

PRELIMINARY WORKING DRAFT



GUIDELINES
for an
ENVIRONMENTAL PROTECTION POLICY
ON THE COASTAL ZONE
in
WESTERN AUSTRALIA



ENVIRONMENTAL PROTECTION AUTHORITY

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1. INTRODUCTION

The concept of a "coastal zone" was first introduced in Western Australia in the Report of the Committee of Inquiry (1971) into the Mining Act ⁽¹⁾.

This report highlighted the need to ..."*strike a balance between the material considerations of mining and the necessity to preserve that part of the environment on which the great majority of the population of the State depend for their recreational and aesthetic enjoyment, and for their physical and mental relaxation.*"

The part of the State that was the subject of this comment was the area defined in the Land Act as the "South West Land Division", including all the south-western part of the State from a point on the coast north of Kalbarri to a point between Hopetoun and Esperance and extending inland to include the major farming areas. It was this area which was considered by the Committee of Inquiry to be of special importance as the great majority of the State's population lives within it.

Indeed, most of this population lives on or near the coast, for, if we include all of the Perth Statistical Division and the Local Government areas which have coastal frontages in this area, we find some 80% of the State's population in about 5% of its total area. For this reason the Committee of Inquiry recommended generally, that in this South West Land Division all prospecting and mining on A class reserves and national parks should be prohibited unless the consent of Parliament was obtained. More particularly however, they recommended that all Crown land and reserves in "the coastal strip" should be deemed an A class reserve.

In this context "the coastal strip" was defined as ..."*including the land and waters on the sea frontage of the South Western Area ie from the point on the coast marking the northern boundary of the Shire of Northampton thence south and eastwards to the point on the coast marking the eastern boundary of the Shire of Esperance and extending inland for forty chains from high water mark on the foreshore and, subject to constitutional limitations, extending seaward to the fifteen fathoms contour-line and also including the waters, the beds and banks of all rivers and estuaries which flow through the coastal strip.*"

The Committee of Inquiry into the Mining Act thus recognised the importance of preserving "the coastal strip" from environmental deterioration, but at the same time it highlighted the overall importance of this area in or near which most of the State's population lives, works and plays.

Following this initiative the Environmental Protection Authority (EPA) in its first Annual Report (1972) stated that it considered ... *"that adequate management of the coastal strip not only as it pertains to mining, but also to residential development, recreational use and the like, is of very great importance in total environmental planning in the State. It is expected that coastal developments will continue to dominate the residential needs and desires of the population. It is therefore apparent that the coastal strip must be adequately managed in order that, for example, recreational usage should not be so heavy or concentrated as to be self defeating and destructive of the natural ecology."* It was in this context that the EPA in its second Annual Report (1973) endorsed the concept of a half-mile strip of coastal reserve wherever practicable and economic, and foreshadowed its goal of issuing an ... *"environmental management policy statement on the coastline and the whole question of the adjacent half-mile reserve."*

The views so expressed by the Committee of Inquiry and the EPA have received endorsement by the Conservation Through Reserves Committee (CTRC) in its 1974 Report to the EPA. The CTRC in the introduction to its report⁽²⁾ took the view that the publicly-owned foreshores, beaches and coastal reserves ... *"together with the general health of the coastal environment are a priceless asset worthy of great public concern."*

The EPA has now set out for discussion suggested guidelines which could be the basis for an Environmental Protection Policy for the "coastal zone" as defined on page 7. The coastal zone in this regard covers the whole Western Australian coastline which contains an extremely varied range of sea and land interfaces.

In the area defined, many different types of coast can be identified. The Kimberley coast is typified by its rugged and broken form with many islands, natural harbours, headlands, sounds and rivers. Common also, are muddy mangrove flats which are intermittently covered and exposed as a result of the substantial tidal movements.

Further south on the North West coast, long, low sandy beaches predominate but these are gradually replaced to the south-west by a more broken coastline with mangrove fringes and numerous offshore islands. The continental shelf here is wider and shallower and the tidal range large. Extending further south from Dampier to Kalbarri, the coast, influenced by a more moderate tidal range, is dominated by broad bays flanked by rocky (often limestone) promontories parallel to the coast. Shark Bay is a graphic example of this coastal form. Offshore are extensive coral reefs.

From Kalbarri to Cape Naturaliste the coast is characterised by long stretches of sandy beach broken occasionally by low limestone headlands and backed by sand dunes. Offshore are limestone platforms, reefs and more rarely, islands. The shape of the sandy bays is largely controlled by the effect that these more resistant headlands and offshore reefs have on the prevailing wind and seas, and it is mostly in the shelter of these natural features that man has settled.

