavy metals and organic pollutants have the potential to effect human health, by accumulation through food chains into fisheries products.[36] The CSIRO mentioned that monitoring and baseline studies of the impacts of these pollutants have been localised and no national data exist.

4.60 Other areas identified as requiring research include: the dynamic nature of processes in the coastal zone; the development of appropriate standards for assessing and monitoring the environment; interactions between terrestrial and marine systems; the greenhouse effect and its likely impact upon coastlines; and the effect of different pollutants upon marine and terrestrial flora and fauna. It was also pointed out in evidence to the Committee that there is a need for long term monitoring of the coastal zone and multidisciplinary training.[37]

4.61 Notwithstanding the need for more research, there is a great deal of information about the coastal zone already available, particularly with regard to the south east of Australia. One witness prepared a bibliography of coastal material in Victoria, containing 660 references.[38] As the Division of Australian Environment Studies at Griffith University observed:

> there exists a vast body of information that managers and policy makers can access and which should be taken into account. Perhaps the greatest problem facing environmental policy makers and managers is access to an up-to-date, comprehensive and organised knowledge base; at present it simply does not exist.[39]

4.62 The Committee was often told that a national database or a coastal information system would help to overcome the problem of getting information to local government officers and local managers. As one of the principal prerequisites for effective coastal management is the availability of scientific knowledge of natural resources and processes, it was suggested that a database/coastal information system could include details about habitat types and locations; recreational and commercial fisheries; land use; toxicant, nutrient and plankton concentrations; tides; and vegetation patterns. It was claimed that the availability of this data could improve decision-making, help protect the coastal environment while optimising use, and reduce conflict by allowing a better explanation to interest groups of the basis of public decision making.[40] Moreover, it was suggested that a national database inventory of coastal resources, recording existing information

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Submission No. 152 - Victorian National Parks Association, October 1989
Submission No. 156 - Australian Institute of Marine Science, November 1989
Submission No. 157 - Nature Conservation Society of SA, November 1989

36 *Submission* No. 123 - CSIRO, September 1989.

37 Workshop, Canberra, 26 October 1990, p 156.

38 *Evidence,* Melbourne, 31 January 1990, p 233.
Workshop, Canberra, 26 October 1990, p 156.

39 *Submission* No. 79 - Division of Australian Environment Studies, Griffith University.

40 Workshop, Canberra, 26 October 1990, p 155.

that is presently scattered among a variety of agencies, institutions and private companies, would avoid a lot of duplication of research.

Existing Commonwealth Information Systems

4.63 A number of Commonwealth agencies maintain databases or information systems of material relevant to coastal management. The Department of the Arts, Sport, the Environment, Tourism and Territories operates the Environmental Resources Information Network (ERIN). Its purpose is to provide geographically related environmental information to assist planning and decision-making. The Department is currently developing:

- a geographic information system focussing on species distribution, vegetation and natural heritage, to be integrated with landscape information and socio-economic data;

- decision support systems to integrate data and provide the analytical tools to simplify decision-making; and

- a directory of sources of environmental information.

4.64 The National Resource Information Centre (NRIC), operated by the Department of Primary Industries and Energy, incorporates an inventory of sources of natural resource information: what data is available, who is responsible for it, where it is located, and how it may be accessed. The Centre is developing a national directory of Australian resources and negotiating agreements with the States on exchanging and sharing national resource information. It also is conducting project work for the Murray-Darling Basin Commission.[41]

4.65 In association with the Bureau of Mineral Resources, Geology and Geophysics, also within the Primary Industries and Energy portfolio, NRIC has recently initiated a pilot program to establish an information system containing interpretive geoscientific data on the environments and resources of the coastal zone. This coastal information system provides for the collection, archiving and manipulation of coastal environmental, geoscientific resource data and includes an in-depth project at Shark Bay in Western Australia. The Bureau also undertakes geoscientific studies of the coastal zone which provide baseline information on the origin of coastal features, neo-tectonic activity and coastal processes.

4.66 The NRIC and ERIN databases are being further developed cooperatively, in order to establish a national geographical information system, and the Director of NRIC told the Committee that the NRIC 'holds, as it were, the embryo of a national coastal environmental database-cum-geographic information system'.[42]

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41 *Evidence*, Sydney, 12 December 1990, p 1385.

42 op. cit., p 1386.

4.67 The Division of Wildlife and Ecology of the CSIRO maintains a system called Coastal ARIS (Australian Resources Information System) which contains demographic and a range of bio-physical data for 10 kilometre segments of the coastline.

4.68 The Australian Surveying and Land Information Group of the Department of Administrative Services maintains data on satellite imagery of the coastline, topographic and thematic maps, aerial photographs and a small scale geographical information system with data on bathymety (ocean depths and coastline) and hydrology (streams, lakes and reservoirs).[43]

4.69 The CSIRO pointed out to the Committee that a major barrier to the transfer of information between Commonwealth agencies, and therefore to improved decision-making, is the Commonwealth's policy of recovering the full cost of data acquisition.[44] This means that agencies such as the CSIRO have to pay other agencies, such as the Australian Surveying and Land Information Group, for information. As a result, the federal agencies at times cannot afford the best available data upon which to conduct research and decision making.

4.70 The Committee considers that better procedures to permit transfer of suitable coastal information between the agencies should be developed as soon as possible. One of the existing major Commonwealth databases should be the prime repository for such coastal information as has been prepared and collected by other agencies. Perhaps NRIC or ERIN could purchase or takeover the CSIRO database.

Conclusion

4.71 There is still a lack of understanding and knowledge of coastal processes. The Committee recognises the reasoning behind suggestions that a national database inventory for the coast be established but believes it is important to take a broader view. The lack of data on the coastal zone is a reflection of the larger problem that Australia lacks baseline resource data over much of the continent. Additionally, it is not clear that a national database would overcome the problem of transfer of information between scientists and managers. Relevant information gathered by the Commonwealth's various agencies should be held in one of the major federal databases and arrangements for the transfer of information between agencies should be improved and upgraded.

4.72 The Committee recommends that:

> (2) **One of the existing Commonwealth databases should be the prime repository for such information concerning the coastal zone as has been prepared and collected by the various Commonwealth agencies. Arrangements for the transfer of information between Commonwealth agencies should be improved and upgraded.**

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43 *Submission* No. 167 - Department of Administrative Services, November 1989.

44 CSIRO, *Australia's Environment and its Natural Resources: An Outlook 1990*, p 39.

4.73 Certainly there is a need for more research in particular fields and it would appear that in providing environmental research grants to tertiary institutions the Commonwealth should adopt the suggestion by ASTEC that it identify priority research areas.

Assessing the Economic Value of the Environment and Quantification of the Costs of Pollution

4.74 In 1980 the House of Representatives Standing Committee on Environment and Conservation considered that, in making decisions about alternative proposals for the allocation of land, a cost benefit approach should be adopted. The most effective use of coastal resources is that which adds the greatest amount to the welfare of society. However, the value of environmental resources is difficult to measure, as the Committee noted:

> The problem of estimating the value of land kept in its natural state makes it difficult to compare the relative merits of land use proposals. Some bias towards commercial venture can be expected since it is difficult to justify keeping land in its natural state when the alternative benefits of commercial development can be more accurately quantified.[45]

4.75 Ten years later, placing a dollar value on the environment is not necessarily much easier but, in view of greater community concern about environmental issues, current economic downturn, and rising population pressures in the coastal zone, the stakes are higher and all parties are likely to fight harder to win. The search for an appropriate way of quantifying the costs and benefits of proposed activities in the coastal zone has become all the more important as governments are increasingly caught up in evaluating the many claims and counter claims being made in public debate about the environment.

4.76 Commenting on the utility of trying to quantify the cost of pollution, the Department of Primary Industries and Energy suggested that attempts to do so are useful because:

- Explicit recognition is made of these costs which in the past have often been treated as externalities and ignored.

- At times the social costs of the effects of pollution can far outweigh the benefit of the activities generating them, particularly when there are valuable fisheries and/or ecologically sensitive ecosystems involved.

- If polluters are made to pay for their environmental costs or levels of pollution discharged, they are also forced to look for the most cost effective pollution amelioration or treatment methodologies, or to adopt preventative technologies. This is why, besides being economically more efficient, the concept of the polluter pays principle is attractive.

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45 House of Representatives Standing Committee on Conservation and Environment, op. cit., p 16.

4.77 The Department also stated that, since pollutants affect more than those resources that have market determined prices, different techniques have to be used to quantify the cost of, for example, loss of aesthetic value or reduction in ecological processes which sustain a dynamic ecosystem. It concluded that if care is taken in using more than one technique for evaluation purposes, and their shortcomings and inherent biases are recognised at the outset, quantification of pollution costs can be an extremely valuable component in any project evaluation.[46]

4.78 According to the Australian Nuclear, Science and Technology Organisation:

> It is essential to estimate quantitative dollar values for the coast, cost of remediation and value of an area to the community. These values should not be difficult to estimate now that several remediation cases have been documented.[47]

Apart from noting the difficulty of developing agreed, durable and accurate ways of quantifying costs and benefits however, few submissions discussed the issue or proposed solutions.

4.79 The New South Wales Government advised the Committee that 'the State Pollution Control Commission is unable to provide quantitative costs for remedying the problems caused by the pollution of waters. The problems are wide and varied, making it difficult to assign dollar values to all the tangible and intangible factors involved'.[48] The methodical difficulties in assessing or determining such costs were discussed further by the South Australian Government in its submission. One method it suggested is to refer to the costs of specific ameliorative programs, such as the cost of the sand replenishment program for Adelaide's southern beaches ($4.6 million for 1988/89).[49]

4.80 As part of its inquiry into the use of the Kakadu Conservation Zone, the RAC recently used the contingent valuation method to assess how much Australians are willing to pay to avoid environmental damage from mining at Coronation Hill. It was the first such valuation study carried out in Australia. Industry representatives were reported to be somewhat critical of the technique and its usefulness in assessing a value for the natural environment remains a matter for public debate.

Conclusion

4.81 The Committee is aware that it is difficult to put a dollar value on the natural environment, but to be able to quantify the value of a particular ecosystem, such as a mangrove or seagrass beds, will be useful in making management and political decisions about the utilisation of resources. The pioneering work of the RAC in conducting a contingent valuation study as part of its inquiry into use of Coronation Hill is to be commended.

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46 *Comments on Discussion Paper*, Department of Primary Industries and Energy, January 1991.

47 *Comments on Discussion Paper*, Australian Nuclear Science and Technology Organisation, December 1990.

48 *Submission* No. 164 - New South Wales Government, October 1989, p 27.

49 *Submission* No. 145 - Government of South Australia, October 1989.

4.82 However, as the Department of Primary Industries and Energy pointed out, quantitative dollar valuations of the costs of pollution or particular ecosystems are useful provided the limitations inherent in such an approach are acknowledged. The monetary value attached to a mangrove ecosystem may at first glance appear to be significantly less than that of a multi-million dollar tourist development, but if the long term values of habitat protection, shore stabilisation, commercial fisheries, water quality, wildlife, sediment trapping, recreational use and other multiple use options are evaluated, the mangrove system yields a very high opportunity cost for 'non-development'.

5. SEWAGE DISPOSAL AND WATER QUALITY

Public Concern about Ocean Disposal of Sewage

5.1 The disposal of sewage by off-shore outfalls into the ocean is one of the principal human impacts on the coast that is of concern all around Australia and is the major source of pollution of coastal waters.

5.2 In each capital city (except Canberra) primary or secondary treated sewage, which in many instances contains industrial and toxic wastes, is discharged to the sea via offshore outfalls. Ocean outfalls are also the main form of disposal for smaller urban centres along the coast. The Committee was advised of several areas where there is local controversy and concern about the impact of sewage disposal and visited a number of these during the course of the inquiry.

5.3 Concern about ocean discharge of sewage focusses primarily on:

- changing the local marine environment;
- the viability of fisheries;
- the effect on public health of the presence of bacteria and viruses;
- the effect on public health of the bioaccumulation of toxicants in marine life and possible entry into the food chain;
- the amenity of recreational areas affected by unpleasant residues and rubbish in waters; and
- possible links with other environmental problems, such as algal blooms.

5.4 During its visit to Tasmania, the Committee was informed that a major source of pollution of the Derwent River in Hobart is the sewage discharged from the fifteen treatment plants operated by local government councils along the river.[1] One noticeable effect reported by local councils is that the recreational use of popular beaches along the river declined during the 1989-90 summer, despite data collected by councils which indicated the water was suitable for bathing.[2] The Committee was advised that the local councils in Hobart and the Government of Tasmania have agreed to a program costing $20 million to upgrade sewage treatment plants discharging into the Derwent.

