

1. INTRODUCTION

The 1640 km long Eyre Coast Protection District was proclaimed on 21st June 1984, under Section 19 of the Coast Protection Act 1972-85. The District was defined as including all land between Mean High and Low Water Marks, below and within 3 nautical miles (5.55 km) of MLWM, above and within 500 m of MHWM in rural areas and above and within 100 m of MHWM in township and urban areas. The District also includes land "within any estuary, inlet, river, creek, bay or lake subject to the ebb and flow of the tide".

This report is one of a number of studies being undertaken to produce a Study Report and Management Plan for the Eyre Coast Protection District. The study area extends from the northern boundary of the Hd of McGregor to the Western Australia border (Figure 1.1). The City of Port Lincoln is excluded from the study as the level of development along that section of coast warrants a separate investigation.

There are 3 principal aims of this report:

1. to describe and assess the coastal morphodynamics;
2. to identify areas where development is hazardous owing to long-term coastal processes or short term events;
3. to describe and assess the impact of existing developments along the coast, identifying major issues and making recommendations on management action required.

In addition to these major aims there are two secondary aims:

4. to provide information for redefining the landward boundary of the Coast Protection District so that it includes coastal landforms and coastal hazard areas;
5. to identify nominated geological monument sites along the coast and make recommendations on other sites that should be nominated.

In achieving the three principle aims this report follows the approach taken by Short and Hesp (1980) in their study of the South East Coast Protection District. In this approach a morphodynamic assessment is first made of the coast, to provide an understanding of coastal processes and morphology. The hazard and coastal development impact assessment is then made on the basis of this understanding.

To carry out this assessment the coast has been divided into eight coastal Provinces and a number of Subprovinces (Figure 1.1). Each Province and Subprovince is determined on the basis of differences in the geological, climatic and oceanographic parameters that affect the Eyre coast.

To achieve the secondary objectives the following tasks have been carried out. Firstly coastal landforms and hazard areas have been mapped from air photographs onto 1:50,000 and 1:250,000 scale maps so that the boundary of the Coast Protection District can be redefined to include them. Secondly, all nominated geological monuments along the Eyre coast, described by McBriar and Mooney (1977), Toteffs and McBriar (1979), and McBriar, Giles and Mooney (1980, 1981) have been mapped, and other sites of significance found during field work have been described.

This report is presented in the following manner. Section 2 details the major issues and recommendations made in the report. Section 3 describes the various environmental parameters that affect the Eyre coast and from which the coastal Provinces and Subprovinces have been determined. Section 4 explains the coastal geomorphology using a number of models; and Section 5 describes the morphodynamics of each of the Provinces and Subprovinces. This provides the setting on which Section 6 is based. Using the Province and Subprovince divisions, Section 6 presents the hazard and development impact assessment for each of them, and makes recommendations where management action is required. Section 7 describes the nominated geological monument sites and presents recommendations on other sites that are considered worthy of nomination. Section 7 is followed by a bibliography of all references used in the Report.

Appendices to this report (Volume 2) contain:

- (1) a glossary which explains terms and concepts used in the report;
- (2) lighthouse wave observations;
- (3) sediment and C¹⁴ analysis;
- (4) a list of common molluscs found in Eyre Peninsula beach ridges;
- (5) Cullen and Bird (1980) recommendations concerning dune management in South Australia;
- (6) coastal hazard and landform maps.

In this report a location reference system developed by the CSIRO is used (Galloway *et al* 1980). Location reference points measured in km units are shown at 10 km intervals on the maps in Appendix 6. These units are referred to throughout the report. The location system ties in with an Australian Coastal Inventory (A.C.I.) established by the CSIRO for storing data about the Australian coast. Data collected during this survey will therefore complement the data already stored by the CSIRO. This data is available for use by coastal managers.