From Cape Naturaliste to Cape Leeuwin the coast primarily consists of steep granite cliffs with rocky reefs exposed at low tide. Small sandy bays occur where the cliff line is broken. The coast from Cape Leeuwin eastwards is also characterised by granite cliffs and headlands but to a lesser degree as the crescent shaped sandy bays become more common. Offshore numerous granite islands are a feature of the area.

Since the last ice-age, about 20,000 years ago, there has been a marked change in the world mean sea level^(3,4). From a low point during the ice-age estimated at 140 metres below present datum⁽⁵⁾, post-glacial seas rose to a maximum level about 2 metres above present datum around 4,500 years ago. There is documented evidence of this "high" sea level stand along much of our Western Australian coast (for example, Point Peron, Rottnest and Shark Bay⁽⁶⁾.) Since then the sea has dropped to its present level. A consequence of these changes is that where there are no protective buttresses of rock, the coast is typified by low-lying estuaries, lagoons and rows of fragile sandy dunes which in geological terms are short lived. It is the variation in sea level together with the ever present forces of wind and water which have formed, and are still forming, the coastal features that we know today.

A most important result of this dynamic state is that the shape and form of our beaches, sand dunes, river deltas and estuaries is never static. They are subject to change according to the forces that mould them and often these changes can be very rapid, with whole beaches being removed by storms in a matter of hours.

Very little is understood about these processes in which beaches advance and recede with time. What is becoming more certain is our understanding that the coast is a fragile area which can be easily disturbed. We now know that our sandy beaches and dunes are storehouses of sand that can be moved by the forces of wind and water in stormy periods and returned later in calmer periods. When there is an interruption of these natural processes by blocking the flow or removing the supply of sand, problems nearly always occur. Many such problems have resulted all over the world with some graphic examples in Western Australia; for example, at Mandurah, Busselton, Ledge Point and Cottesloe.

Man makes many demands on the coast, both on the land and in the nearshore waters. Though many of these demands are reasonable and proper in the competition for the coast's uses, the retention of natural beaches, headlands and estuarine open spaces often gives way to development for industry, housing, ports, commercial fishing, mining, waste disposal and recreation. There is pressure now on our dunes, beaches and coastal wetlands to be "developed" in such a way that much of their original character and attractiveness is lost. With increasing population and industrial growth this pressure to "develop" will be much greater in the future.

The approaches to solving these problems overseas and in Australia have been many and varied* but they all have certain basic things in common. First, is the recognition of the need to manage and utilise the coast in the best manner possible for present and future generations. This step usually involves the setting of goals and objectives and the formulation of policies. Second, is the preparation of an on-going management programme which expresses practically the goals and objectives and indicates how the formulated policies might be implemented. This step is quite often preceded by, or developed in conjunction with, coastal inventory, studies and research, and with extensive consultation with the public and affected statutory authorities. Finally, the management plan or procedure needs to be implemented in a realistic and flexible manner. Obviously these steps need not be either sequential or discrete but in practice are often overlapping and continuous.

* Appendix 1 contains a bibliography of literature reviewed concerning management of the coast both in Australia and overseas.

The Californian Comprehensive Ocean Area Plan⁽⁷⁾ (COAP) is an example of a document which embodies most of the steps described above. Thus it is a useful reference in considering the scope and magnitude of the complex problem of coastal management (particularly as coastal California is often compared to some parts of coastal Western Australia in many ways, including climate and life styles). The plan, which took over three years to develop, is based on a large amount of basic information and data collection, including an inventory of coastal land use, site characteristics and ownership of the coastal zone.

In Western Australia, under the Environmental Protection Act 1971, the Environmental Protection Authority has the power to declare policies with regard to environmental matters. These powers and the method of implementing them are contained in sections 35 to 53 of the Act.

More particularly, sections 35 to 38 lay down the manner in which such a policy shall be advertised, made available for public comment and be the subject of public inquiry if necessary; section 39 states that once the policy has been published by the Government in the Gazette, it ... *"has the force of law as though it had been enacted as part of this Act"* ... (i.e. the Environmental Protection Act); section 40 considers the content of a declaration of policy; section 41 outlines the conditions under which a declared policy may and will be reviewed; and sections 43 to 53 outline an appeals procedure.