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1 *Submission* No. 185 - Hobart Municipal Councils' Association, September 1990.

2 *Evidence*, Hobart, 25 September 1990, p 855.

Panel 5A Local Opposition to Sewage Outfalls in Victoria

Intense local controversy has centred on the treatment plant and off-shore outfall at Black Rock along the south western Victorian coast. Operated by the Geelong and District Water Board (GDWB), the Black Rock plant is a fine screening (primary) treatment plant which was commissioned in 1989 at a cost of $32 million. It discharges approximately 30,000 megalitres per annum of screened wastewater via a submarine pipe 1.2 kilometres offshore to Bass Strait. The discharge of wastewater is subject to a licence by the Environment Protection Agency of Victoria. The GDWB maintains that effluent quality is generally within the limits of the current licence and receiving water quality has improved considerably since the plant began operation.[3]

At the Committee's public hearing in Geelong, representatives of a number of community groups said that there should be no ocean outfalls at all. These groups, such as the Ocean Grove Foreshore Committee (a statutory committee responsible for the beach foreshore reserve at Ocean Grove, east of the Black Rock plant), are concerned especially about: possible health risks, as local surfers have complained of eye, ear and throat infections; the physical quality of the water, which contains grease and oil at times; and the effect of surfactants, which are believed to be responsible for the apparent decline in and dieback of coastal vegetation. Similarly, local residents at Anglesea were concerned about the possible health effects of a proposed extension into the local bay of an outfall pipeline from the small plant and ocean outfall there, also operated by the GDWB.

The GDWB advised that it had set up a consultative committee to provide community input to the Board and held numerous meetings and workshops in order to improve communications with the local groups.

5.5 The Committee was also advised about the objections of some local residents of the Gippsland Lakes region to the decision of the Victorian Government to construct an ocean outfall at Ninety Mile Beach, to carry wastewater from the Latrobe Valley. Another example of controversy about outfalls is that at Black Rock, as shown in Panel 5A. Concerns about the effects of sewage upon the marine environment and fauna were also expressed by the GBRMPA and the South Australian Fishing Industry Council.

Sewage Disposal in Sydney

5.6 Recent concern about the possible effects of the disposal of effluent into the ocean has focussed particularly on the problems of Sydney, where primary treated sewage has been discharged into the seas for almost 100 years. These problems have without doubt led to a heightened concern on the part of community groups and the public generally around Australia about the effects of disposal of sewage into the seas. Several public

3 *Submission* No. 155 - GDWB, January 1990. The Board advised at the public hearing that the licence was being reviewed by the EPA. *Evidence*, Geelong, 13 June 1990, p 371.

authorities responsible for sewage treatment in various parts of Australia told the Committee that public perception about their operations had been strongly influenced by the controversy about the impact of sewage disposal on the beaches at Sydney:

> for the majority of the public any ocean discharge is now unacceptable and in its mind can only result in the same 'pollution disasters' as the ones being highlighted by the media.[4]

Many of these authorities stressed that in most cases they discharged sewage treated to a secondary level, whereas in Sydney the sewage receives only primary treatment and contains industrial wastes.[5]

5.7 In response to public concern about ocean pollution and the adequacy of the Sydney Water Board's beach protection programs, including construction of three deepwater ocean outfalls (see Panel 5B), the New South Wales Government commissioned Camp Dresser and McKee International to assess the Water Board's protection programs in March 1989. The consultant's report concluded that the existing level of treatment at the three major ocean outfall plants which discharge 70% of Sydney's daily sewage output of 1300 million litres (Malabar, North Head and Bondi) was inadequate, and that removal of suspended solids and grease needed to be improved. The report also recommended that the State Pollution Control Commission's (SPCC) criteria for the discharge of effluent be upgraded.

5.8 The report found that a major deficiency in the protection program was the inability of the sewerage system to deal with wet weather flows. As a result, untreated sewage has often entered streams and bays through stormwater outlets, and beaches close to outlets have experienced high bacterial counts more frequently than permitted under SPCC criteria. A bacteriological study of the status of bathing waters conducted between 1983-87 showed that the northern surfing beaches failed to meet bathing water criteria 14% of the time during dry weather conditions, but were unsuitable for swimming 71% of the time after rainfall.[6]

5.9 The report concluded that the construction of the three deepwater ocean outfalls was appropriate and that the Water Board's trade waste policy was well designed and implemented. These conclusions, however, have been challenged by numerous community, environmental and local government organisations.

5.10 At its first public hearing in Sydney, at Waverley Municipal Council Chambers in November 1989, the Committee was informed of the condition of Sydney's beaches by the Sydney Coastal Councils (SCC), an organisation consisting of local councils in Sydney with ocean or harbour-side boundaries. The SCC mentioned that water samples taken by Waverley Municipal Council during 1988 and 1989 revealed that 36% of samples from Bondi beach and 42% of samples from Tamarama failed to comply with the criteria for

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4 *Submission* No. 101 - Water Authority of Western Australia, September 1989.

5 *Comments on Discussion Paper,* Department of Public Works, New South Wales, February 1991.

6 Camp Dresser & McKee International, *Review of Sydney's Beach Protection Program,* 1989, p 2-9.

acceptable bathing waters as determined by the New South Wales Department of Health.[7] It was also pointed out that Sydney beaches had a significant problem of sands being spoiled by grease particles and other floatable sewage materials.

5.11 Other witnesses at the hearing mentioned that certain pesticides and metals had been shown to have accumulated in fish and other marine life in the seas adjacent to Sydney's beaches and in ocean sediments. The Committee observed during an inspection of the Bondi treatment plant the release of the effluent from the shoreline outfall which leads to the discolouration of ocean waters in the form of a highly visible surface plume, extending at times several kilometres from the outlet.

5.12 Since then, several programs have been implemented and other action taken by the Government of New South Wales. The Premier, the Hon. N Greiner MP, announced in December 1989 a 20 year plan providing for a pollution abatement program to upgrade water treatment to secondary standard and to address public health problems. The plan included a five year special environmental program, funded by an environmental levy of $80 per annum on Water Board customers. This levy was expected to raise approximately $440 million, which the Board, in consultation with the community, identified to be spent in the following ways:

- improving sludge disposal ($47 million)
- controlling urban runoff ($6 million)
- reducing sewage overflows ($37 million)
- reducing ocean pollution, including upgrading of plants ($215 million)
- improving water quality of streams in the Blue Mountains ($71 million).[8]

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7 *Evidence*, 15 November 1989, Sydney, p 102.

8 Sydney Water Board, *Report on the Special Environment Program*, September 1990.

Panel 5B Deepwater Ocean Outfalls

The Sydney Water Board began to consider deepwater submarine discharges in the early 1970's. Environmental Impact Statements were released in 1979-80 for deepwater outfalls from Bondi, Malabar and North Head. In 1980, the Water Board adopted the deepwater scheme as its preferred strategy to upgrade the ocean sewerage system. The New South Wales Government approved the project in 1984.

The Malabar and North Head deepwater ocean outfalls commenced operation in September and December 1990 respectively. The Bondi outfall is expected to commence operation by the middle of 1991. The estimated total cost is $350 million.

The three ocean tunnels extend between 2 and 4 kilometres off-shore and lie up to 80 metres below the ocean surface. The outfalls are designed so that the pipelines dispose of treated effluent through diffusers with multiple discharge points. Computer modelling of the performance of the outfalls led the Water Board to predict a high dilution of the effluent discharged into the receiving waters. It was also considered that the saltwater environment would ensure rapid bio-degradation and bacterial die-off.[9] Initial reports of the effects of the outfalls are that the water conditions at nearby beaches have improved considerably.[10]

At its public hearing in Sydney in December 1990 the Committee observed that there had been an almost constant flow of announcements and actions concerning the sewage problem. In response to a question about the effectiveness of the deepwater ocean outfalls, a representative of the SPCC told the Committee that, since the commencement of operation of the Malabar outfall, 'the conditions at two neighbouring beaches have changed dramatically', so Malabar beach is now 'one of the cleanest beaches along the Sydney coastline, together with Little Bay'.[11] The Committee was also advised that the SPCC has responsibility for a long term monitoring program on the effects of the outfalls on marine life, water quality and oceanography.

5.13 In January 1991, the New South Wales Government and the Sydney Water Board launched a strategy entitled *Towards Clean Beaches and Ocean Waters for Sydney.* The strategy outlined several proposed works, including the redirection of the Vaucluse sewerage system which presently discharges at Diamond Bay (near South Head) to Bondi at a cost of $20 million, and improvements to the stormwater system at a cost of $2.6 million. Testing of the following newly developed treatment technologies was also announced:

. magnetite process, devised by CSIRO, at Malabar;

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9 *Submission* No. 164 - Government of New South Wales, October 1989.

10 *The Australian*, January 7, 1991.
Telegraph Mirror, January 7, 1991.

11 *Evidence*, Sydney, 13 December 1990, p 1410.

- dissolved air flotation at North Head;
- chemically assisted sedimentation at Bondi; and
- microfiltration, by a Sydney company Memtec Limited, at Cronulla (see panel 5C).

Each treatment process, except the microfiltration trial, will treat approximately one third of the total sewage flow at each plant with the aim of removing more than 80% of the solids in effluent discharged into the ocean. However, the organisation Stop the Ocean Pollution criticised the strategy, claiming that it is providing technologies somewhat less effective than secondary treatment.[12]

5.14 At the Committee's second public hearing in Sydney, in December 1990, the Water Board advised that among the actions it had taken since the Camp, Dresser McKee report it had:

- introduced a new trade waste policy in 1990, the provisions of which include a prohibition on the discharge of organochlorine pesticides into the sewers;
- instituted a series of comprehensive small scale trials of new treatment technologies at the three major plants;
- installed booms across some stormwater drains entering Sydney harbour;
- planned to install gross pollutant traps at Bondi beach to control stormwater; and
- commenced a monitoring program of stormwater quality along the Sydney coastline has commenced.

5.15 The Committee received evidence that future controversy concerning the disposal of effluent into the oceans is likely to focus on the bioaccumulation of toxic substances in fish, crustaceans and other marine life and marine sediments. During its visit to the Marine Science Laboratories at Queenscliff, the Committee was informed of the presence of fish in Corio Bay with physical abnormalities, which has subsequently been reported in the media.[13] At the Committee's Workshop in October 1990, the SPCC representative mentioned that studies by the Commission had found levels of hexachlorobenzene and mercury above recommended health levels in fish around the shoreline outfalls.[14] Representatives of Stop the Ocean Pollution had made the same point at the Committee's first public hearing in Sydney in November 1989.

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12 *The Canberra Times*, 28 January 1991.

13 *The Age*, 19 January 1991.

14 Workshop, Canberra, 26 October 1990, p 19.

Panel 5C An Innovative Approach to Wastewater Technology - Microfiltration

An Australian company Memtec Limited has developed a membrane microfiltration system which, the company claims, completely removes solids, oils and grease, toxic heavy metals, organochlorines, bacteria and viruses from effluent.

The microfiltration process involves the pumping of effluent into a chamber consisting of numerous membranes with fine pores. The solids are retained on the outside of the membranes with the liquid passing through the fibre pores. A compressed air backwash is used at regular intervals to clean the membranes, carrying away the collected solid material which can be taken away for treatment.

In September 1990 a microfiltration demonstration plant was commissioned, at Blackheath in the Blue Mountains west of Sydney, to treat sewage from the Water Board's existing plant to a tertiary level. The plant was developed by Memtec and the Water Board at a cost of $2.3 million. The Commonwealth Government contributed $0.6 million to the plant through the National Procurement and Development Program.

The company is developing a small scale 'Membio' treatment plant for the Water Board at Cronulla in Sydney. The Membio plant has a two stage treatment process, incorporating a bioreactor and membrane, which Memtec claim produces a tertiary quality effluent. It is anticipated that a full scale treatment plant, including the membio component will cost $40 million.

Several district water boards in Victoria are also currently evaluating the Memtec technology. The Geelong and District Water Board is considering the application of the technology to its treatment plants at Black Rock and Anglesea.

Monitoring of Industrial Effluents Discharged into the Sewerage System

5.16 As mentioned earlier, many industries dispose of their effluents into the local sewerage system. Regulation, treatment and control of industrial wastes is a major problem for sewerage authorities with industrial activities in their jurisdiction.

