

## Management Unit 6: Sandy Point to the Inn on the Beach, Hayling Island

### Unit limits

5600m from 475100E, 099100N to 470550E, 098800N

### Coastal processes

Hayling Island is low lying and once relied upon an extensive shingle storm beach for protection against flooding. Following development at Eastoke in the 1930s the eastern end was protected by seawalls and groynes to reduce the damage caused by changing beach alignments and overtopping. Continued movement of shingle away from this area led to increased overtopping. In 1985 the beach was recharged and has subsequently been actively maintained. Dredging of the Chichester Harbour channel bar was undertaken in 1988 and is required again to maintain safe navigation depths.

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|-------------------------------|--|
| <i>Geology</i>                | - Bracklesham Beds overlain by shingle storm beach, lower sand beach and sand or sandy gravel nearshore deposits   |
| <i>Wave climate</i>           | <ul style="list-style-type: none"> <li>- Tidal currents and nearshore bathymetry of banks and channels causes a complex wave climate that, in turn, causes a highly variable sediment transport regime</li> <li>- Dominant waves at Eastoke Point from the southwest (45% of time) with less frequent but larger waves from the south (20% of time)</li> <li>- Waves at Eastoke from south and southwest (30% of the time from both directions), but larger waves mainly from south</li> </ul>                     |
| <i>Tidal regime</i>           | <ul style="list-style-type: none"> <li>- Complex tidal currents due to Langstone and Chichester Harbours entrance channels</li> <li>- Flows in Chichester entrance are strong and ebb dominated, with maximum currents between 1.5 and 3.0m/s</li> <li>- Nearshore flows along the main frontage are weak at &lt;0.5m/s, and have a complex pattern depending on the tidal state</li> <li>- Weak residual flow from east to west</li> </ul>  |
| <i>Sediment transport</i>     | <ul style="list-style-type: none"> <li>- Littoral drift is westwards and eastwards from a divergence zone along the Eastoke frontage</li> <li>- Long term nett rates of drift are low, but gross rates are higher and vary significantly from year to year</li> <li>- Weak and irregular supply of sand and fine shingle from offshore</li> <li>- Inn on the Beach acts as partial barrier to drift out of Unit to west</li> <li>- Chichester Harbour entrance channel acts as a sink for drift to east</li> </ul> |
| <i>Possible future change</i> | <ul style="list-style-type: none"> <li>- 300mm sea level rise over 50 years</li> <li>- Increased wave energy with mean direction shifting clockwise</li> </ul>   |

- Increased nett drift to east
- Increased beach erosion

**Table 6.1 Extreme wave heights and water levels**

Probability	1:1 year	1:10 year	1:50 year
Nearshore wave height Hs (m)	2.8	3.4	3.8
Maximum water level (mOD)	2.70	3.05	3.18

\* at the -2m CD contour assuming MHWS tide level.

### Existing defences

Between Sandy Point and the Lifeboat Station along the Chichester harbour entrance, the spit is reinforced by piecemeal private defences that are in poor condition. South of the Lifeboat Station Hampshire CC maintain a timber breastwork with timber groynes. At Eastoke Point Havant BC have constructed a rock revetment with short rock groynes, and propose to extend this scheme northwards to meet the Hampshire CC defences in two phases between 1998 and 2001.

A short length of frontage west of Eastoke Point is groyned but suffers backshore erosion during severe storms. Along the Eastoke frontage a concrete seawall is protected by the actively maintained recharged shingle beach. West of Eastoke the shingle backshore is protected by a sloping timber revetment. Beyond this the beach is dynamically stable. The Inn on the Beach marks the end of the Unit and acts as a terminal groyne, allowing some drift to the west but preventing any significant return.

### Natural environment

Eastoke Point and Sandy Point spit are within the Chichester Harbour SSSI (also SPA and Ramsar site) and part of the area is within the Sandy Point LNR. The entire foreshore and nearshore seabed to about 1.6km offshore is also within the Solent Maritime possible candidate SAC. The LNR is designated for its unusual sand/shingle habitat. Shoreline management operations must comply with statutory procedures including the Habitats Directive.

### Land use

The area is a mixture of residential development and high value open space. The frontage has a number of recreational developments including a fun fair, seafront restaurants and a sailing club of national importance at Sandy Point. There is a life boat station along the harbour entrance channel.

### Human environment

The frontage is valued for public recreation and serves the local holiday industry. Eastoke Point and Sandy Point are within the Chichester Harbour AONB.

### Planning policies

Sandy Point spit and Eastoke Point are designated as Countryside and Coastal Zone while the backshore west of Eastoke is designated as Public Open Space. Limited recreational development may be allowed around the existing fun fair. A housing development is proposed for the site of the former Sandy Point Hospital, despite this area being within a potential flood risk area. Additional planning restrictions apply within the Chichester Harbour AONB, particularly with regard to preserving the landscape.