The EPA has for some time considered that the first such declaration of policy should be concerned with management of the coastal zone in Western Australia. The EPA has quite clearly stated in its first three Annual Reports (1972, 1973 and 1974) this intention and its recognition of the importance of the coastal zone. The delay in moving towards a declaration of a "Policy" in no way lowers its importance, but rather, is a reflection of the complex nature of the problems involved in Western Australia and the necessity for a thorough analysis of them. Further, the EPA is of the opinion that if coastal management policies are to be successful, they must be developed with the earliest possible cooperation and collaboration of those authorities and bodies most involved and interested in the coastal zone.

It is in this context that this document entitled "Guidelines for an Environmental Protection Policy on the Coastal Zone", has been drawn up. The intention is to suggest in the form of guidelines, the means whereby the coastal zone as defined can be environmentally managed, so that when the provisions of the Environmental Protection Act noted above have been invoked and fully complied with, the State can adopt an "Environmental Protection Policy for the Coastal Zone."

Specifically, this document deals with the following:

- . SCOPE OF POLICY, which defines the area to be covered by the proposed policy
- . GUIDELINES FOR A POLICY, where the suggested guidelines are set out
- . IMPLEMENTATION, where means by which the policy might be put into effect are discussed
- . CONCLUSION
- . APPENDICES, where detailed material pertinent to the policy is contained

2. SCOPE OF POLICY

It is intended that the eventual declaration of an Environmental Protection Policy, as provided for in the Environmental Protection Act, should be for the coastal zone as defined below.

For this purpose the "Coastal Zone" is defined as:

The land and waters extending from the point on the coast marking the border between Western Australia and the Northern Territory thence west, south and eastwards to the point on the coast marking the border between Western Australia and South Australia, and extending inland for one kilometre from high water mark on the foreshore and, subject to constitutional limitations, extending seaward to the thirty metre contour line, and also including the waters, beds and banks of all rivers, estuaries, inlets, creeks, bays or lakes subject to the ebb and flow of the tide.

It is recognised, however, that the landward and seaward extent of this coastal zone may have to be modified in particular areas for various reasons. For example, on sections of the coast where fragile and potentially unstable dunes or estuarine systems occur, the boundary may need to be moved inland. Alternatively, where islands, reefs or marine reserves need to be considered, the boundary may need to be moved seaward.

Modification of any Environmental Protection Policy is catered for under section 41(1) of the Environmental Protection Act which states:

- (1) *"A declaration of policy published under section 39 shall be reviewed -*
- (a) if the Minister by notice in the Gazette so directs, at the time and to the extent directed; and*
 - (b) unless the Minister by notice in the Gazette otherwise directs, within a period of seven years from the date on which it was last published in the Gazette by authority of the Governor."*

Under these provisions the broad guideline definition of the coastal zone stated above could be modified to take into account any particular localised variations that are deemed necessary. Further, detailed definition of the coastal zone would be treated as a matter of high priority as part of the proposals outlined in the IMPLEMENTATION section of this document.

3. GUIDELINES FOR A POLICY

Policies are courses of action which should be repeated and abided by consistently and regularly. A coastal environment policy in particular will need to recognise:-

- (a) The importance of the coastal zone to the State as a whole (a State asset which in turn is part of a national asset).
- (b) That in practice, it will be most often through State and Local Government authorities that the policy will be implemented.

The following guidelines for a coastal policy are put forward here as suggestions for public discussion and comment. They are not intended to be either final or binding at this stage. They may be enlarged or modified according to experience and circumstances. Their final form will be largely dependent on the result of public comment as well as the views of governmental authorities both state and local.

The Suggested Guidelines

1. Appropriately regulated recreational, tourist and residential activities are proper uses for the coastal zone. ✓
2. Public access to the waterfront for recreation and tourism should be maximised, consistent with the need to protect the coastal environment and areas which are unstable or prone to deterioration. ✓
3. The proposed use should not detract from, but as far as reasonably possible, should enhance or protect environmental quality and scenic amenities. ✓
4. Uses of the coastal zone other than the above should not be permitted unless directly dependent on resources within the coastal zone and in any event the facility should be constructed and operated in a manner compatible with the coastal zone environment.
5. If the proposed use would adversely affect the coastal environment to a serious extent it must be determined to be of overriding public benefit. ✓
6. Uses of the coast should allow adequate protection for areas which are of particular scientific, educational or aesthetic importance. ✓

4. IMPLEMENTATION

These guidelines are only a first step in developing overall coastal management for Western Australia. They are however, a major step, because under the Environmental Protection Act 1971, after due process of public comment, inquiry and appeal, they can as a policy become law as if they were part of the Act.

