

Management Unit 8 : Hayling Ferry to Southsea Castle, Portsea Island

Unit limits

5000m from 468450E, 100100N to 464600E, 098000N

Coastal processes

Low lying land with high density urban development, MoD facilities and highly valued recreation areas. Protected by a shingle storm beach which is subject to long term change. In recent years it has been accreting and defences that were formerly active are now buried by the wide shingle beach. Fronted by a very wide subtidal platform. The shingle spit that extends north from Eastney Point along the Langstone Harbour entrance channel is an area of instability.

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| <i>Geology</i> | - | Bracklesham Beds overlain by shingle storm beach deposits, with river terrace gravels and brickearth to landward. The nearshore shelf comprises gravelly sand deposits |
| <i>Wave climate</i> | - | Dominant waves from southwest (40% of time) |
| | - | Secondary waves from south and southeast (40%) |
| <i>Tidal regime</i> | - | Ebb tide sets to south and southwest |
| | - | Complex flood tide |
| | - | Maximum currents in Langstone Harbour entrance channel between 1.5 and 3.0 m/s |
| | - | Maximum nearshore current along open coast are between 0.5 and 0.75 m/s |
| | - | Weak residual currents flow west towards Southsea Castle |
| <i>Sediment transport</i> | - | Weak drift, with divergence zone along Eastney frontage |
| | - | Some onshore feed of shingle |
| <i>Possible future change</i> | - | 300 - 500mm sea level rise over 50 years |
| | - | Increased inshore wave energy with mean wave direction shifting clockwise |
| | - | Nett drift to east along whole frontage, with decreasing beach levels along frontage around Southsea Pier |

Table 8.1 *Extreme wave heights and water levels*

Probability	1:1 year	1:10 years	1:50 years
Nearshore wave height Hs (m)*	1.2 -2.1**	1.4 - 2.4	1.5 - 2.6
Maximum water level (mOD)	2.58	2.92	3.04

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

** lower values to west, higher values at Eastney Point.

Existing defences

The shingle spit within Langstone Harbour entrance is protected by timber groynes and by gabions used as a revetment and as stub groynes. Around Fort Cumberland there are old concrete revetments/seawalls protected by a wide shingle beach that has accreted to seaward.

From Fort Cumberland to Southsea Castle the road kerb is contiguous with the seawall. In the vicinity of Lumps Fort there is a rear splash wall at the back of the promenade. The seawall is estimated to have a residual life of 20 to 50 years, dependant on the continued stability of the wide shingle beach. To the west the beach is narrower and waves reach the wall during extremely severe storms. Overtopping in this area could cause flooding of low lying residential and public areas.

Natural environment

The foreshore of the Langstone Harbour entrance channel is within the Langstone Harbour SSSI (also SPA and Ramsar site) and the Solent Maritime possible candidate SAC. Shoreline management must comply with statutory procedures including the Habitats Directive. The remaining frontage is not designated and contains no significant natural habitats.

Land use

Most of the immediate backshore comprises high value open space with high density urban development to landward. The MoD has a large holding around Fort Cumberland some of which may be offered for sale in the future for redevelopment as a sewerage facility. To the west of the MoD is a large holiday development. There are three outfalls, a pier, two lifeboat stations, a sailing club, two slipways, a promenade and the Hayling Ferry jetty along the shoreline.

Human environment

The area has a very high value for public recreation with a mixture of water sports facilities and traditional holiday developments, including South Parade Pier. The Eastney Barracks and the sea front at Southsea are designated historic conservation areas, and the Eastney Sewerage Pumping Station, Fort Cumberland, the Eastney Forts and the WWII beach defences are Scheduled Monuments. In addition, there are a number of other sites of historical/archaeological importance.

Planning policies

Most of the existing open space is designated as Public Open Space and is protected from development. There are several areas for housing development and a large area north and east of Fort Cumberland designated for a new sewerage facility.

Statutory policy documents - Hampshire County Structure Plan, Deposit Draft
- Hampshire Minerals and Waste Plan, Deposit Draft
- Portsmouth City Local Plan

Non-statutory harbour policy Langstone Harbour Management Plan, Draft

Strategic defence options

Table 8.2 *Impact matrix*

	Do nothing	Hold the line	Retreat the line	Advance the line
Effects on physical environment and coastal processes	Possible future shifts in beach, increasing exposure of some hard defences. Possible breach of spit.	Future increase in wave attack.	Allow spit to develop in response to waves and currents.	Increased wave attack. Drift interruption.
Effects on human environment	Loss of access to spit and ferry. Loss of recreation facilities. Increased overtopping of seafront and possible damage to wall.	Existing situation maintained.	Loss of infrastructure, recreation facilities, MoD property, access to spit and ferry.	Reclaimed land available for recreation or development.
Effects on natural environment	Negligible, except breach of spit would damage sheltered habitat in lee.	Negligible	Negligible	Negligible
Implications for coastal defence	Overtopping of defences as beaches become less effective.	Improved defences to adequate standard for future sea conditions.	New line of defence required.	Substantially improved defences required.
Impact on adjacent units	Negligible	Negligible	Negligible	Negligible

Losses due to “do-nothing” option

Existing defences in the entrance to Langstone Harbour have a very short residual life before they will no longer be effective in stabilising the shingle spit. The spit will then be liable to erosion but breaching is unlikely. Concrete sea defences around Fort Cumberland are in poor condition but while beach levels are high they will provide sufficient protection against wave attack. If the beach crest falls below the high tide line the defences will deteriorate rapidly resulting in damage to backshore structures. Losses in this area will include high value recreation facilities, access to the Hayling Ferry, damage to outfalls and damage to the proposed sewerage facility.

The concrete seawall extending from Eastney Barracks to Southsea Castle is in good repair. However it is too low to prevent wave overtopping if beach levels were to fall. The threat of serious flooding in the short-term is small. If beach levels were to fall in the future along parts of the frontage, this could lead to disturbance to traffic using the coast road and flooding of low lying residential and recreational areas to landward. Wave attack on the seawall may be most severe to the east of South Parade where beach levels are already lower than they are elsewhere.

Preferred option

The economic and recreation consequences of a do-nothing or retreat policy are unacceptable. There is no existing need for land reclamation to justify the high costs of advancing the line. Therefore, the preferred option is to **hold the line** by upgrading the existing defences and managing the beach. A 1:200 year standard of defence is assumed appropriate.

Possible shoreline management operations along the Southsea frontage in the medium term will need to be considered within a strategy including Unit 9 due to the shared flood risk areas.

Suggested management operations

- Short term*
- Remedial works to upgrade the defences around Fort Cumberland and along Eastney Spit
 - Partial recharge of the Spit
- Medium term*
- Upgrade Southsea seawall if necessary, combined with beach management

Preliminary economic assessment

Losses due to “do-nothing”

- Damage to existing backshore recreation facilities and infrastructure along entrance channel £1.5M
- Medium term: possible flood damage of high density urban property due to overtopping along Southsea £100M

Costs of “hold the line”

- Upgrade walls and groynes along entrance channel, manage beach £1M
- Medium term: possible upgrade of Southsea defences plus beach management £6M