

## Chapter 7 Managing the Shoreline

### Guiding Principles:

Chapter 4 details all the guiding principles relevant to the overall management of the Harbour. Whilst all should be given some consideration the following are of particular relevance to managing the shoreline.

Key Guiding Principle numbers: 1, 5, 8, 9 and 10.

### 7.1 Climate Change and Sea Level Rise

Probably the most significant long term issue which will affect the future of shoreline management is sea level rise. This is a natural occurrence for the coast, which of course includes Poole Harbour. However, as a result of recent studies, the rate of rise of the sea levels is expected to increase according to the predicted climate change models (see table below). The Inter-Governmental Panel on Climate Change (IPCC) predictions suggest that global temperatures may increase by between 1 degree Celsius to 3.5 degrees Celsius by 2100, with sea level rise predictions for the south west coast being as follows:

Period	Rate of Rise
2007 to 2025	3.5mm/year
2025 to 2055	8.0mm/year
2055 to 2085	11.5mm/year
2085 to 2115	14.5mm/year

(Figures taken from PPS 25 Annex B. Table B.1)

Therefore, starting from 2007, if the predictions are correct it may be possible for the sea levels to be 63mm higher by 2025, 303mm higher by 2055 and 648mm higher by 2085.

Increased extreme events, including increased storminess, are also associated with climate change. The Environment Agency, Southern Coastal Group, SCOPAC (Standing Conference on Problems Associated with the Coastline) and the Dorset Coast Forum are all organisations whose work considers the issues of climate change and sea level rise.

#### 7.1.1 Implications

Higher sea levels and a greater number of stormy events will have implications for everyone around the harbour.

Climate change will need to be considered when undertaking Flood and Coastal Erosion Risk Management and trying to protect life and property. The planning process will also need to take account of the predicted changes when considering planning and development. Government Policy Planning Statement PPS 25 explains how flood risk should be considered at all stages of the planning and development process. It sets out the importance of the management and reduction where possible of flood risk in planning, acting on a precautionary basis and taking account of future climate change scenarios.

Poole Harbour is a SSSI, SPA and Ramsar site and the habitats and species for which it has been designated as important are also under threat from climate change. There is potential for a loss of intertidal habitats from natural processes and “squeeze” against hard defence structures with higher sea levels. Additionally, the flora and fauna will change with warmer air and water temperatures.

Therefore the possible effects of climate change in the Harbour are:

- Increased risks to life and property in the community from flood events can occur from the sea, the rivers and from surface water runoff

- Increased risks to communities from coastal erosion and landslips
- Loss of intertidal habitats within the Harbour including mudflat, saltmarsh and Brownsea Lagoon
- Establishment of new intertidal habitats along the coast and up the rivers as they are flooded by rising sea levels
- Increased air and water temperatures which may affect the flora and fauna found in the harbour causing loss of some species and the introduction of new ones

## **7.2 Flood and Coastal Erosion Risk Management**

In England DEFRA has the overall policy responsibility for both Flood and Coastal Erosion Risk Management. It sets the policy aims, objectives and targets for the operating authorities. They also provide guidance, funding for grant eligible works and run a capital research and development programme.

### **7.2.1 Flood Risk Management**

The Environment Agency (EA) is the principal flood risk management operating authority in England and Wales. They have a general supervisory role for all matters relating to flood risk which includes both river (main river) and tidal issues.

EA's Flood Risk Management includes:

- a) Maintain and operate existing flood risk management schemes and associated structures to alleviate or reduce the risk of flooding. All new flood risk management schemes must be economically viable, technically sound, conserve or enhance the environment and contribute to sustainable development
- b) Provide a flood warning detection and dissemination system capable of issuing flood warnings directly to the public and professional partners
- c) Provide mapping of areas at risk of flooding
- d) Provide, through the Development Control process, discouragement of inappropriate development in areas at risk of flooding. This is achieved as part of the planning consultation process and by Flood Defence Consents (formerly Land Drainage Consents)

Local Authorities also have the powers to undertake flood risk management works on the smaller streams known as Ordinary Watercourses. However, agreement by the EA must be sought before any work is started.

All operating Authorities today realise that defence development may be more cost effective and enduring if, rather than fighting nature, they harness and enhance the natural coastal processes. Establishing a natural regime is thought to have the added advantage of retaining the wildlife of the area and enhancing the quality of the landscape.