The successful implementation of these guidelines as a policy will ultimately depend on the future attitudes and actions of both State and Local government.

The State Government can assist implementation in the following ways:

- (a) Provision of funds to acquire and manage coastal reserves, carry out coastal inventories and initiate coastal studies.*

Footnote

* Examples of some coastal studies which need to be carried out in WA:

- 1) The continuous recording of wave direction, period and height at selected off-shore locations of the coast.
- 2) Investigation into methods of determining wave refraction from aerial photography and other data and hence the effects of waves on specific shorelines.
- 3) Investigation of changes in water table resulting from development near the coast and the effects of such changes on coastal erosion.
- 4) Monitoring, profiling and mapping of selected sections of shoreline and concurrent establishment of past erosion history (both from historic and scientific evidence) to determine and quantify long term changes.
- 5) Classification of dune and sandy coastal types, their forms, occurrence and susceptibility to erosion to assist in determining areas which would be sensitive to development. ✓
- 6) Marine life studies, model investigations, and littoral sand monitoring to quantify near-shore behaviour.
- 7) Further studies into sand dune stabilisation and revegetation. ✓

Funds for these studies should also be made available by the Federal Government⁽⁸⁾. The acquisition or protection of land for coastal reserves is fundamental to the basic objective of having the coastal zone owned (at least in part) and accessible by the community. However, fundamental also is the need to manage and maintain these areas of coastal land. This in turn implies a continued source of funds and vesting of the land with bodies which have proven management ability.

- (b) Provision of an advisory service on coastal erosion and planning matters. Already much of this advice is available through individual government departments and bodies such as the Coastal Development Committee and Coastal Erosion Advisory Committee (Membership of and statutory responsibility for these committees is listed in Appendix 2). This is essentially an educative role and one which is vitally important to management of the coastal zone.
- (c) Using the provisions of existing statutes, especially the Town Planning Act, to control development that is contrary to the policy guidelines.
- (d) Ensuring that government works, and works subsidised by government (both State and Federal) do not conflict with the ultimate policy guidelines.

Local Government will obviously play a major role in ensuring the success or otherwise of the policies. The main areas where they can assist positively are:-

- (a) Adoption of flexible Town Planning Schemes for their coastal areas, which set out locally applicable policies and control development (particularly residential subdivision) in terms of its location and extent. These Schemes should also require intending developers to produce "guiding plans" which in turn should show the particular development in its overall coastal context (as defined in the Town Planning Scheme) as well as details of the first stages of the proposed development itself. Such plans could be used by Local Government authorities in conjunction with their Town Planning Schemes to control development.
- (b) Safeguarding and providing a variety of "coastal experiences" through the Town Planning Schemes which should include the provision of by-laws that encourage good layout and design of subdivisions and buildings and contain measures to safeguard certain aspects of the natural environment.

The key issue then becomes the means by which this whole planning procedure can be initiated, coordinated and maintained. There are various approaches that might be taken, ranging from the use of presently existing agencies to the setting up of a new statutory authority to manage the coastal zone. The approach that is chosen will most likely change with experience and should therefore be flexible. However in the first instance the most logical approach would be to work through existing agencies, with some modifications if necessary to achieve more efficient coordination.

More specifically, the Environmental Protection Authority believes that initially the overall aim of coastal management can best be accomplished in Western Australia by the appointment, within the State Government, of a full-time coastal coordinating body, headed by a senior level officer experienced in planning and resource management. This body would not be a "coastal authority" but rather would be seen as a non-statutory agency with the responsibility of initiating, coordinating and advising on management of the coastal zone. However, it should be recognised that in carrying out its task, this body may in time recommend that a statutory Coastal Authority or Authorities be set up.

The tasks of such a coordinating body should include:-

- (i) Implementation of the preliminary policy guidelines for the coastal zone as outlined in this document, through both existing State Government instrumentalities and local government authorities.
- (ii) Further detailed definition of the coastal zone as necessary and appropriate.
- (iii) Development and implementation of more detailed policy guidelines as these are determined to be necessary, in conjunction with full cooperation and collaboration with the appropriate authorities, and participation by the public.
- (iv) Ultimate development of a Coastal Management Plan for Western Australia which will include: a listing of priorities for coastal use, an inventory of coastal resources, definition of the capacities of sections of the coast to accommodate or not accommodate various types of use and details as to the means of implementing the overall plan.

