



1 Introduction

1.1 Strategic background

In 1993 the Ministry of Agriculture, Fisheries and Food (MAFF) and the Welsh Office published their "Strategy for Flood and Coastal Defence in England and Wales" (MAFF, 1993a). This publication set out the need to manage the shoreline from the perspective of coastal process cells or sub-cells rather than in accordance with the administrative boundaries of the coastal operating authorities. Since then voluntary coastal groups comprising coastal authorities, the Environment Agency and major local interest groups have formed around England and Wales with the aim of establishing integrated regional coastal defence strategies in accordance with the MAFF guidance document "Shoreline Management Plans - A Guide for Coastal Defence Authorities" (MAFF, 1995a).

The intention of the Shoreline Management Plan (SMP) for each area is to establish a coast defence strategy that is technically, economically and environmentally sustainable. The plans for adjacent coastal areas must be compatible and they must take account of natural coastal processes, existing defences and both human and other environmental influences and needs. The SMPs are non-statutory documents intended to both inform and be supported by the statutory planning processes. As such they must take account of the diverse interests in the shoreline and must be presented in a form that is accessible to a wide audience.

The SMPs are the foundation for shoreline management, but are not definitive. They are based on existing information and will need to be reviewed as future studies modify and extend the understanding of the coastal zone. An important element of each SMP is the identification of gaps in available information and recommendation of monitoring or research programmes to improve the situation.

The SMPs are not intended to set out strategies for the broader coastal issues addressed by Coastal Zone or Harbour Management Plans, such as management of tourism, natural habitats or mineral resources, although all of these matters must be considered in shoreline management. SMPs are also not intended to appraise detailed management schemes for specific frontages as that level of planning will be undertaken at the follow up stage of strategy studies and project appraisals.

1.2 The SMP process

SMP production is separated into two stages. In Stage 1 the background information required for management is collected from existing sources, the broad objectives for the Plan area are established and the area is subdivided into Management Units based on natural processes, existing land use and planning objectives. The required information includes:

- coastal processes
- natural environment
- land use and the human and built environment
- existing coastal defences.

Consultation with a wide range of groups with an interest in the shoreline is an important part of Stage 1, in terms of obtaining information, providing an understanding of the management issues and identifying any further studies required.

In Stage 2 the strategic coastal defence options for each Management Unit are proposed, justified and selected to achieve the Plan objectives. Justification and selection of the options are based on all of the information obtained in Stage 1 and are subject to review and comment by the Consultees. The selected options must be sustainable in terms of engineering viability, economic justification and environmental impact. Possible management operations that will achieve the These cliffs extend almost to the mouth of the River Hamble and are to a large extent unprotected. Hook Spit, formed of material eroded from these cliffs, extends northwards into the River Hamble and provides protection to low-lying land behind.

Plates 1-8 illustrate the range of shoreline situations found within the harbours.

selected policy are proposed in outline and recommendations are made for future monitoring, research and management review procedures to ensure that the Plan is carried into the future as a working document.

1.3 The East Solent SMP

The East Solent SMP area extends from Pagham in the east to the mouth of the River Hamble in the west, and includes the natural harbours of Chichester, Langstone, Portsmouth and Pagham (Figures 1 and 2). The landward boundary of the SMP is nominally fixed at 1km inshore or at the 5m OD contour, whichever is the greater distance from the shoreline.

The seaward boundary is not defined, as all processes and factors that may influence the shoreline are considered regardless of location.

The coast varies from eroding cliffs, shingle banks and heavily defended headlands on the open coast to salt marshes, flood embankments and deepwater jetties within the large natural harbours. The open coastline extends for some 50km while the harbour coastline is over 170km. The land is generally low lying, with large areas at risk from flooding. The surface geology comprises easily erodible Tertiary and Recent deposits of sand, gravel and clay mixtures.

The wave climate and tidal regime are complex relative to other areas of the UK, due to the influence of the Isle of Wight and the constricted entrance to the harbours. The tides are particularly complex, with a rapidly changing tidal range, extended high waters and complex patterns of tidal flow including strong ebb and flood currents through the harbour entrance channels and around the major headlands.

From Pagham to Portsmouth Harbour the coast is low lying and large stretches are prone to both erosion and flooding. Selsey Bill was once one of the most rapidly eroding stretches of coast in the country prior to construction of the existing defences in 1956. West of Selsey Bill at Medmery there is much land which is low lying and would be regularly flooded were it not for the presence of a large shingle bank, artificially maintained on a regular basis. At the west end of the Selsey peninsula is the East Head spit, of great importance for coast protection, ecological habitats and amenity use.

Hayling and Portsea Islands are both low lying and liable to flooding and erosion. Much of the open coast shorelines of both islands are formed of massive shingle accumulations, influenced by a variety of coast defence structures and management operations. The nearshore zone is generally formed of wide, shallow banks divided by the deeper entrance channels to the natural harbours.