*Statutory policy documents* - Hampshire County Structure Plan, Deposit Draft  
Hampshire Minerals and Waste Plan, Deposit Draft

## Strategic defence options

**Table 6.2** *Impact matrix*

	Do nothing	Hold the line	Retreat the line	Advance the line
Effects on physical environment and coastal processes	Drift away from Eastoke to east and west. Increase in wave attack along seawall. Breach of Sandy Point spit.	Future increase in wave energy.	Allow beach to develop in response to wave climate and tidal currents.	Increased wave energy. Alter drift rates.
Effects on human environment	Flooding of Eastoke. Increased overtopping of seawall. Loss of holiday business. Loss of spit facilities.	Existing situation improved.	Loss of housing and holiday business. Reduced access or loss of Spit facilities.	Reclaimed land available for development or recreation.
Effects on natural environment	Loss or change of habitat at Sandy Point. Loss of sheltered area in lee of spit.	Reduction in natural development of Sandy Point.	Loss or change of habitat at Sandy Point.	Loss of natural development of Sandy Point.
Implications for coastal defence	Increased damage to groynes and seawalls resulting in breach of spit and increased overtopping along main frontage.	Continued management activities (recharge, recycle). Extend and renew backshore defences. Improve standards for future conditions.	New backshore defences to prevent flooding. Removal of existing defences.	Substantial new defences required.
Impact on adjacent units	Beaches to west will benefit from drift. Accretion in Chichester entrance channel causing navigation problems. Increased flood risk along harbour side of Eastoke	Limited drift to Unit 7 but accretion in Chichester entrance channel.	Released shingle will accrete to west and in Chichester entrance channel.	Alter drift out of Unit.

### Losses due to “do-nothing” option

The spit between the sailing club at Sandy Point and the Lifeboat Station is lightly defended and is vulnerable to breaching. A breach would expose the properties within Eastoke Lake to both erosion and flooding and would result in the loss of the sailing facilities on the spit. A breach would also damage the habitat in the lee of the spit in contravention of the Habitats Directive. Eastoke Point is subject to cyclic changes and both accretion and erosion could occur. A breakthrough to the southwest of the rock revetment is likely in the short term, putting much of Eastoke at risk of flooding.

The main frontage at Eastoke relies on recycling to maintain the integrity of the recharged shingle beach. Without beach maintenance wave overtopping would occur more frequently causing flood damage to residential areas. This is likely to happen in the short term. Other problems will include loss of the promenade.

## Preferred option

Economic and recreation losses due to a do-nothing or retreat policy are not acceptable. There is no requirement for land reclamation to justify the high costs of advancing the line. Therefore the preferred option is to **hold the line** by extending the existing defences and managing the beach, allowing for dynamic management along the western end of the Unit. A 1:200 year standard of defence is assumed appropriate.

The preferred option should be implemented within a strategic policy including the north shore of Eastoke within Chichester Harbour. This strategic area is independent of the remaining areas of Hayling Island within the Harbours.

The implications of the proposed SAC should be established through consultation with English Nature. Designation of the intertidal and nearshore areas as a SAC may result in future conflicts of interest.

## Suggested management operations

- Short term*
- Continued management of recharged beach
    - Reconstruction of the defences between Sandy Point and Eastoke Point to an adequate standard of protection, including implementation of existing planned extension to the rock revetment at Eastoke Point.
    - Opportunistic use of accreting shingle for beach recycling operations including use of material dredged from Chichester Harbour channel
- Medium term*
- Further recharge
  - Review boundary with Unit 7 and management operations if “Inn on the Beach” is removed.

### *Chichester Harbour*

A scheme to build a surge barrage across the mouth of Chichester Harbour has been suggested as a possible method of reducing flood risks around the full extent of the Harbour. This scheme would involve construction of a barrier from the shoreline near East Head on the Chichester side out to the deep entrance channel where the barrage would be sited. The barrage would only be operated during extreme events when widespread flooding might otherwise occur. At the time of writing the scheme is not expected to progress.

On the Hayling Island side a short barrier would be needed to connect the barrage to the shoreline, probably in the area of the former Sandy Point Hospital. This structure would interrupt drift along the entrance channel causing erosion of the Spit unless further works were carried out. The costs of this scheme would be set against benefits to the whole harbour. Extensive economic, engineering, hydrodynamic, navigation and environmental studies would be required to establish the viability and benefits of a barrage.

## Preliminary economic assessment

### *Losses due to “do-nothing”*

- High density urban property at Eastoke £50M

### *Cost of “hold the line”*

- Continued recharge and beach management, plus upgrading/extension of defences £7M