- (v) Determination of areas in which further study and research is needed and recommendations on where and how such work might be carried out. Of particular importance is the need for an inventory of the coast's physical resources, and much more detailed information in the sociological field concerning people's desires and aspirations for the use and management of the coast.
- (vi) Determination of areas where legislative or regulatory control is lacking and recommendations on how these areas could be rectified. For example, the question of effluent discharge in the coastal zone could be considered.
- (vii) Identification of the need for a "Coastal Protection Authority or Authorities" and recommendations as to the structure and terms of reference of such an authority, if such a need is shown.

The Environmental Protection Authority therefore recommends that a full-time coastal resource planner be appointed with adequate staff (either appointed and/or seconded) to fulfil the objectives and to carry out the tasks outlined above.

A conceptual outline of a structure that might be applicable in Western Australia is shown in Figure 1 (page 14). The organisational structure outlined in Figure 1 embodies at the operational level a high degree of liaison with already existing bodies charged with advising on and implementing coastal management.

Implementation of Coastal Environmental Protection Policies and coastal management as outlined above, thus takes into account and incorporates existing Government initiatives as well as providing new initiatives towards further rationalisation and coordination.

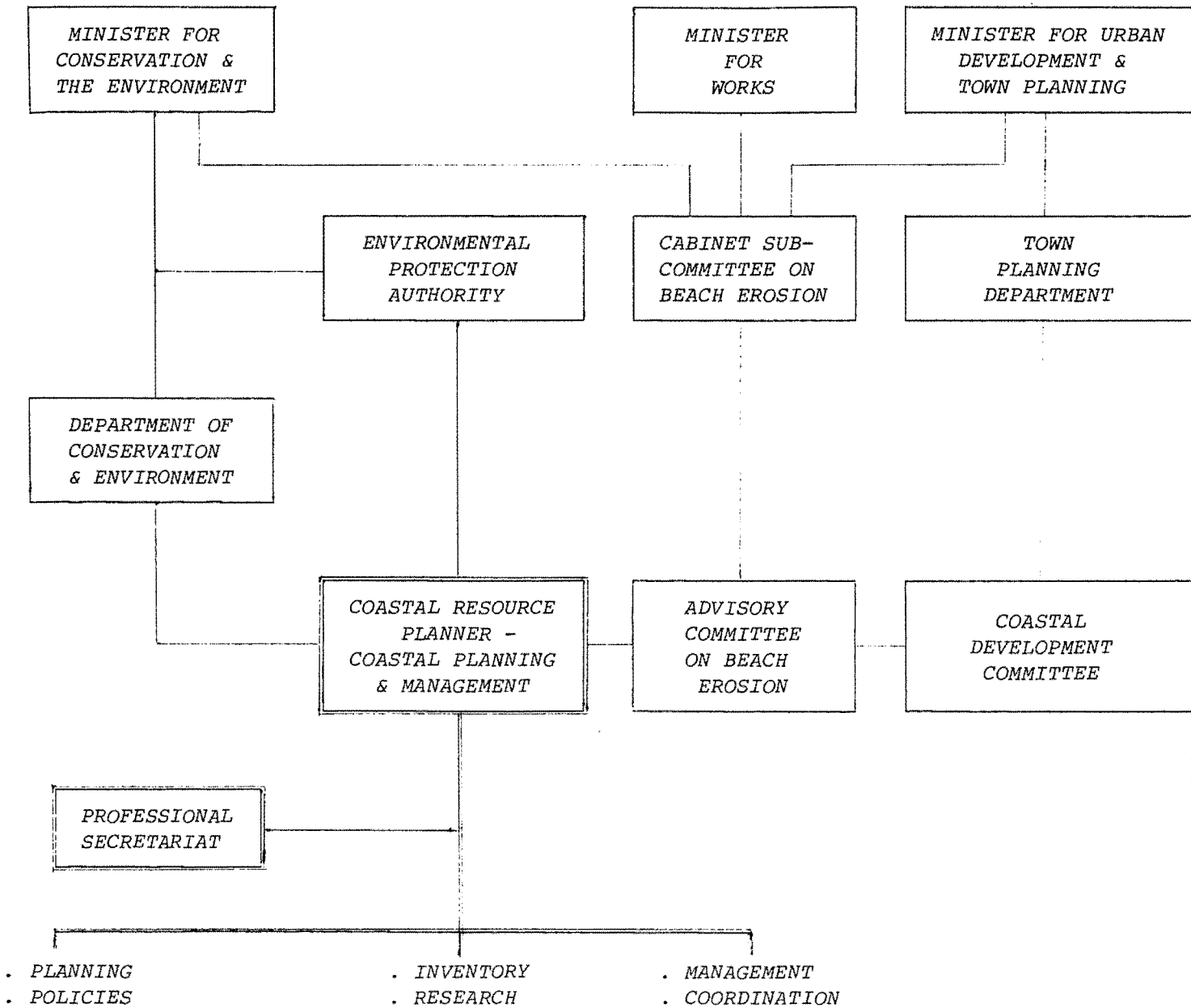
5. CONCLUSION

The Environmental Protection Authority in this document has proposed guidelines for an Environmental Protection Policy for the coastal zone as defined. This policy is not seen as an end in itself but as the start of a more intensive effort to manage our coast environmentally.

If carried out sympathetically and with understanding at both State and local government level the suggested policy and the initiatives that follow will ensure that future use of the coast will be to the benefit of both present and future generations of the people of the State.

FIGURE 1

COASTAL MANAGEMENT IN WESTERN AUSTRALIA
A CONCEPTUAL ORGANISATION



NOTES:

1. This conceptual structure implies an initial staff of about five, although in the beginning while concepts were being developed, two would suffice.
2. The present Advisory Committee on Beach Erosion could be expanded with members from outside Government to become a more general Coastal Advisory Committee.
3. See Appendix 2 for membership of the committees noted in Figure 1.