5.17 The Committee inspected the operations of the Latrobe Valley Water and Sewerage Board in Victoria, a regional statutory authority responsible for water supply and wastewater services in the Latrobe Valley region.

5.18 The Board operates an automated computer monitoring system of effluents discharged from the industrial plants in the region. At each plant automated sampling of effluent takes place on-site and the quality of the effluent is continually monitored. If the readings show the effluent is exceeding specified limits, alarms are activated on site and at the Board's central office. Pump shut-downs are also activated at the plant, and discharge into the sewerage system is automatically shut-off until the problem is rectified.

5.19 The advantages of such a system are several: the Board is aware of the quality of the incoming effluent; continuous monitoring means that 'illegal discharges' beyond prescribed limits cannot be made out of working hours; and each industrial plant has

greater responsibility for the quality of their effluent. It was pointed out that one of the outcomes of the monitoring system has been the improved quality of wastewaters released by local industries.

5.20 The Board advised that usually any new industry establishing in the region and seeking to connect with the sewerage system would be required to install an automated effluent monitoring system on-site, connected to the Board's central office, at their own expense.

Alternatives to Ocean Disposal

5.21 The proposition was continually put to the Committee at public hearings, informal discussions and in submissions, primarily by environmental and community groups, that there is a need to develop alternatives to ocean disposal of sewage. At the Committee's Workshop, the Director of the Australian Institute of Marine Science suggested that the Committee, 'should be considering recommendations for phasing out discharges into the sea'.[15]

5.22 Many community groups and private individuals in their submissions advocated land disposal of sewage but beyond this they failed to substantiate or expand upon the feasibility of this alternative. One notable exception was Mr Lloyd Smith, of Mullumbimby, New South Wales, who advocates the wider use of 'greenbelt disposal', a modified soakage trench design for domestic sewage disposal on the landowners own property.[16] The Committee is aware of only a few large scale initiatives concerning the treatment of wastewater being tested beyond those being trialled by the Water Board in Sydney. These are:

- CSIRO artificial wetlands wastewater treatment, whereby wetland macrophytes trap and use nutrients in wastewater. A trial plant has been developed at Coffs Harbour in conjunction with the City Council at a cost of $500,000.

- Bolivar afforestation trial. The South Australian Government has established a small plantation to trial the land disposal of wastewater through large scale irrigation of native hardwood plantations.

5.23 The option of land disposal was discussed during the Committee's Workshop on issues in the coastal zone. Several drawbacks were identified, including the need for large amounts of land with suitable soils and topography which is available for forestry and agricultural use.[17] It was also mentioned that wastewater contains industrial wastes and toxic substances that would contaminate the soil.

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15 Workshop, Canberra, 26 October 1990, p 34.

16 *Comments on Discussion Paper*, Mr L Smith, January 1991.

17 Workshop, Canberra, 26 October 1991. It was estimated that to use the existing wastewater output of the Bolivar treatment works in Adelaide would require woodlots of between 3500 - 5000 hectares.

5.24 It became evident at the Workshop that presently there are limited alternatives to ocean disposal. A common theme among speakers at the Workshop was the need to reassess the existing way of looking at sewage and to research and develop innovative approaches.

Possible Commonwealth Actions

5.25 Greenpeace Australia suggested to the Committee that the Commonwealth could enact a federal Clean Waters Act to control the discharge of pollutants from ocean outfalls and argued that the *Environmental Protection (Sea Dumping) Act 1981*, which gives effect to the London Dumping Convention,[18] should be applied to wastes from land based sources.[19] Both actions would entail the Commonwealth setting national pollution standards for disposal of effluent into coastal waters.

5.26 The Government of New South Wales was concerned about the possible implications of the Commonwealth's ratification of the Convention for the Protection of

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18 *The International Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matters.*

19 *Submission* No. 26 - Greenpeace Australia Ltd, August 1989 - supplementary submission.

the Natural Resources and the Environment of the South Pacific Region (SPREP), which could require re-examination of the land use practices of the States and Commonwealth. This Convention obliges parties to protect the ocean from sea or land based sources of pollution, protect coasts from erosion, and protect rare or fragile ecosystems. The New South Wales Government noted that under the provisions of this Convention the Commonwealth would have responsibility to ensure State laws and practices are consistent with the international obligations.

5.27 The Department of the Arts, Sport, the Environment, Tourism and Territories advised the Committee that the current development of national water quality guidelines by ANZEC is consistent with the implementation of the SPREP Convention. The guidelines are to include a model water quality management program, effluent guidelines and water quality criteria based on the protection of environmental values.

5.28 The water quality criteria are to relate to the particular uses of water, such as potability, swimming, shellfish culture and ecosystem maintenance, which require protection from pollution. Each use will have a set of numerical and narrative criteria. The guidelines will not be mandatory and their implementation lies with the States and Territories. ANZEC is also collaborating with the Australian Water Resources Council which is preparing a national strategy on wastewater and effluent management.

5.29 The Committee is aware that the Commonwealth has developed environmental guidelines for future bleached eucalypt kraft pulp mills, which include emission limits for pollutants that may be discharged into receiving waters and the atmosphere. There were suggestions during the course of the inquiry that the Commonwealth should establish industrial effluent standards in light of its actions in setting standards for new paper pulp mills.

Conclusions

5.30 The lack of alternative approaches to the existing system of discharging sewage into the oceans is a matter of concern to the Committee. As noted in Chapter 4, the Commonwealth is already the largest contributor to marine and environmental research in Australia. The Committee believes some of the present funding should be specifically directed to the research and development of new wastewater treatment technology.

5.31 The Committee recommends that:

> (3) **A proportion of existing Commonwealth environmental research funding be specifically directed to encourage research and development of new wastewater treatment technology as an alternative to ocean disposal.**

5.32 The presence of toxic substances in the marine environment caused by sewage and industrial discharges, and the bio-accumulation of these substances and their possible entry into the food chain, also require closer investigation. Information on the effects of toxic substances is important for the establishment of guidelines and standards for environmental protection.

5.33 The Committee recommends that:

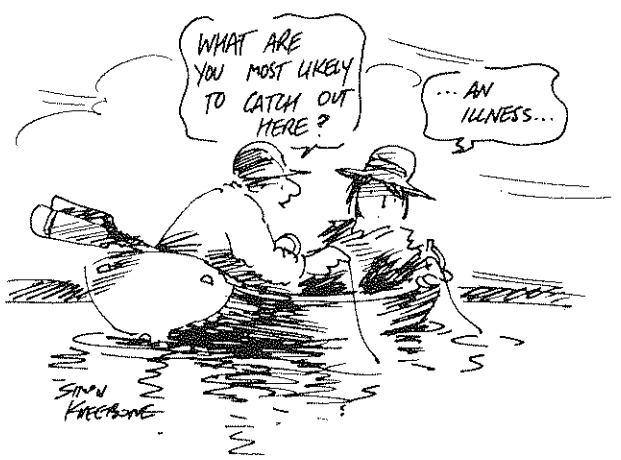
(4) **Adequate funding be provided to existing Commonwealth and State research programs investigating the likely impacts of the bio-accumulation of toxic substances in the marine environment.**

5.34 The re-use of treated wastewaters should be further encouraged and incentives provided to industries and enterprises to encourage the greater use of wastewater where suitable. Furthermore, where the activities of individuals, companies, groups or public agencies do not comply with established regulations and guidelines for the discharge of effluents, the responsible authority should be required to inform the public immediately that it has breached the existing standards, and to continue to inform the public until the breach has been rectified.

5.35 The Committee supports the development of national water quality guidelines by ANZEC and the Australian Water Resources Council and urges that they be prepared and implemented as soon as possible. Consideration should be given in the criteria for water quality to the assimilative capacity of the receiving waters to maintain existing ecological processes. Further, the guidelines should be reviewed regularly in line with new developments in technology. Again, the Committee considers that public disclosure of actions that breach the guidelines is necessary.

5.36 The Committee recommends that:

(5) **National water quality guidelines based upon the assimilative capacity of the receiving waters be prepared as expeditiously as possible. Where public or private bodies discharge effluent into waters in a manner inconsistent with or in breach of such guidelines, public notification and explanation be a mandatory requirement.**



5.37 The Minister for the Arts, Sport, the Environment, Tourism and Territories, the Hon. R Kelly, MP has stated that the proposed Commonwealth EPA will maintain a public emissions register, and that industries will be obliged to lodge details of emissions and discharges into the air, land and waters and materials stored at plant sites. The Committee believes that ANZEC should also develop uniform national performance standards for a variety of industrial discharges, including discharges from iron and steel manufacture, organic and inorganic chemical manufacture and food processing. As with the proposed national water quality guidelines, the EPA would administer and monitor these industrial standards. The standards should be based on Best Achievable Technology Economically Achievable (BATEA - the same criteria used for the pulp mills program). Public participation should also be encouraged in the formulation of these standards.

5.38 The Committee recommends that:

(6) **The Australian and New Zealand Environment Council and/or the Australian Water Resources Council should develop national standards for waste discharges from all types of industry, based upon the use of pollution equipment utilising the Best Available Technology Economically Achievable. Public participation in the formulation of such standards should be encouraged, and provision made for incorporation in the proposed federal coastal legislation. Such standards should be periodically reviewed by the proposed Environment Protection Agency in line with technological improvements in pollution control.**

(7) **The objectives of the proposed national coastal management strategy should provide that the suggested industrial effluents standards be incorporated into existing State and Territory pollution laws, and that industry move towards utilising Best Available Technology for pollution control, at the earliest opportunity.**

5.39 The Committee is impressed by the claims of the automated Latrobe Valley Water and Sewerage Board regarding its effluent monitoring system and believes such a system may well provide a worthwhile, simple model for the regulation of effluent discharged from industrial plants and could have application around Australia.

6. PROTECTION OF THE COASTAL ENVIRONMENT

Sustainable Development and the Coastal Zone

6.1 The issues concerning the protection of the coastal environment and management of coastal resources are encompassed by the current debate on ecologically sustainable development.

6.2 There is growing community recognition of the dependence of economic growth and development on the effective management of natural resources and on the maintenance of ecosystems. There is also increasing recognition that economic and material welfare cannot be pursued without considering the environmental factors that contribute to the community's living standards. This growing recognition and awareness of the interrelationship between the economy and the quality of the environment offers a dramatic challenge to the traditional economic objective of the maximisation of growth and the treatment by market economics of the costs of pollution as an externatility.

6.3 The Commonwealth Government has decided to formulate an ecologically sustainable development strategy. A discussion paper on the subject was released in June 1990 and nine working groups have been appointed to formulate strategies for the major industry sectors.

6.4 The development of such an ecologically sustainable development strategy provides a challenge to all those players interested in the use and management of resources. To improve the future welfare of the Australian community and to minimise resource use conflict, consideration is being given to such matters as:

- devising innovative mechanisms for valuing resources to take into account environmental impacts and external effects such as decline in water quality;

- more adequately defining rights to use resources and appropriate terms and conditions to balance current and future resource use;

- measuring costs and benefits of alternative policies or actions.[1]

All of these factors are relevant to the current problems and issues involved in the protection of the coastal zone.

6.5 The Commonwealth has indicated it intends to establish an institutional framework to encourage the adoption of sustainable practices in all sections of the economy. One of the practical outcomes it seeks is the improved co-ordination of policies and programs at all levels of government.[2]

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1 Hon. J Kerin, MP, Minister for Primary Industries and Energy, Speech to the Sustainable Agriculture Forum, 25 February 1991.

2 ibid.

Government Actions to Protect the Environment

6.6 Governments have attempted to protect and conserve the environment principally through regulatory mechanisms such as planning and land use instruments, discharge permits and environmental standards.

6.7 The CSIRO raises the use of economic instruments as a means of matching environmental objectives and economic growth in its recent publication *Australia's Environment and its Natural Resources*. It notes that:

> Levies, emission charges and fees, deposit-refund fees and marketable permits all offer mechanisms which make users and polluters aware of the opportunity costs and impacts of resource use. The main advantage of most economic instruments over regulations and standards is the great flexibility they give to industry and the positive economic returns they provide to firms that adopt environmentally enhancing strategies.[3]

6.8 Another suggestion is the creation of particular use rights. Where there is a need to limit the total amount of an activity (such as water pollution) the government could define a right to undertake that activity to an absolute limit and auction parts of that right to enterprises able to undertake the activity most productively. The introduction of transferable irrigation water rights in parts of the Murray-Darling Basin is an example of this concept.

6.9 In examining and phasing in the greater use of economic instruments, consideration must be given to shifts in the taxation system which discourage environmental damage, encourage resource conservation and promote employment in environmentally benign activities.

