

Management Unit 9: Southsea Castle to Portsmouth Harbour entrance

Unit limits

2700m from 464600E, 098000N to 462900E, 099600N

Coastal processes

Low lying land with high density urban development and high value recreation areas. Much of the shoreline is formed from promenades or historic fortifications, fronted in places by a shingle beach. Backshore area at Old Portsmouth is subject to flooding due to both overtopping and high groundwater levels during storm surge conditions.

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| <i>Geology</i> | <ul style="list-style-type: none"> - Bracklesham Beds overlain by shingle storm beach, gravelly sand lower beach and sand and gravel deposits in nearshore zone. - Part of the backshore at Old Portsmouth is reclaimed land |
| <i>Wave climate</i> | <ul style="list-style-type: none"> - Dominant waves from the southwest (40% of time) - Secondary waves from south and southeast (40% of time) - Ship wash produces damaging waves in harbour entrance |
| <i>Tidal regime</i> | <ul style="list-style-type: none"> - Currents dominated by complex flows through harbour entrance - Maximum currents in entrance channel between 1.5 and 3.0 m/s - Maximum nearshore currents along main frontage < 0.5 m/s - Residuals generally weak, and vary in direction along frontage |
| <i>Sediment transport</i> | <ul style="list-style-type: none"> - Very weak nett drift from southeast to northwest - Material reaching Portsmouth Harbour entrance is flushed out by ebb flow - Area outside the harbour entrance is sink for sand and shingle, and has been extensively dredged |
| <i>Possible future change</i> | <ul style="list-style-type: none"> - 500mm sea level rise over 50 years - Increased inshore wave energy with mean direction shifting clockwise - Decreased nett drift |

Table 9.1 *Extreme wave heights and water levels*

Probability	1:1 year	1:10 years	1:50 years
Nearshore wave height H_s (m)*	1.2	1.4	1.5
Maximum water level (mOD)	2.46	2.78	2.90

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

Existing defences

The frontage is protected by concrete and masonry seawalls, some of which date back to the 15th century. The walls at Old Portsmouth were originally military fortifications. Maintenance of their original character has required continual repair to prevent collapses. The beach north of Clarence Pier is very narrow and defences are in need of improvement. The headland at Southsea Castle has no upper beach, and the defences are substantial. The beach between these two areas requires some maintenance to prevent undermining and overtopping of the wall/promenade. Groynes have been built along the south end of this beach.

Natural environment

There are no designated areas or sensitive natural habitats.

Land use

Most of the immediate backshore comprises high value open space with high density urban development to landward. The historic urban area of Old Portsmouth extends to the immediate backshore. There are a number of high value recreation and commercial developments along the remaining shoreline including a fun fair, hoverport and restaurants.

Human environment

The frontage has a very high public recreation value, serving both Portsmouth residents and an important tourist industry. There are a large number of important historic/archaeological sites around Old Portsmouth and at Southsea Castle, including scheduled Ancient Monuments. Old Portsmouth is an historic conservation area.

Planning policies

The existing open space areas are to be retained. There is a small area designated for housing development in Old Portsmouth and there are a number of proposals for Millennium projects within the Harbour entrance and dock areas.

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

Strategic defence options

Table 9.2 *Impact matrix*

	Do nothing	Hold the line	Retreat the line	Advance the line
Effects on physical environment and coastal processes	Continued wave damage and beach loss	Future increased wave attack.	Reduced wave attack in the short term due to wider foreshore.	Increased wave attack.
Effects on human environment	Loss of important historic structures, recreation facilities and property.	Improve existing situation.	Loss of important historic structures, recreation facilities and property.	Improved defence of fortifications. Reclaimed land available for recreation or development.
Effects on natural environment	Negligible	Negligible	Negligible	Negligible
Implications for coastal defence	Damage to existing defences and backshore due to erosion and flooding.	Improved defences required.	New line of defence required.	Substantial new defences required.
Impact on adjacent units	Flood damage will extend to urban areas within Unit 8	Negligible	Negligible	Negligible

Losses due to do-nothing option

Existing defences have a residual life of 5 to 20 years. After this time the existing groynes will have become ineffective in retaining beach levels. Erosion hot spots will become subject to permanent beach drawdown and walls will be overtopped regularly, damaging public open space at Southsea Common, disrupting road traffic and damaging seafront structures at Old Portsmouth. Scour at the toe of walls around Old Portsmouth will lead to local seawall collapse and extensive damage in the historic centre of the town. Future increases in water levels, wave heights and shipping activity will increase the rate of beach erosion, seawall undermining and overtopping. Flood damage will also increase as a result of ground water levels within Old Portsmouth during storm surge conditions.

Losses to the historic value of the area, including structures and associated businesses will be substantial.

Preferred option

The economic, cultural and recreational consequences of a do-nothing or retreat policy are unacceptable. Apart from limited advances around the Old Portsmouth fortifications, there is no existing requirement for reclaimed land to justify the high cost of advancing the line. Therefore the preferred option is to **hold the line** by upgrading existing defences. A 1:200 year standard of defence is assumed appropriate.

Management operations must be considered within a strategy including the Southsea frontage of Unit 8 and the Old Portsmouth frontage of Portsmouth Harbour due to the shared flood risk areas.

Suggested management operations

- Short term*
- Construction of new lines of defence to seaward of the historic fortifications of Old Portsmouth to provide protection without substantially altering the existing form of protected structures
 - Upgrade seawalls, including repair of foundations and raising of crest levels
 - Management of the shingle beaches, possibly including construction of further groynes.

Careful consideration must be given to the most appropriate method for protecting Old Portsmouth without detracting from the appearance of this historic shoreline.

Preliminary economic assessment

Losses due to “do-nothing”

- Historic urban area, high value recreational facilities and high value public recreation area (not including potential residential losses at Southsea noted for Unit 8) £40M

Costs of “hold the line”

- New seawall along parts of Old Portsmouth, upgrading of other defences, beach management £5M