_____ Existing
 _____ Suggested

REFERENCES

- (1) Report on the Committee of Inquiry, appointed to inquire into, and report on, the operation of the Mining Act of the State and to report whether any and what amendments should be made to the Mining Act, 1904; 1971, Western Australia.
- (2) Conservation Reserves in Western Australia, Report of the Conservation Through Reserves Committee to the Environmental Protection Authority, 1974.
- (3) Thom, B.G. and Chappell, J., Holocene Sea Levels Relative to Australia, p.90, Search, Vol. 6, No. 3, March 1975.
- (4) Seddon, G., Sense of Place, published by University of Western Australia Press.
- (5) Shepard, F.P., Rise of Sea Level Along North West Gulf of Mexico, in Shepard, F.P., et al., Recent Sediments, North West Gulf of Mexico, Tulsa, Oklahoma, AM Assoc. Petroleum Geologists, p.338-344
- (6) Logan, B.W., Diagenesis in Holocene - Recent Carbonate Sediments, in Logan, B.W., et al., Evolution and Diagenesis of Quaternary Carbonate Sequences, Shark Bay, Western Australia, AM Assoc. Petroleum Geologists, Memoir 22, p.197-198, 1974.
- (7) California Comprehensive Ocean Area Plan, prepared for the Governor of California and the California Advisory Commission on Marine and Coastal Resources, pursuant to Executive Order 67-25 of August 24, 1967 in response to the Marine Resources Conservation and Development Act of 1967.
- (8) Australian Advisory Committee on the Environment, Coastal Land, Report No. 5, June 1975.

BIBLIOGRAPHY

1. GENERAL

Beller, W., Chairman, 1972, Tools for coastal zone management: Proceedings of Conference on Coastal Zone Marine Management Committee, MTS Public, 213 p

Fallon, P.J., 1974, Coastal zone management: UK Scientific Mission Report 74, 8 p

Ketchum, B.J., ed., 1972, The water's edge, critical problems of the coastal zone: MIT Press, 393 p

Merselis, W.B., ed., 1973, Coastal zone management and the Western States' future: Proceedings of Marine Technology Society, Los Angeles Region Section, 269 p

Peel Brahtz, J.F., ed., 1971, Coastal zone management; multiple use with conservation: University of California Engineering and Physical Sciences Extension Series, 349 p

Wenk, E., 1969, The physical resources of the ocean: Scientific American, September 1969, 2 p

2. AUSTRALIA

Australian Advisory Committee on the Environment, 1975, Coastal land: Australian Government Publishing Service, Canberra, Report No. 5

Australia and New Zealand Environment Report, Coastal protection and town planning: CCH Australia Ltd., 376-378

Australia UNESCO Committee for Man and Biosphere, 1974, The impact of human activities on coastal zones: Australian Government Publishing Service, Publication 1, Canberra 189 p