A Role for the Commonwealth - National Coastal Zone Management

6.10 Numerous ideas about which tasks and responsibilities are appropriate for the Commonwealth in the coastal zone were advanced during the inquiry but all correspond generally with three roles: a broad policy role; a research and information role; and a resource support role. The suggestions forwarded to the Committee were:

(i) *Broad Policy Role*

- Develop a national coastal zone management strategy, in cooperation with the States and Territories and local government, to provide an administrative framework for the co-ordination of coastal management.

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3 CSIRO, *Australia's Environment and its Natural Resources: An Outlook 1990*, p 43.

- Promote a framework of strategic planning involving a hierarchy of national, State, regional and local coastal management plans.

- Develop a long term national coastal zone development and management plan.

- Strongly encourage uniform national standards and legislation on coastal environmental issues and penalties for pollution.

- Develop national guidelines on specific issues such as tourism developments and water quality standards for waters receiving effluent from land sources.

(ii) *Research and Information Role*

- Establish a comprehensive national data base on coastal resources and coastal studies.

- Undertake and sponsor research on coastal processes and/or matters such as climate change.

- Undertake research or direct funding to projects whose technologies minimise pollution, such as alternative wastewater treatment technology.

- Co-ordinate and disseminate latest research and data from the various States.

- Prepare or fund a comprehensive inventory of coastal resources, such as a 'Coastal Resources Atlas of Australia', but only to the extent that it relates to defined management programs.

- Implement and fund community education programs such as Dune Care (NSW) to increase awareness and appreciation of Australia's coastal resources.

(iii) *Resource Support Role*

- Fund and provide technical assistance to demonstration projects in coastal areas of national prominence experiencing problems.

- Provide funding to local government for coastal protection and the preparation of coastal plans.

- Provide relevant training for local government officers with federal funding possibly tied to the provision of appropriate training.

- Assist local government planners to prepare joint plans covering more than one local government area.

- Provide additional funding for conservation groups and other non-government organisations (eg fishing industry) to improve public awareness and knowledge of coastal issues.

6.11 As a landholder, coastal manager and sponsor of research, and through carrying out its other responsibilities discussed in Chapter 3, the Commonwealth already undertakes a number of these activities. However, the Commonwealth has no overriding common purpose, objective or focus for its activities in the coastal zone; its actions are frequently reactive and ad hoc, and there is a lack of coordination among the various agencies involved.

Photograph 4 Coastline north of Cairns

A National Coastal Zone Management Strategy

6.12 The predominant theme in the submissions and other evidence presented to the Committee was a demand for a greater Commonwealth role in coastal zone management. The overwhelming majority urged the Commonwealth to take the initiative and develop, in co-operation with the States and Territories, a national strategy that provides a framework for the national coordination of coastal management. A small minority suggested the creation of a new, special purpose Commonwealth agency responsible for coastal matters.[4]

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[4] See *Submission* No. 125 - North Coast Environment Council, September 1989
Submission No. 167 - Phillip Island Conservation Society, Victoria, January 1990.

6.13 Community and environmental groups called for the Commonwealth to take a co-ordinating role in coastal management by initiating a national strategy and many suggested that the Commonwealth should have a greater responsibility for protection of the environment. These groups also generally advocated that the Commonwealth should prepare national water quality guidelines and provide financial assistance to local government. Similarly, submissions from professional and scientific organisations sought a national coastal management strategy. They often emphasised the need for greater understanding of coastal processes and greater research activity.

6.14 In contrast, the peak industry organisations that contributed submissions to the inquiry generally argued for the Commonwealth's role to be limited only to those matters over which the federal government currently has direct jurisdiction. While it was acknowledged that the Commonwealth can provide leadership in developing national strategies and standards and co-ordinating research, an active regulatory role in such matters as pollution or planning was not considered appropriate.

6.15 Local government councils and associations were strongly in favour of the Commonwealth developing a national coastal strategy in co-operation with the States. Not surprisingly, they also advocated the allocation of additional federal and State funds to assist them in preparing coastal management plans and coastal protection works.

6.16 The State governments, however, were generally reluctant to see a greater Commonwealth role but were willing to accept federal assistance on coastal matters. The Queensland Government suggested Commonwealth action would be appropriate in relation to the development of national coastal management guidelines; coastal management matters of national significance; and the provision of matching subsidies for coastal protection projects of State and national significance.[5] While the Tasmanian Government considered that 'it is important for the Commonwealth Government to practice and actively encourage the use of an integrated approach in dealing with the assessment and planning of coastal areas',[6] the New South Wales Government stated that 'there are many opportunities for Commonwealth assistance on coastal matters; however, they are not so much in the areas of policy or additional advisory councils'.[7]

6.17 Maintaining that 'if the Commonwealth wishes to play a prescriptive, policy or coercive role in resource management issues, appropriate resources and funding should be made available to help support the resultant programs', the New South Wales Government suggested that the Commonwealth could assist in providing technical advice, research and information, management guidelines and funding. Such assistance to local government would help address the critical administrative problem of lack of resources at this level. The New South Wales Government also perceived a need for national uniform legislation concerning environmental penalties and for common standards for riverine and ocean discharges.

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5 *Submission* No. 199 - Government of Queensland, March 1991. The Government advised that it is currently preparing a Green Paper on a proposed coastal protection strategy for Queensland.

6 *Submission* No. 170 - Government of Tasmania, March 1990.

7 *Submission* No. 167 - Government of New South Wales, October 1989.

6.18 Other State governments also saw the Commonwealth primarily undertaking research and information activities and providing additional funding for State and local activities as an extension of its existing responsibilities.[8] The Government of Tasmania, for example, proposed that the Commonwealth establish a National Centre for Coastal Zone Management in Tasmania, to conduct research.

6.19 The Commonwealth agency responsible for coastal matters, the Department of the Arts, Sport, the Environment, Tourism and Territories, recognised that Commonwealth, State and local government planning processes regarding the management of coastal resources should be more integrated.[9]

6.20 The Department supports the development of a national coastal strategy promulgating coastal management objectives that have been agreed to by the Commonwealth and State governments. Further, such a strategy would be very effective if it is developed in conjunction with State and local governments and adequately resourced. The Department stated that the strategy would thus be a function of the States rather than an imposition by the Commonwealth. The Commonwealth's role would be to provide the national input into the strategy.[10]

6.21 The Committee strongly believes that ***it is now time for the Commonwealth to initiate and develop a national coastal zone management strategy in cooperation with the States and Territories and Local government*** to provide a framework for the co-ordination of coastal management. Provision should be made in the strategy for the development and implementation of national guidelines particularly in respect to water quality criteria.

6.22 The appropriate role for the Commonwealth is to provide national policy guidance and practical support to the other two levels of government. It is not necessary to establish a new special purpose federal agency; nor is it appropriate for the Commonwealth to assume complete legislative control over the management of the coastal zone. The Committee stresses that if such a national strategy is to be developed and implemented it must be with the co-operation of the State and local governments.

6.23 A national coastal management strategy should incorporate agreed objectives, goals, implementation program and priorities as well as performance criteria, and be consistent with the principles of sustainable development. Its purpose would be to provide the much needed 'vision for the Australian coastline'. The strategy would therefore encompass a hierarchy of planning systems, involving national, state, regional and local management plans, derived from the preceding level, and prepared at each appropriate level.

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8 *Submission* No. 109 - Government of Western Australia, September 1989
Submission No. 145 - Government of South Australia, October 1989
Submission No. 170 - Government of Tasmania, March 1990
Submission No. 190 - Government of Northern Territory, December 1990

9 *Evidence,* Sydney, 12 December 1990, p 1306

10 ibid., p 1309

6.24 Accordingly, the Committee recommends that:

(8) **The Commonwealth Government develop without further delay a national coastal zone management strategy in co-operation with the States and Territories and local government to provide a framework for the coordination of coastal management throughout Australia. The strategy should incorporate agreed national objectives, goals, priorities, implementation and funding programs and performance criteria.**

6.25 Financial support schemes that may be provided to State and local governments must incorporate specific performance standards (such as guaranteed provision of public access to the coast, adequate provision for public participation in the preparation of coastal plans) in order to qualify for initial and further grants.

6.26 The Committee recommends that:

(9) **The Commonwealth provide financial assistance to State and local governments as part of a National Coastal Zone Management Strategy. The provision of such funding would be based on fulfilment of certain performance criteria which ensure that State, regional and local plans are consistent with the agreed national objectives and work towards achieving those objectives.**

6.27 The Commonwealth should aim to improve communication between and across all levels of government on coastal management and the Committee expects the National Working Group on Coastal Management to provide the structure by which the Commonwealth can maximise co-operation with the State and Territory governments in addressing coastal issues.

6.28 Furthermore, the Working Group is the appropriate body to initiate and develop a national strategy, agreed common objectives and performance criteria. However the Committee considers the proposed composition of the Group unsatisfactory because it would comprise only State and Commonwealth officials. It must have a broader representation of the many interests in the coastal zone, including representatives of local government, industry users, conservation groups, marine scientists and other user groups. The Committee is aware of concerns about the size of such a group, but adequate consultation should not be bypassed because of reasons of administrative expediency.

6.29 The Committee recommends that:

(10) **Responsibility for developing the national coastal strategy in co-operation with the State and Territories and local governments should be vested with the existing National Working Group on Coastal Management. However the composition of the Working Group should provide for a broader representation of interested parties, involving local government.**

6.30 Upon completion and agreement of the national strategy, and possibly the initial granting of funds to the States, responsibility for the co-ordination of the Commonwealth's involvement and responsibilities in the coastal zone should be transferred to the proposed Commonwealth Environment Protection Agency. The Agency should monitor the national aspects of the coastal strategy, administer agreed national environmental guidelines and standards (such as the water quality guidelines being prepared at the moment by ANZEC), and assess applications for financial grants to State and local government against the agreed performance criteria. Grants to the States and local government would be formally provided upon approval by the federal Environment Minister.

6.31 The Committee recommends that:

> **(11) The Commonwealth Government designate the proposed Environment Protection Agency as the federal body responsible for coastal matters and with responsibility to provide a focus for the Commonwealth's role and activities in the coastal zone.**

6.32 The provision of Commonwealth funding to State and local governments to assist development and implementation of coastal management plans would help to overcome the chronic lack of resources at the local government level. Initial grants to the States would be provided to develop, among other things, inventories of coastal resources, produce regional coastal management plans, and establish and fund research programs. To qualify for grants under the coastal protection scheme, State governments would have to demonstrate that they had the administrative arrangements and structures to develop, implement and monitor a coastal management program and to ensure public participation in the process. States would be required to demonstrate that inventories, plans and public participation mechanisms met agreed national guidelines.

6.33 Once agreement is reached on the development of a national coastal management strategy, its objectives, possible program, policies and performance criteria, the Commonwealth should consult with the States in formulating and introducing a Coastal Zone Management Act which establishes its interest in the coast.

6.34 A useful model for such legislation is the USA *Coastal Zone Management Act 1972.* This legislation established a federal interest in the coastal zone, yet responsibility for managing the coastline remains with the individual States. The main purpose of the Act is to encourage and assist the States in preparing and implementing management programs which balance the use and conservation of coastal and ocean resources. It also acknowledges the important role played by local government in coastal management. The following national objectives for coastal management are specified in the legislation:

- To preserve, protect, develop, and, where possible, to restore coastal resources.
- To encourage States to manage their coastal responsibilities wisely through the development of appropriate management programs.

- All federal agencies engaged in work affecting coastal areas to consult closely with the State agencies responsible for administering the coastal programs.

- To encourage co-operation among local, State and regional agencies.

- To assist States to overcome problems associated with new energy facilities on the coast (1976 amendment).

6.35 The legislation does not require the States to comply, but it provides the mechanisms and eligibility criteria for grants to the States to develop and implement coastal management programs at their discretion which implement these objectives. Specific benefits are provided by:

- *Program development grants.* Annual grants to states to assist the development of Coastal Zone Management Programs. States are eligible for only four grants. A single State agency is required to be designated as the lead agency.

- *Administrative grants.* State Coastal Zone Programs approved by the Secretary of Commerce are eligible for federal grants providing up to 80% of funds required to implement the plan.

- *Federal consistency.* Federal agencies undertaking activities in the coastal zone are required to comply with the State coastal zone management program.

- *Estuarine sanctuaries.* States may receive grants of up to 50% of the cost of purchasing, developing and operating sanctuaries on at least one representative estuary in each of the 11 main biogeographic zones of the continent.