Also successful man made defences in one area may have a damaging effect on neighbouring stretches of the coastline if they interfere with the natural movement of sediment. This must be taken into account when considering making any changes to the existing structures or when designing any additional flood risk management schemes.

An example of this is the strategic review of the Wareham Tide Embankments. These banks are adjacent to the Rivers Frome and Piddle at the western end of the Harbour and the long term future and the strategic options are being considered by the Environment Agency. These options need to take account of the interests of the different parties, the environment and the need to reduce the cost of maintenance.

Examples of flood risk management schemes within the Harbour can be seen along Poole Quay and in Hamworthy Park. The location of all existing formal Flood Risk Management Schemes can be seen at [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk). (This does not include any private schemes).

### 7.2.2 Coastal Erosion Risk Management

Coastal Erosion Risk Management is where measures are taken to protect the shoreline against erosion. This can take the form of hard (sea walls, rock armour or groynes) or soft (dunes, marshes and beach replenishment) engineering.

The Environment Agency has a strategic overview of Coastal Erosion Risk Management. In the harbour, the local authorities of Poole and Purbeck have the responsibility for these works under the Coast Protection Act 1949 and any non-statutory responsibilities in accordance with Defra's high level targets. Examples of Coastal Erosion works within Poole Harbour can be seen around the Whitley Lake area, along the eastern shore of Brownsea Island near to Brownsea Castle and at the entrance to the harbour.



### 7.3 Shoreline Management Plans (SMPs)

SMPs are non statutory documents which set out strategic guidance for managing specific lengths of the coast, taking account of natural processes, human and environmental influences and needs. The Local Authorities and the Environment Agency use SMP guidance when putting together planning strategies and policies relating to the shoreline. The SMPs can be viewed at Dorset County Council, Borough of Poole, Purbeck District Council and in local libraries.

Each SMP covers an area of the coastline known as a sub-cell within a littoral sediment cell. A sediment cell is defined as a length of coastline, which is relatively self contained as far as the movement of sand or shingle is concerned, and where interruption to such movement should not have a significant effect on adjacent sediment cells.

The SMPs cover the entire coast of England and Wales and they detail guidance on how best to manage the coast using the following 4 options:

- Advance the line – move the shoreline into areas now covered by the sea.
- Hold the line – maintain the present shoreline.
- Managed realignment – allow the shoreline to move
- No active intervention – commonly applied on undeveloped coastline and means let nature take its course.

The original SMPs (SMP1) were produced in 1999 and have recently been reviewed. This review has now finished and the new SMP2's have been produced and were approved.

The Dorset Coast is covered by two SMP2's (sub cells or sediment cells) 5F - "Hurst Spit to Durlston Head" and 5G - "Durlston Head to Rame Head".

Poole Harbour is included within the SMP2 - 5F, Hurst Spit (*near Lymington*) to Durlston Head (*near Swanage*) and this plan covers a total of 190km, or 118 miles of coastline including all harbours and estuaries. The lead Authority for this plan is Bournemouth Borough Council and more information can be found on the website for the Hurst Spit to Durlston Head SMP2, ([www.twobays.net](http://www.twobays.net)) or on the DEFRA website ([www.defra.gov.uk](http://www.defra.gov.uk)) under flood management.

SMP2's take a longer term view of managing the coast, setting out policies for the next 100 years, as opposed to the 50 year vision of the old plans. Greater stakeholder engagement has been encouraged in the review process and the latest research relating to the environmental, social and economic factors has been considered.

## Management Objectives:

The following is a list of the management objectives identified. Whilst some are specific to the management of the shoreline others may relate to activities and issues discussed in other chapters of this plan. All management objectives can be found in the matrix contained within Section 2, which also lists proposed management actions.

- To ensure all relevant organisations work together and that sea level rise is incorporated in the planning, development and management of the harbour.
- To reduce risks to people, property and the environment from flooding and coastal erosion through the provision of defences, flood forecasting and warning systems against national priorities and criteria.
- To respond to coastal change and rising sea levels in the most sustainable way to comply with flood protection policy and Habitat Regulations.
- To understand where habitats may be lost in the future due to sea level rise and where there is potential for habitat re-creation.
- To identify strategic options for the future management of the Wareham tide banks.