The harbours themselves are under threat of erosion and flooding with the dieback of saltmarsh causing what may be serious changes in the long term stability of the shoreline. Portsmouth Harbour is the most highly developed of the harbours. Its margins have been greatly altered by development and reclamation, although it still contains important wetland areas and long stretches of muddy shoreline little spoilt by urban development pressures.

West of Portsmouth Harbour the shoreline comprises massive shingle accumulations extending from Fort Gilkicker up to Lee-on-the-Solent. This natural frontage affords protection from the sea but this condition may change as the supply of material feeding the beaches reduces.

From Lee-on-the-Solent to Hill Head Harbour the land rises and much of the frontage is formed by seawalls protecting cliffs that were formerly subject to erosion. The construction of groyne systems and seawalls dates back to the 1950's. The condition and effectiveness of these defences varies over the frontage.

Hill Head Harbour forms a marked discontinuity in the coastline. Northwest of the harbour there are cliff exposures of easily eroded sands and gravels which provide an important supply of beach material. The cliffs are of considerable archaeological and palaeontological significance being a rich source of palaeolithic artifacts and bird fossils of the Mid-Eocene age.

The coastal strip has varied land use. Heavily developed residential, commercial and military areas coexist with large areas of farm land and undeveloped wetlands or marshes of high environmental value. The nearshore and intertidal areas are extensively used for water sports and also have a high environmental value.

This complex area presents a particular challenge to shoreline management. Changing social, economic and military priorities have begun a process of redevelopment of the built up areas while management of the open areas must resolve



conflicts between the protection or enhancement of the natural environment and pressure for further recreational, commercial or residential development. These diverse interests, plus the need for economic justification, must all be considered by shoreline managers.

For the purposes of the SMP production the East Solent area was divided into two components: the open coast and the harbours. This distinction was based on the differences in coastal processes and the general independence of shoreline management activities. The open coast is subject to relatively high energy wave conditions acting over long lengths of the shore and strong interdependencies between adjacent frontages in terms of shoreline evolution and the impact of management operations. In contrast, the harbours are subject to low wave energy conditions often acting over short frontages with little interdependency, even over short distances. Although the open coast and the harbours influence each other around the harbour entrances, it was considered that the differences between the two environments were sufficient to justify separate consideration.

The coastal strip has varied land use. Heavily developed residential, commercial and military areas coexist with large areas of farm land and undeveloped wetlands or marshes of high environmental value. The nearshore and intertidal areas are extensively used for water sports and also have a high environmental value.

This complex area presents a particular challenge to shoreline management. Changing social, economic and military priorities have begun a process of redevelopment of the built up areas while management of the open areas must resolve conflicts between the protection or enhancement of the natural environment and pressure for further recreational, commercial or residential development. These diverse interests, plus the need for economic justification, must all be considered by shoreline managers.

1.4 Report outline

The East Solent SMP is presented in four Volumes. As the issues and processes within the harbours are largely independent to those of the open coastline, the SMP has been separated into two parts. Stages 1 and 2 of the SMP for the open coastline are presented in Volumes I and II, while Volumes III and IV present the SMP for Chichester, Langstone and Portsmouth Harbours. The SMP for Pagham Harbour has been split between the Stage 1 volume for the open coast and the Stage 2 volume for the harbours. It is included with the open coast since the coastal processes dominating its form are strongly dependant on those of the shingle spits at its entrance, and, to a lesser extent, the shingle ridge at Bracklesham Bay to the south. From the management perspective of Stage 2 it is convenient to present Pagham Harbour in the volume with the other harbours as there are distinct differences in the management approach between the harbours and the open coast.

The present document forms Volume III of the SMP and contains the background data for the natural harbours of Portsmouth, Langstone and Chichester. Chapter 2 describes the Stage 1 consultation procedures, and includes a full list of the Consultees with a summary of their interests and concerns. Data on coastal processes, existing defences, planning, land use and the natural and human environment are presented in Chapters 3 to 6. This information is set out as maps, tables and text and is intended to act as an information source. Possible future changes affecting the SMP are discussed. It should be noted that large scale maps only present data relevant to the harbours and not the open coast.

A glossary of terms and abbreviations is presented at the front of each Volume. References are contained in the appendices, as are data on existing defences based on the MAFF and Environment Agency coast protection and sea defence databases.



Plate 1 Gosport shoreline, Portsmouth Harbour

Plate 3 Langstone Harbour

Plate 2 Fareham Lake, Portsmouth Harbour

Plate 4 South shore of Eastney Lake, Langstone Harbour



Plate 5 Chichester Harbour

Plate 7 Recent works at Prinstead, Chichester Harbour

Plate 6 Shore of Thorney Channel, Chichester Harbour

Plate 8 Chichester Channel, Chichester Harbour