6.36 Coastal plans developed by the States must specify the boundaries of the coastal zone; a definition of permissible land and water uses of the coastal zone which have a direct and significant impact on coastal waters; an inventory and designation of areas of particular State concern; the means by which the State will control permissible uses; broad guidelines on the priority of different uses; and a description of the organisational structure proposed to implement the plan.[11]

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11 For further information see House of Representatives Standing Committee on Environment and Conservation *Australian Coastal Management*, 1980, Appendix V.

6.37 The Committee recommends that:

(12) **Following preparation and development of a national coastal zone management strategy the Commonwealth enact legislation which sets out:**

a) **a federal interest in the coastal zone;**

b) **agreed national objectives;**

c) **agreed national environmental guidelines and standards (including standards for water quality and industrial waste discharged); and**

d) **financial assistance schemes to assist the States and local government to formulate coastal management plans and policies that are consistent with the objectives and goals of the national strategy.**

Jeannette McHugh
Chair

9 April 1991

APPENDIX A

INQUIRY OBJECTIVE AND GOALS

Objective

. To heighten community awareness of the nature and extent of environmental deterioration of the Australian coastal zone and encourage the development and introduction of suitable remedial measures by private and public organisations.

Goals

. To identify specific problems that are having harmful effects upon the coast.

. To identify particular areas along the coastline that are under environmental stress.

. To increase public awareness and concern about the nature and condition of the Australian coastal zone.

. To encourage public and private bodies to undertake programs to ameliorate problems identified in the course of the inquiry.

. To identify and propose specific measures that can be implemented quickly to overcome some of the major problems identified in the inquiry.

. To encourage particular government authorities to review existing practices that are identified as having a deleterious effect on the coast.

. To highlight in association with the Resource Assessment Commission and National Working Group on Coastal Management the methodological problems in assessing environmental degradation and suggesting long term solutions.

. To raise the position of environmental degradation of the coastal zone on the political agenda.

. To identify activities and the appropriate role for the Commonwealth in the coastal zone.

APPENDIX B

PROGRAM OF PUBLIC HEARINGS, INSPECTIONS AND INFORMAL DISCUSSIONS

35TH PARLIAMENT

Friday 27 October 1989, Canberra

Public Hearing - Parliament House, Canberra

Tuesday 14 November 1989, Sydney

Inspections - Bondi Beach, North Bondi sewage treatment plant, Botany Bay hydrographic model of the Maritime Services Board, Botany Bay.

Informal Discussions

- Community Committee of Review into Sydney's Beach Protection Program

Wednesday 15 November 1989, Sydney

Public Hearing - Waverley Municipal Council Chambers

Tuesday 30 January 1990, Melbourne

Inspections - South East Purification Plant - Carrum, Patterson Lakes, Pt Nepean National Park, Cape Schanck, Phillip Island.

Informal Discussions

- Phillip Island Conservation Society

Wednesday 31 January 1990, Melbourne

Public Hearing - Parliament House, Melbourne

36TH PARLIAMENT

Tuesday 12 June 1990, Geelong

Inspections - Werribee Treatment Plant, Black Rock plant and ocean outfall.

Informal Discussions

- Melbourne and Metropolitan Board of Works, Werribee City Council, Geelong and District Water Board, Ocean Grove Foreshore Committee, Ocean Grove Community Association, Australian Surfriders' Association, Queenscliff Marine Science Laboratories.

Wednesday 13 June 1990, Geelong

Public Hearing - Geelong City Council Chambers

Wednesday 27 June 1990, Townsville

Inspections - Wonderworld Aquarium.
Informal Discussions
- Australian Institute of Marine Science, James Cook University, Townsville City Council, Thuringowa City Council, Great Barrier Reef Marine Park Authority.

Thursday 28 June 1990, Magnetic Island, Mossman

Inspections - Magnetic Keys - Magnetic Island, Mossman Central Mill and prawn farm ponds.
Informal Discussions
- GBRMPA, Linkon Inc, Mossman Central Mill Company Limited.

Friday 29 June 1990, Cairns

Public Hearing - Cairns City Council Chambers

Thursday 19 July 1990, Lismore

Informal Discussions
- Greening Australia, Trees, North Coast Aboriginal Land Council, Ms Cathie Potter, Ms Dorothy Mullers, Ms Charlelle Craft, Mr Alan Oshlacks.

Seminar - Centre for Coastal Management, University of New England, Northern Rivers.

Friday 20 July 1990, Coffs Harbour

Inspections - Sawtell Point, Opal Cove Resort, Pacific Cove Resort.
Public Hearing - Coffs Harbour Council Chambers

Wednesday 8 August 1990, Adelaide

Inspections - Hardwood irrigation afforestation trial project - Bolivar, Sturt River, Lake Patawolonga, Glenelg Beach.
Informal Discussions
- Engineering and Water Supply Department of South Australia, Friends of the Patawolonga, Glenelg Residents Association, Glenelg Sailing Club, South Australian Fishing Industry Council.

Thursday 9 August 1990, Adelaide

Public Hearing - South Australian Government Centre

Tuesday 4 September 1990, Windsor

Inspections - Memtec manufacturing plant, pilot treatment system - Windsor - Richmond.
Informal Discussions
- Memtec Limited.

Tuesday 25 September 1990, Hobart

Inspections - Derwent River, Pasminco Industries plant - Risdon.
Informal Discussions
- Pasminco-EZ Industries, State and local government officials.
Public Hearing - Parliament House, Hobart

Wednesday 26 September 1990, Burnie

Inspections - Associated Paper and Pulp Mill, Tioxide Australia - Burnie, coastline Burnie to Devonport.
Informal Discussions
- City of Burnie, Mr Chris Miles, MP, Associated Pulp and Paper Mills, Tioxide Australia P/L.

Thursday 27 September 1990, Devonport

Informal Discussions
- Associated Paper and Pulp Mill - Wesley Vale Mill.
Public Hearing - Devonport Council Chambers

Friday 26 October 1990, Canberra

Workshop - Parliament House, Canberra

Thursday 1 November 1990, Darwin

Inspections - Darwin Harbour, Cox Peninsula.
Public Hearing - Beaufort Hotel

Friday 2 November 1990, Darwin

Inspections - Darwin environs

Wednesday 21 November 1990, Perth

Inspections - Scarborough Beach, coastline from Scarborough to Busselton.
Informal Discussions

- City of Stirling, State Government of Western Australia, Town of Kwinana, Warnbro Residents Association, Mandurah Town Council, Association of Mining and Exploration Companies, Shire of Busselton.

Thursday 22 November 1990, Perth

Informal Discussions

- Coastal Management Co-ordinating Committee - Government of Western Australia

Public Hearing - Albert Facey Building, Perth

Wednesday 12 December 1990, Sydney

Public Hearing - Parliament House, Sydney

Thursday 13 December 1990, Sydney

Public Hearing - Parliament House, Sydney

Thursday 31 January 1991, Byron Bay

Informal Discussions

- Public Meeting, Byron Shire Council Chambers

Tuesday 5 - 7 February 1991, Broome/Kimberleys

Inspections - Broome and environs, Cape Leveque Peninsula
Informal Discussions

- Kimberley Aboriginal Law and Culture Centre, Broome Botanical Society, Kimberley Conservation Group, Mr Paddy Roe (Yawaru People), Broome Shire Council, private citizens

Monday 25 February 1991, Gippsland Lakes

Inspections - Ninety Mile Beach ocean outfall, Dutson Downs Treatment Plant
Informal Discussions

- Rosedale Action Group, Gippsland Lakes Coalition, Save the Ninety Mile Beach Committee, Lochsport Foreshore Committee, Latrobe Valley Water and Sewerage Board, Australian Timber and Allied Industries Union, Esso Australia, APM, Maryvale

APPENDIX C

INDEX OF SUBMISSIONS AND RESPONSES TO DISCUSSION PAPER

INDEX OF SUBMISSIONS

Submission No.	Author
1	Mr I Bell (VIC)
2	Livingston Shire Council (QLD)
3	Mrs M Hanlin (WA)
4	Mr C Levy (TAS)
5	Ms E Harvey, MP (SA)
6	Mrs P J Power (WA)
7	F Sanders
8	F W Thomas (NSW)
9	G Bradford (QLD)
10	B A & M M Holdorf (VIC)
11	Mr R Pennington (QLD)
12	Gosford District Wildlife Conservation Society (NSW)
13	Mr M Cottee (NSW)
14	Ms J Shield (VIC)
15	The Vaucluse Progress Association (NSW)
16	Mr H Compton (NT)
17	James Cook University of North Queensland (QLD)
18	The Coastwatchers Association (NSW)
19	Tioxide Australia Pty Ltd (TAS)

20	Surfers' Appreciating Natural Environment (VIC)
21	Sorell Municipal Council (TAS)
22	Mr J Roe (QLD)
23	Coffs Harbour National Park Support Group and supplementary submission (NSW)
24	Australian Museum (NSW)
25	Ocean Grove Foreshore Committee Incorporated (VIC)
26	Greenpeace Australia Ltd and supplementary submission (NSW)
27	Australian Surfriders Association (VIC)
28	Conservation Council of Victoria (VIC)
29	Launceston City Council (TAS)
30	Ravensthorpe Shire Council (WA)
31	Friends of Lesueur (WA)
32	Ms G Palmer (VIC)
33	Cottesloe Town Council (WA)
34	R M Rabbidge (NSW)
35	Port Hedland Town Council (WA)
36	Esperance Shire Council (WA)
37	Dr I Wallis (VIC)
38	Australian Institute of Landscape Architects (TAS)
39	The S.T.O.P. Committee (Stop The Outfall Pollution) (NSW)
40	National Parks Association - Three Valleys Branch (NSW)
41	The Ulitarra Society Inc (NSW)
42	Save the Ninety Mile Beach Committee (VIC)
43	Broome Botanical Society Incorporated (WA)

44	Natural Environment Incorporated (NSW)
45	Greenforce (WA)
46	Travis Partners Pty Ltd (NSW)
47	The Environment Centre NT Incorporated (NT)
48	Clean Up Australia Ltd (NSW)
49	Noosa Shire Residents' & Ratepayers' Association Incorporated (QLD)
50	The Wilderness Society - Kununurra Branch (WA)
51	Kimberely Conservation Group - Broome Branch (WA)
52	The Glenelg Residents Association Incorporated (SA)
53	Australian Institute of Landscape Architects- WA Group (WA)
54	Centre for Coastal Management, University of New England, Northern Rivers (NSW)
55	Ocean Grove Community Association (VIC)
56	South Australian Fishing Industry Council Incorporated (SA)
57	Year 12 Students, Preshil, the Margaret Lyttle Memorial School (VIC)
58	Rosedale Shire Council (VIC)
59	Phillip Island Conservation Society Incorporated (VIC)
60	Scuba Divers Federation of Australia (SA)
61	Electrolytic Zinc Company of Australasia Limited (TAS)
62	Sussex Inlet Resident Action Group (NSW)
63	The Wildlife Preservation Society of Queensland Inc. (Hinchinbrook Branch) and Taylors Beach Progress Association (QLD)
64	Busselton Shire Council (WA)
65	Ocean Watch (NSW)
66	Warneet Foreshore Committee of Management (VIC)

67	River Districts Association (WA)
68	Stirling City Council (WA)
69	Carnamah Shire Council (WA)
70	Mr M Haward (TAS)
71	Land Conservation District Committee - Warnbro (WA)
72	Dr G Jones (QLD)
73	The Rosedale Action Group for the Environment (VIC)
74	Rockingham City Council (WA)
75	Coffs Harbour Environment Centre (NSW)
76	Department of Defence (ACT)
77	Centre for Marine Science, University of New South Wales (NSW)
78	Coast and Wetlands Society Incorporated (NSW)
79	Division of Australian Environmental Studies, Griffith University (QLD)
80	Mr F Tlozek (VIC)
81	Concerned Citizens for Industrial Control (QLD)
82	Stradbroke Island Management Organization (QLD)
83	SGS Australia Pty Ltd (NSW)
84	Cockburn Sound Conservation Committee (WA)
85	Gingin Shire Council (WA)
86	Save Our Coast Group (TAS)
87	Australian Nuclear Science and Technology Organisation (NSW)
88	Camden Haven Protection Society (NSW)
89	Australians for an Ecologically Sustainable Population (ACT)
90	Queensland Sport and Recreational Fishing Council (QLD)