Foster, D.N., 1974, The beach erosion hazard: Water Research Foundation of Australia, Report 44, 21 p

Holmes, J.N., 1944, Regional coast types, the geographical basis for government: Angus and Robertson Ltd., Sydney, 95-115

Institute of Engineers, Australia, 1974, The engineer, the coast and the ocean: Second Australian Conference on Coastal and Ocean Engineering, National Conference Publication No. 75/2

Thom, B.G. & Chappell, J., 1974, Holocene sea levels relative to Australia: Search 6, 3, 90-93

UN Centre for Economic and Social Information, 1973, Coastal zone management offers new dimensions for development: Document ESA/113, 11 July 1973

2.1 Western Australia

Anonymous, Development of the coastal strip land for holiday makers: unpublished, 4 p

Australian Marine Science Association, W.A. Division, Proposals for establishment of marine reserves in West Australia: unpublished, 23 p

Cabinet Sub Committee on Beach Erosion, (unpublished notes of preliminary meeting)

Coastal Zone Management Consultants, Coastal development plan for West Australia: unpublished, 25 p

Adams, P.R., Kay, A.E., & Telfer, A.H., 1971, Inquiry into the Operation of the Mining Act of the State: Report of the Committee of Inquiry, Western Australia, 166 p

Dames & Moore, 1971, Report of investigation, control of dune sand, North Fremantle Terminal: Report for Golden Fleece Petroleum, Job No. 8022-001-70, 15 p

George, R.W., 1969, Towards utilisation and management of Western Australia's north west coastline: Australian Marine Science Conference, 19-23

George, R.W., 1969, Future of Geraldton coastline: unpublished, 7 p

George, R.W., 1970, Coastline conservation and beach mining: Delivery to Australian Conservation Foundation, unpublished

George, R.W., 1972, Examining and assessing an area: Multi Purpose Planning of a Region Seminar, Busselton, 4 p

George, R.W., & Chittleborough, R.G. Marine coastal reserves for Western Australia: Australian Marine Science Association, W.A. Division, unpublished, 8 p

Sand Drift and Sea Erosion Committee, Western Australia, Town Planning Department, unpublished recommendations - 862/1/2 Vol. 2

Sand Drift and Sea Erosion Committee, 1974, Coastal erosion: Western Australia, Town Planning Department, 14 p

Shepherd, A., 1969, Towards utilisation and management of Western Australia's south west coastline: Australian Marine Science Conference

Silvester, R., 1961, Beach erosion at Cottesloe, W.A.: Transactions Civil Engineering, 27-33

Silvester, R., The coastline as part of the national estate: unpublished, 24 p

Town Planning Department, The south western coast: Western Australia, Town Planning Department, unpublished, 59 p

University of Western Australia Extension Service, 1972, Multi purpose planning of the Many Capes Region: University of Western Australia, Perth

Webb, M.J., 1973, Scarborough Beach development, part 1, land use, networks and human activities, development and change: Report for Stirling City Council, 67 p

2.2 South Australia

Coast Protection Act, 1972, No. 49 of 1972

South Australian Coast Protection Board, Coastline: South Australian Coast Protection Board, numerous pamphlets

South Australian Coast Protection Board, 1974, Metropolitan coast protection district: South Australian Coast Protection Board, Study Report, 153 p

2.3 Victoria

Anonymous, Conservation on the Victorian coast: Physical Environment and Geographical Features, 37-43

Bird, E.C.F., 1973, Sites of specific scientific interest on the Victorian coast: A Preliminary List for Victorian Town and Country Planning Board

Environment Protection Authority, 1972, The waters of Port Phillip Bay: Victoria, Environment Protection Authority, Draft Environment Protection Policy, No. W-51, 30 p

Environment Protection Authority, 1972, Yarra River and tributaries: Victoria, Environment Protection Authority, Draft Environment Protection Policy, No. W-29, 42 p

Port Phillip Authority, 1974, Beach use: Victoria, Port Phillip Authority, Issue No. 2, 3 p

Thatcher, A.C., & McAlpine, D.L., 1975, The "beach" and man: Victorian Resources, September 1975, 4 p

Town & Country Planning Board, 1973, Future uses of land around Lake Eildon: Victoria, Town & Country Planning Board, 1 p

Town & Country Planning Board, 1972/73, Annual Report: Victoria, Town & Country Planning Board, 39 p

Western Port Region Planning Authority, 1975, Western Port region, interim development order, amendment No. 1: Victoria, 78 p