91	Mr J Shepherd (SA)
92	Mr S Mattingley (SA)
93	Cockburn City Council (WA)
94	Mr P C Sims (TAS)
95	The Institution of Engineers (ACT)
96	Friends of the Patawalonga (SA)
97	Warnbro Residents Association (WA)
98	Ecology and Environment Group, Sussex Inlet Foundation for Community Development Incorporated (NSW)
99	Australian Conservation Foundation, Portland Chapter (VIC)
100	The National Trust of Australia (NSW)
101	Water Authority of Western Australia (WA)
102	North Queensland Conservation Council Incorporated (QLD)
103	Dandaragan Shire Council (WA)
104	Mr I Lovegrove (WA)
105	Comet Bay Coastal Impact Committee (WA)
106	Portland Water Board (VIC)
107	Australian Waste and Wastewater Association (NSW)
108	G A & C D Reynolds (WA)
109	Coastal Management Co-ordinating Committee - WA Government (WA)
110	Port Melbourne City Council (VIC)
111	Mr P Carney
112	Australian Petroleum Exploration Association Limited (NSW)
113	Tamar Region Master Planning Authority (TAS)

114	Citizens Helping Inskip Peninsula (QLD)
115	Greenhead Ratepayers & Progress Association (WA)
116	Mrs L Boshammer (WA)
117	Australian Institute of Landscape Architects - Victorian Group (VIC)
118	Leeman Ratepayers & Progress Association Incorporated (WA)
119	Lesueur Landholders Powerhouse Action Group (WA)
120	Newcastle City Council (NSW)
121	Coorow Shire Council (WA)
122	CSIRO (ACT)
123	The Country Shire Councils' Association of Western Australia (WA)
124	Trinity Bay & Inlet Society (QLD)
125	North Coast Environment Council Incorporated and supplementary submission (NSW)
126	Great Barrier Reef Marine Park Authority (ACT)
127	C.E.S.S. (Campaign to end Sewage Smells) (NSW)
128	Bird Observers Club of Australia (VIC)
129	Department of Primary Industries and Energy (ACT)
130	Australian Institute of Landscape Architects (QLD)
131	The Association of Mining and Exploration Companies Incorporated (WA)
132	The Country Shire Council's Association of Western Australia (WA)
133	Wanneroo City Council (WA)
134	Australian Local Government Association (ACT)
135	Cairns and Far North Environment Centre (QLD)
136	Irwin Shire Council (WA)

137	Sydney Coastal Councils (NSW)
138	Tasman Municipal Council (TAS)
139	Professor K Lyons and Dr C Wilkinson (QLD)
140	Litchfield Shire Council (NT)
141	Council of Capital City Lord Mayors (ACT)
142	Department of Transport and Communications (ACT)
143	Mr J Nevill (VIC)
144	Department of the Arts, Sport, the Environment, Tourism and Territories (ACT)
145	South Australian Government (SA)
146	Department of Industry, Technology and Commerce, Science; Industry and Technology Policy Branch (ACT)
147	The Local Government Association of Queensland Incorporated (QLD)
148	Department of Primary Industries, Queensland Government (QLD)
149	The Australian Marine Sciences Association Incorporated (VIC)
150	Devonport City Council (TAS)
151	Geelong Environment Council Incorporated (VIC)
152	Victorian National Parks Association Incorporated (VIC)
153	Bayside Councils' Association (VIC)
154	Hunter Bird Observers Club Incorporated (NSW)
155	Geelong and District Water Board (VIC)
156	Australian Institute of Marine Science (QLD)
157	The Nature Conservation Society of South Australia Incorporated (SA)
158	Conservation Council of the South-East Region & Canberra Incorporated (ACT)

159	National Parks Association of NSW Incorporated (NSW)
160	East Kimberley Shire Council (WA)
161	The Australian Recreational and Sport Fishing Confederation (ACT)
162	Quinns Rocks Environmental Research Group (WA)
163	Glenelg Sailing Club Incorporated (SA)
164	NSW Government (NSW)
165	Burnie City Council (TAS)
166	Department of Administrative Services (ACT)
167	Phillip Island Conservation Society Incorporated (VIC)
168	Dr A J Underwood (NSW)
169	National Parks Association of NSW, Three Valleys Branch (NSW)
170	Tasmanian Government (TAS)
171	Memtec Limited (NSW)
172	Coastal Resource Monitor Service (NSW)
173	Victorian Government (VIC)
174	Anglesea S.T.O.P. (Stop the Ocean Pollution) (VIC)
175	Ocean Grove Community Association (VIC)
176	Ms B A McPhee (VIC)
177	Movement for Responsible Coastal Development (QLD)
178	Werribee City Council (VIC)
179	Murramarang Committee (NSW)
180	Lismore Greens (NSW)
181	Coffs Harbour City Council (NSW)
182	SA Minister for Environment and Planning (SA)

183	Great Barrier Reef Consultative Committee (QLD)
184	Queensland Environment Law Association Incorporated (QLD)
185	Hobart Metropolitan Councils Association (TAS)
186	Great Barrier Reef Marine Park Authority (ACT)
187	Australian Mineral Sands Producers Group (WA)
188	The Environment Centre NT Incorporated (NT)
189	Wilderness Society of WA (WA)
190	Northern Territory Government (NT)
191	Professor A Gilmour, Macquarie University (NSW)
192	The Association of Mining and Exploration Companies Incorporated (WA)
193	Londonderry Residents Action Group for the Environment (NSW)
194	Ms R Hannigan & Mr J Martin (WA)
195	Greening Australia Inc (NSW)
196	Australian Entomological Society (ACT)
197	National Park Association of NSW Inc (NSW)
198	Noosa Parks Association Inc (QLD)
199	Queensland Government (QLD)

ORGANISATIONS AND PERSONS WHO PROVIDED COMMENTS ON THE COMMITTEE'S DISCUSSION PAPER

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Australian Institute of Landscape Architects, Darwin (NT)

Australian National Parks and Wildlife Service, Canberra (ACT)

Australian Nuclear Science and Technology Organisation, Sydney (NSW)

Australian Petroleum Exploration Association Limited, Sydney (NSW)

Ballina Environment Society Inc (NSW)

Batson Sand and Gravel Pty Ltd, Byron Bay (NSW)

Bird Observers Club of Australia, Nunawading (VIC)

Bureau of Mineral Resources, Geology & Geophysics, Canberra (ACT)

Busselton Shire Council (WA)

Cairns City Council (QLD)

Caldera Environment Centre, Murwillumbah (NSW)

Concerned Citizens for Industrial Control, Mount Larcom (QLD)

Department of Defence, Canberra (ACT)

Gosford District Wildlife Conservation Society (NSW)

Jeanette Gow, New Brighton (NSW)

Illawarra Environment Centre, Wollongong (NSW)

Kempsey Shire Council (NSW)

Hon. S Lenehan, MP, Minister for Environment and Planning, Adelaide (SA)

Local Government Association of Queensland (Inc), Brisbane (QLD)

Mossman Central Mill Co Ltd, Mossman (QLD)

Movement for Responsible Coastal Development, Mission Beach (QLD)

Mulgrave Shire Council (QLD)

Myall Koala and Environmental Support Group, Hawks Nest (NSW)

National Parks Association of NSW Inc, Sydney (NSW)

National Parks Association of NSW Inc - Hunter Branch (NSW)

North Coast Environment Council, Coffs Harbour (NSW)

Oyster Farmers' Association of NSW Ltd, Sydney (NSW)

Pasminco Metals, Melbourne (VIC)

Penguin Reserve Committee of Management, Phillip Island (VIC)

Phillip Island Conservation Society (VIC)

Department of Planning (NSW)

Department of Premier and Cabinet (TAS)

Department of Primary Industries and Energy, Canberra (ACT)

Department of Public Works (NSW)

Lloyd Smith, Mullumbimby (NSW)

Irene Stephenson, Sale (VIC)

Stradbroke Island Management Organisation (QLD)

Sussex Inlet Resident Action Group (NSW)

Total Environment Centre Inc, Sydney (NSW)

Tweed Shire Council (NSW)

Tweed Valley Conservation Trust, Murrwillumbah (NSW)

Ulmarra Shire Council (NSW)

Vaucluse Progress Association, Sydney (NSW)

Water Authority of Western Australia, Leederville (WA)

Werribee City Council (VIC)

Dr Geoff Wescott, Victoria College, Melbourne (VIC)

APPENDIX D

LIST OF WITNESSES

Anglesea Stop The Ocean Pollution

Ms Julie Hansen, Chairperson
Mr Francis Flynn, Research Assistant, Wave Dynamics

Arts, Sport, the Environment, Tourism and Territories, Department of the

Mr Richard Bomford, Project Officer, Resources Policy Section
Ms Joanne DiSano, First Assistant Secretary, Natural Environment Division
Mr David Griffiths, Assistant Secretary, Marine and Coordination Branch
Mr Robert Pegler, Assistant Secretary, Natural Resources Branch
Mr Colin Steele, Project Officer, Marine and Coastal Section
Dr Andrew Turner, Assistant Secretary, Nature Conservation Branch

Association of Mining and Exploration Companies Inc

Mr Christopher Davies
Dr Wolf Martinick, Member, Landuse & Conservation Committee
Dr Brian Welch, Councillor

Australian Marine Sciences Association

Dr Laurence Hammond, Immediate Past President

Australian Mineral Sands Producers Group

Mr Ian Egan, Committee Member

Australian Museum

Dr Alan Jones, Research Scientist, Division of Environmental Science

Australian National Parks and Wildlife Service

Dr Anthony Press, General Manager, Northern Operations

Australian Petroleum and Exploration Association

Mr Russell Lagdon, Environmental Affairs Committee
Mr Martin LeProvost, Consultant
Mr Robert Nunn, Environmental Affairs Committee
Dr Jaap Poll, State (WA) Chairman

Australian Science and Technology Council

Ms Christine Lawrence, Secretary, Environmental Research Working Party

Australian Surfriders' Association

Mr Alan Atkins, National Director

Australian Water and Wastewater Association

Mr Lance Bowen, Member
Mr Peter Hughes, Executive Director
Mr Timothy Smyth, President

Bayside Councils Association

Mr Ray Baker, Secretary
Cr Keith McGregor, President

Boating Industry Association of SA Inc

Mr Reginald Fitch, President

Bonville Beach Hardwoods Pty Ltd

Mr Paul McKeon, Manager

Burnie City Council

Mr Rex Collins, Mayor
Mr Willem Enkelaar, City Engineer

Cairns and Far North Environment Centre

Mr Ian Tucker, Committee Member
Mr Robert Zigterman, Member

Cairns City Council

Mr John Cleland, Mayor
Mr Matthew Carey, Consultant Town Planner
Mr John Durant, City Engineer
Mr Bruce Hedley, City Planner

Campaign to End Sewage Smells

Mr Brett Newbold, Secretary

Clean Up Australia, Ltd

Mr Ian Kiernan, Chairman
Ms Giselle McHugh, National Co-ordinator
Ms Kim McKay, Director, Public Relations

Coast and Wetlands Society

Dr Paul Adam, President

Cockburn Sound Conservation Committee

Mr Peter McKenzie, Secretary

Coffs Harbour City Council

Mr John Moffitt, Alderman
Mrs Marnie Yeates, Alderman

Coffs Harbour National Park Support Group

Dr Alan Lloyd, President

Commonwealth Scientific and Industrial Research Organisation

Dr Chris Crossland, Principal Research Scientist, Institute of Natural Resources and Environment
Dr Roy Green, Director, Institute of Natural Resources and Environment
Dr Graham Yapp, Senior Research Scientist, Environmental Analysis, Resource Management and Recreation Planning, Division of Water Resources

Conservation Council of Western Australia

Mr Philip Jennings, President
Mrs Rachel Siewert, Co-ordinator

Dandaragan Shire Council

Mr Gary Snook, President
Mr Mervyn Collinson, Councillor
Mr Barry Golding, Shire Clerk

Darwin City Council

Mr Bob Moryan, Technical Services Manager
Mr Andrew Stuyt, Town Planner

Devonport City Council

Mr Reginald Howard, Manager, Technical Services

Environment Centre NT Inc

Mr Richard Whitling, Volunteer Project Officer

Friends of the Patawalonga

Mr Donald Read, Chairman

Geelong and District Water Board

Mr Michael McCoy, Executive Manager, Engineering Development
Mr Gilbert Vines, Chief Executive Officer
Mr Peter Williams, Engineer

Geelong Environment Council

Mrs Joan Lindros, President

City of Glenelg

Mr Brian Nadilo, Mayor

Hobart Metropolitan Councils Association

Mr Martin Farley, Executive Director

Launceston City Council

Mr Kenneth Hose, Acting Technical Services Manager

Litchfield Shire Council

Mr Peter Garton, Shire Councillor

Melbourne Group of Anglesea Ratepayers

Mrs Barbara McPhee, Co-ordinator
Mrs Meryl Larkins, Member

Memtec Limited

Dr Clint Kopp, Director, Research and Development
Mr Rhett Butler, Manager, Municipal and Government Projects

Movement for Responsible Coastal Development

Miss Karen Schmidt, Secretary
Ms Lyn Overton, Publicity Officer/Treasurer
Ms Jeanette McLellan, Member

Mulgrave Shire Council

Mr Thomas Pyne, Chairman
Mr Matthew Carey, Consultant Town Planner
Mr Peter Robinson, Consultant Town Planner

National Environmental Law Association

Ms Christine Trenorden, Secretary

National Parks Association (Three Valleys Branch)

Mr Trevor Pike, Spokesperson

Nature Conservation Society of South Australia

Mr Brian Caton, Member

New South Wales, Government of

Ms Barbara Richardson, Deputy Director, Department of Agriculture and Fisheries
Mr Neville Apitz, Assistant Director, Department of Planning NSW
Mr Michael Geary, Manager, Coast and Rivers Branch, Public Works Department
Dr Robin Macdonald, Manager, Marine Waters, State Pollution Control Commission
Mr John Browne, Manager, Planning, Sydney Water Board
Mr John Noonan, Program Manager, Beach Protection, Sydney Water Board
Dr Ross Woodward, Senior Environmental Scientist, Sydney Water Board

North Australian Research Unit

Dr Ian Moffatt, Senior Research Fellow

North Coast Environment Council Inc

Mr James Tedder, Hon. Secretary

Northern Territory Greens

Mr Rob Ellis, Convenor

Ocean Grove Community Association

Mr Peter Linaker, Treasurer and Convenor, Technical Subcommittee
Dr Tony Scanlan

Ocean Grove Foreshore Committee Inc

Mr Warren Chapman, Works Manager
Mr William Gunn, Past President
Mrs Diane James, President

Ocean Watch

Mr Duncan Leadbitter, Executive Officer

Pasminco Metals

Dr Ian Matthew, Principal Consultant, Technology and Environment

Primary Industries and Energy, Department of

Mr David Barnes, Assistant Director, Australian Fisheries Service
Dr Roger Bradbury, Director, National Resource Information Centre
Dr Robert Burne, Principal Research Scientist, Bureau of Mineral Resources
Mr Andrew Garran, A/g Assistant Secretary, Minerals Industry Branch
Ms Mary Harwood, Manager, Policy Development and Coordination Section, Australian Fisheries Service
Dr Neil McDonald, Principal Executive Officer, Water Policy Section
Mr John Merton, Assistant Director, Australian Quarantine and Inspection Service
Mr Ian Musto, Manager, GIS Development, National Resource Information Centre
Mr Alan Newton, Principal Adviser, Corporate Policy Division
Ms Robyn Priddle, A/g Assistant Secretary, Corporate Policy Division
Dr Russell Reichelt, Principal Research Scientist, Fisheries Resources Branch, Bureau of Rural Resources
Dr Derek Staples, Principal Research Scientist, Fisheries Resource Branch, Bureau of Rural Resources
Dr Elizabeth Truswell, Acting Head, Environmental Geoscience, Bureau of Mineral Resources
Dr Meryl Williams, A/g Executive Director, Bureau of Rural Resources

Private Individuals

Mr John Bailey, MLA, Northern Territory
Emeritus Professor Harry Bloom
Dr Lesley Clark, MLA, Member for Barron River, Queensland
Mr Marcus Haward
Mr Peter Sims
Dr Ronald Wells, MLA, Member for Dromana, Victoria
Dr Geoff Wescott, Head, Department of Heritage & Resource Management, Victoria College

Resource Assessment Commission

Mr Richard Kenchington, Secretary, Coastal Zone Inquiry

Rockingham City Council

Mr Richard Smith, Mayor
Mr Robert Jeans, City Planner

Save Our Coast

Dr Peter Conroy, Spokesperson

Scuba Divers Federation of Australia

Mr Michael Mate, Federal President
Mr William Mildren, Secretary

South Australian Fishing Industry Council

Mr Peter Peterson, Executive Director

South Australia, Government of

Mr Ian Kirkegaard, Marine Adviser, Engineering and Water Supply
Dr Dennis Steffensen, Senior Biologist, Engineering and Water Supply
Mr Anthony Wynne, Senior Engineer, Coast Protection Board

Stop the Ocean Pollution

Mr Richard Gosden, Researcher
Mr Kirk Willcox, Media Services Manager

Sydney Coastal Councils

Mr Luke Galante, Deputy Health and Building Surveyor, Waverley Municipal Council
Mr Brent Gerstle, Member
Dr Peter MacDonald, Member
Ald Ted Plummer, Member

Tamar Regional Master Planning Authority

Mr Peter Nute, Senior Planner

Tasmania, Government of

Mr Maxwell Laughlin, Deputy Secretary, Department of Environment and Planning
Mr Gary Prattley, Deputy Commissioner for Town and Country Planning, Department of Environment and Planning
Mr Alan Sann, Acting Director of Environmental Management, Department of Environment and Planning
Mr John Burgess, Planning Officer, Department of Parks, Wildlife and Heritage
Mr Anthony Harrison, Deputy Director of Fisheries, Department of Primary Industry

Transport and Communications, Department of

Mr Donald Brodie, Technical Adviser, Marine Pollution, Maritime Operations Division
Mr Henry Holmes, Acting Assistant Secretary, Safety Operations Branch, Maritime Operations Division
Mr Paul Nelson, Marine Pollution Legislation Officer, Pollution Prevention Section

Trinity Bay and Inlet Society

Dr Michael Mansfield, Spokesperson

Ulitarra Society Inc

Mr Peter Giller, Executive - Immediate Past President

Warnbro Residents Association

Mr Guy Nichols, President
Mr Robert Ransley, Secretary

Western Australia, Government of

Mr Lindsay Edmonds, Projects Engineer, Headworks and Treatment Region, Water Authority of Western Australia
Dr Ian Eliot, Chairman, Coastal Management Co-ordinating Committee
Dr Michael Paul, Director, Engineering, Department of Marine and Harbours
Mr Barry Sanders, Manager, Headworks and Treatment, Water Authority of Western Australia

Western Australian Municipal Association

Dr Christopher Berry, Director (Research)
Cr Graham Greenaway, Councillor

PREVIOUS REVIEWS OF COASTAL MATTERS

Senate Select Committee on Water Pollution, 1970

The Senate Select Committee tabled its report in 1970 and commented that:

> water pollution ... is potentially one of the gravest problems facing this nation and it has wide biological, social and industrial implications ...

The report observed that the biggest water pollution problems are associated with the major cities and in most cases the causes are the discharge of sewage and industrial wastes either into the sea or coastal waterways. Other forms of pollutants identified by the Committee at that time were petroleum oil and by-products, chemicals and industrial wastes, pesticides and fertilisers. Also contributing to water pollution were mining and forestry activities and soil erosion.

The Committee observed that:

> evidence presented to the Committee tended to establish firmly that the Commonwealth has, through a coalescence of Commonwealth power in the fields of taxation, defence, external affairs, meteorology, fisheries, quarantine, and other fields, sufficient legislative competence to lay down and enforce a national approach through Commonwealth legislation alone.
>
> However, notwithstanding this, the Committee believes that, bearing in mind the Federal concept of the Constitution, it is preferable to attempt to achieve the national approach through the system of concurrent, parallel or complementary Federal and State legislation.

The Committee was quite critical in its comments, stating that pollution had too often been justified by false economics. The Committee believed easily measured private profits had been used as a facile argument to justify intangible and immeasurable social losses. It argued that economic pressures will be most successful to stop pollution and that costs must be realistically weighed against benefits and paid for by polluters.

The Committee concluded that:

- water pollution is only part of a much broader pollution problem threatening the national environment;
- rivers, streams, lakes, coastline and underground aquifers are being polluted in all States and Territories;
- some waterways are only suitable for use as sewers;

- main pollution problems relate to sewage, industrial effluent and salinity;

- these problems are caused mainly by the lack of an effective pricing system, ignorance of the causes and consequences of pollution, piecemeal administration of water resources and half-hearted methods of abatement.

The Committee recommended a national approach to water resources management which would specify acceptable standards and co-ordinate the aims and aspirations of State and local government authorities. It also recommended the establishment of a National Water Commission, and that:

- the States be encouraged to establish pollution authorities as part of a national comprehensive approach to the problem;

- a systematic assessment of waterways and water quality be undertaken;

- the Commonwealth encourage public education programs on pollution and research activities.

Responding to the report in May 1972, the Government of the day did not accept the proposal for a National Water Commission because it considered that the major objectives involved in a national approach to water quality could be achieved through existing programs and machinery such as the Water Resources Council and the newly formed Australian Environment Council. The Government also noted that primary responsibility for several matters raised by the Committee lay with the States. However, the 'spin-offs' of the report cannot be ignored. The Committee undertook a pioneering role in highlighting the extent and nature of water pollution at the time and in drawing attention to the need to improve the condition of waterways.

Report on the National Estate, 1974

The Committee of Enquiry into the National Estate considered coastal heritage matters. It commented on Australians' 'long-standing love-affair with their coasts and beaches' and the related increase in intensity and scope of problems facing agencies responsible for land use planning and conservation in the coastal zone.

It concluded that 'the coastline of Australia is so precious a resource, so easily degraded ... we emphasise it would be both wise and timely for the Australian Government to take quick action ... to save it from the worst influences of unwise development'. It recommended:

- preservation of the coastal heritage;

- a State Grants program for studies and land acquisitions;

- exercise of export controls to prevent unwise sand mining.

Parliamentary Joint Committee on the Australian Capital Territory, 1984

In its report on the Murrumbidgee River in the ACT Region, the parliamentary Committee identified the major sources of pollution of the local inland waters as sewage effluent, waste disposal, mine tailings and urban runoff. Sewage effluent from Canberra was not identified as a major pollutant because of the high level of water treatment provided by the local sewage treatment facility. By contrast, urban runoff was a more significant source of pollution of the waterways of the ACT region.

National Conference on Coastal Management, 1986

As part of a follow-up to the 1980 report on coastal management by the House of Representatives Standing Committee on Environment and Conservation, the Australian Environment Council sponsored a national conference on coastal management at Coffs Harbour in 1986. The conference forwarded recommendations to the then Commonwealth Minister for Arts, Heritage and the Environment on a wide range of matters covering research, funding, public education and the identification or establishment of public agencies for coastal management. There was little subsequent action by the Environment Council on coastal management matters.

Review Committee on Marine Industries, Science and Technology, 1989

In 1988, the Minister for Science, Customs and Small Business, the Hon. B Jones MP, appointed a review committee to examine Australia's activities in marine science and technology and assess the industrial and commercial opportunities of marine industries.

The Committee assessed the total value of marine industries in Australia at $16.7 billion (consisting of fisheries, recreation fishing, oil and gas production, marine tourism, shipping, civil and naval ship building, coastal and offshore engineering and marine scientific equipment).

The Committee observed a need to:

- implement a national plan, to ensure that the complex interaction between marine sciences and industries conserves the marine environment while optimising the benefits to Australia;
- develop strategic plans for industries in which there are opportunities;
- achieve a better co-ordination within particular, and between different, marine industries;
- co-ordinate across government agencies;
- improve the research infrastructure in specific areas;

- increase the applied and technological components of research effort;
- improve interaction between the scientific community and industry; and
- commercialise existing opportunities within the marine sector.

The review Committee favoured a radical re-organisation of Australia's marine capability and made a variety of recommendations for policy reform and the establishment of a Marine Industries and Sciences Council.

Industries Assistance Commission, 1989

In 1989, the Industries Assistance Commission (now the Industries Commission) conducted an inquiry into the development of tourism and considered whether tourism is developing in the best interests of the community generally, noting that tourism has to be considered within a wide economic and social context.

In its report, the Commission examined several factors influencing the development of tourism. These were: air and surface transport; labour market flexibility; marketing; hospitality and shopping; environmental and social concerns. The report found the main impediments to the development of tourism and its contribution to the economy to be in the provision of transport services. It observed that transport is critical to tourism and that air travel is too expensive and restricted, rail services are inefficient and coaches are regulated in part to protect railways.