Western Port Region Planning Authority, 1975, Conservation plans Mornington Peninsula: Ability Press, 49 p

2.4 New South Wales

Barr, D.A., & Watt, B.G., 1969, Pedestrian access to beaches: Soil Conservation Journal of N.S.W., 25, 4, 286-294

Division of Land Research, South coast land capability study: CSIRO, pamphlet

Condon, R.W. & Barr, D.A., 1968, Guidelines for real estate development near coastal dunes and beach areas: Soil Conservation Journal of N.S.W., 24, 4, 237-245

Thom, B.G., 1974, Coastal erosion in eastern Australia: Search 5, 5, 198-209 =

2.5 Queensland

Beach Protection Authority, Beach conservation: Queensland, Beach Protection Authority, numerous pamphlets

Co-ordinator General's Department, Coastal management investigation, Queensland-New South Wales border to northern boundary of Noosa Shire: Queensland, Co-ordinator General's Department, Terms of Reference for a Consultant, 14 p

2.6 Tasmania

Environmental Protection (Water Pollution) Regulations, 1974

3. OVERSEAS

3.1 New Zealand

Town & Country Planning Division, Ministry of Works, 1972, Coastal development policy issues and planning techniques: New Zealand Town & Country Planning Division, 113 p

3.2 South Africa

George, R.W., Heydorn, A.E.F. & Berry, P.F., Nearshore oceanography and ecology of South Africa: unpublished, 9 p

3.3 South Pacific

George, R.W., 1972, South Pacific islands - rock lobster resources: Report for South Pacific Fisheries Development Agency, 42 p

3.4 Sweden

Emmelin, L., 1975, Environmental planning - the right of common access: Current Sweden, March 1975

3.5 United States of America

3.5.1 California

Bissell, H.D., 1972, Coastal zone planning in California: Shore and Beach, 40, 1, 24-25

==

California Coastal Zone Conservation Commission, 1973, Annual Report: California, Coastal Zone Conservation Commission, 14 p

California Coastal Zone Conservation Commission, 1973, Outline for coastal zone planning: Memo to Staff and Public, California Coastal Zone Conservation Commission, 10 p

California Coastal Zone Conservation Act of 1972, 10 p

California comprehensive ocean area plan and supplement,
51 and 63 p

Sorrenson, J.C., 1971, A framework for identification and control of resource degradation and conflict in the multiple use of the coastal zone: Department of Landscape Architecture, College of Environmental Design, University of California, Berkley

Washom, B., 1973, The first year of California's coastal zone management programme: Marine Technology Society Journal, 8, 7, 11-15

=

3.5.2 Florida

Coastal Co-ordinating Council, 1971, Coastal zone management in Florida - 1971: Florida, Coastal Co-ordinating Council, Status Report, 11 p

Coastal Co-ordinating Council, 1971, Escarosa, a preliminary study of coastal zone management problems and opportunities in Escambia and Santa Rosa Counties, Florida: Florida, Coastal Co-ordinating Council, 30 p

Coastal Co-ordinating Council, 1973, Statistical inventory of key biophysical elements in Florida's coastal zone: Florida, Coastal Co-ordinating Council, 20 p

Coastal Co-ordinating Council, 1973, Coastal zone management in Florida - 1972: Florida, Coastal Co-ordinating Council Status Report, 5 p

Coastal Co-ordinating Council, 1974, Coastal zone management in Florida - 1973: Florida, Coastal Co-ordinating Council, Status Report, 4 p

3.5.3 North Carolina

Berg, D.R., 1974, How North Carolina came to pass a Coastal Zone Act: Marine Technology Society Journal, 8, 10, 9-14

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MEMBERSHIP AND RESPONSIBILITY OF COASTAL ADVISORY COMMITTEES

CABINET SUB-COMMITTEE ON COASTAL EROSION

Minister for Works, (Chairman)

Minister for Urban Development and Town Planning

Minister for Conservation and Environment

ADVISORY COMMITTEE ON COASTAL EROSION

Public Works Department (Convenor and Chairmanship)

Agriculture Department (Soil Conservation Service)

Department of Conservation and Environment

Department of Lands and Surveys

Local Government Association

Town Planning Department

COASTAL DEVELOPMENT COMMITTEE

Town Planning Department (Convenor and Chairmanship)

Agriculture Department

Department of Conservation and Environment

Department of Fisheries and Wildlife

Department of Lands and Surveys

Local Government Association

Public Works Department