It was stated in the report that, in light of the pace of development in the tourism industry, there is a need to review procedures to safeguard wider community interests, particularly those related to the environment. However, the transport industry is the priority area for change.

With regard to environmental and social concerns, the Commission noted that tourism developments can lead to a loss of appeal and amenity of areas and damage to the environment. The Commission stated that the main issue from the community's point of view is to ensure environmental resources are put to their best use. Some current problems are that there are no direct commercial inducements for a developer to consider the impact that a development will have on others in the community; and existing processes of review of land use decisions are proving to be unsatisfactory.

The Commission suggested there was scope for improvement by greater public involvement in review and planning to ensure that a wide range of interests are heard and that information is gathered about the costs and benefits of proposals, as progress also brings costs.

House of Representatives Standing Committee on Environment and Conservation, 1975-1986

The predecessor to the ERA Committee conducted no less than seven inquiries between 1975 and 1986 on matters relating to the coastal environment and presented several reports to the Parliament. These were:

- Development Pressures on Jervis Bay, 1975
- Oil Spills: Prevention and Control of Oil Pollution in the Marine Environment, 1978
- Management of the Australian Coastal Zone, 1980
- Sandmining on Moreton Island, 1981
- Protection of the Greater Daintree, 1984
- Protection of the Great Barrier Reef, 1985
- Relocation of Naval Facilities to Jervis Bay, 1986

When assessing these reports and the response by the Commonwealth to the Committee's recommendations, it is apparent that the Committee's suggestions have not been acted upon very frequently.

The Environment and Conservation Committee received no formal Government reply to two reports (Sandmining on Moreton Island and Protection of the Greater Daintree). The Government accepted several recommendations of the reports on the Great Barrier Reef and on Marine Oil Spills. The Commonwealth did not accept the Committee's suggestions in its reports on Coastal Zone Management and Jervis Bay.

Development Pressures on Jervis Bay, 1975
Relocation of Naval Facilities to Jervis Bay, 1986

The Committee presented its first report on development pressures on the Jervis Bay area in October 1975. The Committee concluded that while Jervis Bay was suitable for development as a deep water port, use for such purposes could not be justified because of the potential of the existing major ports in NSW and the likely environmental degradation associated with such development.

It also found that the Bay's primary value as a national resource lies in its potential for recreation and scientific purposes. Large scale expansion of naval facilities at the Bay would not be compatible with these purposes.

The Committee recommended that:

- any proposal to develop naval facilities at Jervis Bay be the subject of an

environmental impact statement (EIS), and if it could be demonstrated that a more suitable site exists the Commonwealth should not accept the proposal;

- a long-term Area Management Plan be developed for the Jervis Bay area; and that

- funds be provided by the Australian Government to finance a study by all levels of government of national coastal resources and to develop a policy for the future management of these resources.

The Committee concluded that the effective management and preservation of Australia's coastline resources is hampered by the absence of a co-ordinated national coastal land use policy. It recognised that, without a national policy framework, co-ordinating the interests of all levels of government planning for the 'irreplaceable and limited asset which is our coastline cannot take place'.[1]

During 1985-86, following a proposal by the Minister for Defence to relocate Sydney naval facilities, including the fleet based at Garden Island, the Committee conducted its second inquiry relating to Jervis Bay.

Following the commencement of preliminary inquiries by the Committee, the Prime Minister and the Premier of NSW announced in November 1985 that the RAN Armament Depot at Newington in Sydney would be relocated to Jervis Bay. Its proximity to civilian development and other environmental problems necessitated the relocation.

The Committee's report was tabled in Parliament in October 1986. The Committee *supported the principal recommendation of the 1975 report: that any proposal for naval* facilities at the Bay be subject to an EIS and if a more suitable site is found the Government should not accept the proposal. It recommended that:

- the EIS at Jervis Bay should be undertaken only after a comprehensive study and public review of naval requirements and possible sites demonstrates that relocation of Jervis Bay is essential; and

- the proposed development should be considered in the context of the overall proposal for defence facilities around Australia.

Further, while the Committee agreed that relocation of the Armament Depot from Newington was essential it was not necessarily the case that relocation should be to Jervis Bay.

In February 1987, the Minister for Defence tabled the Fleet Base Relocation Study Report. The report examined options for basing the fleet at Cockburn Sound in Western

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1 No response was provided by the Commonwealth to the report as at that time the Government was not obliged to respond to Committee reports. It was not until 1978 that the then Prime Minister, the Hon. Malcolm Fraser MP, stated that the Government would provide a response to Parliamentary Committee reports. This undertaking was confirmed by the Labor Government in 1984.

Australia and at Jervis Bay. In his Ministerial statement, Mr Beazley responded to the Committee's report. He stated that the Government accepted the Committee's 1975 recommendation that an EIS be prepared for any proposal to develop facilities at Jervis Bay but did not endorse the 1986 recommendation that an EIS be undertaken only after a major study and public review of naval facility requirements and alternate fleet base sites.

With regard to the recommendation that any development at Jervis Bay be considered in the context of proposals for fleet facilities around Australia, Mr Beazley stated the Fleet Base Relocation Study addressed these issues and noted the advantages of Jervis Bay as a new fleet base on the east coast over other locations.

The Minister advised that the Government had therefore decided to proceed with an environmental assessment of the suitability of Jervis Bay as an alternative location for the Fleet.

The proposal for relocation of the naval fleet to Jervis Bay generated a great deal of controversy. In December 1989 the Prime Minister announced that the Government was no longer disposed to moving the Sydney naval fleet to Jervis Bay.

Prevention and Control of Oil Pollution in the Marine Environment, 1978

During 1977-78, the Committee inquired into the adequacy of arrangements to deal with oil spills in coastal waters. While recognising that land-based oil pollution is a significant contributor to ocean pollution, it focused its investigation on spills from shipping, off-shore drilling rigs and shore based facilities.

The Committee noted that a National Plan to Combat Pollution of the Sea by Oil was introduced in 1973, the purpose of which is to control and abate ship-sourced marine pollution. This scheme, consisting of equipment and an operational plan, is currently administered by the Commonwealth Department of Transport and Communications in co-operation with State governments and the oil industry. The Committee pointed out some weaknesses in the Plan as it was operating at the time: the pollution monitoring system was inadequate; funding of the Plan through the responsible Commonwealth Department had caused financial problems; and the legislative definition of 'oil' was rather narrow.

The Committee concluded that the National Plan provided a capability to respond to marine oil pollution and was adequate to deal with daily problems but might be ineffective in dealing with a moderately large spill.

The Committee made 25 recommendations of considerable detail covering a broad range of matters. Those relevant to the protection of the marine and coastal environment were that:

> the Commonwealth ratify two international conventions on training for seafarers and civil liability for oil pollution;

- reviews be undertaken on reporting suspect shipping;

- navigation aids be provided in hazardous areas and increased resources be provided for marine science research;

- the Commonwealth encourage State Governments to increase legislative penalties for oil pollution;

- the National Plan be adapted to handle incidents of off-shore and land-based oil spills;

- the restricted zone around off-shore platforms be increased;

- compulsory pilotage of oil tankers in certain areas and the National Plan be extended to include pollution by other hazardous substances.

The Government response was presented in the Parliament by the Minister for Productivity, the Hon. I McPhee MP, in June 1979. He mentioned that the Government had accepted 13 of the Committee's recommendations. The Government accepted those recommendations concerning reporting of suspect shipping, the provision of navigation aids in hazardous areas, examination of the need for increased marine science research, encouragement of State Governments to increase penalties for oil pollution and the adaptation of the Plan to off-shore and land-based activities.

By 1984, Australia had adopted the two international conventions proposed by the Committee: the International Convention on Training, Certification and Watchkeeping for Seafarers, and the Convention of Civil Liability for Oil Pollution Damage.

Following an approach by the Commonwealth, the International Maritime Organisation adopted a resolution in 1987 that pilots be used by all loaded oil tankers, chemical or liquefied gas carriers when navigating the Torres Strait and inner route of the Great Barrier Reef. Finally, in 1988 the National Plan was extended to cover pollution by other hazardous substances.

Sandmining on Moreton Island, 1981

The Queensland Government in 1981 agreed to sandmining proceeding on Moreton Island (40 km offshore from Brisbane) for overseas export. The Committee received many representations about this matter and conducted a brief inquiry.

In its report presented to the Parliament in October 1981, the Committee noted that for minerals mined on the Island to be exported, the Commonwealth had to approve an export licence. Further, earlier that year Moreton Island had been listed on the Register of the National Estate.

The Committee recommended that before approval be given for the export of minerals mined on Moreton Island a public inquiry should be held into the impact of sandmining on the island.

No formal response was tabled by the Government in the Parliament. In 1986, the Secretary to the Department of the Arts, Heritage and the Environment advised the Committee that the then Minister, Mr Cohen, had stated in a media release in February 1984 that the Commonwealth's policy was to oppose sandmining on the Island, and if necessary the policy would be implemented by refusing to an export licence for mineral sands from the Island. Accordingly, it had been assumed that a formal response to the report was not required.

Protection of the Greater Daintree

The Committee in 1984 completed a brief report on the protection of the Greater Daintree area in north Queensland. The Greater Daintree area covers approximately 350, 000 hectares adjacent to the coast, extending from Mossman/Port Douglas in the south to Cooktown in the north. The area is listed on the Register of the National Estate.

The Daintree has been described as the most extensive, relatively untouched tropical rainforest remaining in Australia and it includes the largest remaining coastal rainforest. Much of the Daintree is contiguous with the Great Barrier Reef.

In late 1983 the Douglas Shire Council commenced construction of a 30km road from Cape Tribulation to the Bloomfield road through the Cape Tribulation National Park. A number of groups feared that the road construction would have a harmful local impact, accelerating erosion and sedimentation of the streams and possible siltation of in-shore coral reefs. There were, however, conflicting views of the possible impact of the road.

Simultaneously the area was being assessed by the Australian Heritage Commission for nomination as a World Heritage area.

The Committee was concerned about the possible deleterious impacts of the roadworks on the area and its effects on the national and world heritage values of the region. It recommended that:

- the Federal Minister for the Environment seek the agreement of the Queensland Minister to cease roadworks at that time, until the World Heritage value of the area had been established;

- the Commonwealth discuss the type of assistance it could offer to ensure the sound management of the region;

- a scientific study determine the impact of the road on the region, and if the report indicated a major impact the Commonwealth should offer financial assistance for alternative roads; and

- consideration should be given to the Commonwealth applying the provisions of the federal *World Heritage Properties Conservation Act 1983* under specified circumstances indicated in the report.

A formal reply to the Committee report was never forwarded by the Government. The

road construction project continued, despite considerable controversy, and was completed by 1985.

During the 1988 Budget sittings the Leader of the House, the Hon. Kim Beazley, tabled a paper, 'Government Response to Parliamentary Committee Reports', which briefly summarised the status of the Government response to various reports. The paper noted that the primary reason for the failure to respond to the report was continued Government action on rainforest conservation, particularly action for the protection of Queensland wet tropical rainforests including the Greater Daintree. It was also pointed out that many of the Committee's recommendations had been overtaken by subsequent events.

Additionally the paper stated that a response to the report would be provided 'in the near future' in the context of a Government statement concerning the wet tropical rainforests of north east Queensland.

Protection of the Great Barrier Reef, 1985

During 1985 the Committee inquired into the re-infestation of the Great Barrier Reef by the crown of thorns starfish. The Committee noted that it was in the early 1960's that the first outbreaks of infestation of the crown of thorns starfish were reported on the reef. The starfish is a specialised coral feeder and when present in plague proportions can utterly devastate reefs. The number of starfish on the reef declined during the 1970's only to increase again in the early 1980's.

The Committee made several recommendations, the principal ones being that,

. the Commonwealth provide funding for a research program on the starfish and methods of population control techniques;

. measures be introduced to protect the Reef including:

- a joint Queensland/Commonwealth study to examine ways to reduce the impact of runoff from the Cape Tribulation road in Daintree;

- monitoring pollution from the OK Tedi mine in Papua New Guinea; and

- that the Great Barrier Reef Marine Park Authority (GBRMPA) develop an offshore development policy.

The then Minister for Arts, Heritage and Environment, the Hon. B Cohen, MP, announced in June 1987 that the Commonwealth would provide funding for a research program and that the Government had accepted most of the Committee's recommendations. It did not, however, accede to a proposed Queensland/Commonwealth study about the effects of the new Cape Tribulation road in the Daintree, but noted that the GBRMPA was to conduct a study of the condition of the fringing reefs.