

Management Unit 12 - Lee-on-the-Solent to Hill Head Harbour

Unit limits

4200m from 456950E, 099500N to 453500E, 102300N

Coastal processes

Area of historically eroding cliffs which are now protected by seawalls, timber breastworks and groyned beaches. Upper shingle beach is steep, narrow and receding. The wide lower foreshore of mud, sand and scattered deposits of shingle is reducing in width. A beach recharge with rock groynes is underway at Lee-on-the-Solent.

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| <i>Geology</i> | - Bracklesham Beds overlain by a shingle storm beach. Cliffs comprise Raised Beach or Brickearth deposits. The wide lower beach and nearshore platform is overlain with muddy-sand. |
| <i>Wave climate</i> | - Dominant waves from southwest (40% of the time)
- Secondary waves from both the northwest (15% of the time) and south to southeast (30% of the time) |
| <i>Tidal regime</i> | - Complex flood tide with dominant flow to southeast
- Maximum nearshore current < 0.5 m/s
- Very weak residual currents |
| <i>Sediment transport</i> | - Weak but strongly directional nett drift from northwest to southeast
- Upper beach varies in width due to presence of large outfalls and groynes
- Sporadic onshore transport from nearshore shingle banks off Hill Head |
| <i>Possible future change</i> | - 300mm sea level rise over 50 years
- Increased inshore wave energy, with mean direction shifting clockwise
- Increased nett drift to southeast |

Table 12.1 *Extreme wave heights and water levels*

Probability	1:1 year	1:10 years	1:50 years
Nearshore wave height Hs (m)*	1.3	1.5	1.6
Maximum water level (MoD)	2.33	2.64	2.75

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

Existing defences

At Lee-on-the-Solent the cliffs are graded and protected by a concrete seawall/promenade, extending northeast to the Borough boundary. The beach has short timber groynes which are in the process of being replaced by a smaller number of long rock groynes. The existing narrow shingle beach will be recharged. The impact of this scheme on the downdrift beach at Browndown will need to be monitored.

Sea defences between the Gosport Borough Boundary and Hill Head Harbour are fragmentary, since some parts of the frontage have benefited from the build up of shingle banks which have afforded natural protection to the shoreline. Several outfall structures act as large groynes and cause an uneven distribution of shingle.

A short stretch of frontage to the northwest of the Borough boundary is used as a car park and has a series of beach huts at the shore edge which have no formal protection. However, the shingle beach is wide and groyned. The groynes are largely buried.

To the northwest, Salterns Park and Crofton Cliffs have timber breastworks and concrete walls as protection against wave overtopping.

Northwest to Giblet Ore the defences are fragmentary. The southeastern half of the frontage has a wide sand and shingle beach as the main defence against flooding. The northeastern half has a narrow beach but has a rudimentary wall backing the beach.

From Giblet Ore to Hill Head harbour the defences are reasonably sound, consisting of a concrete seawall fronting steep clay cliffs. Groynes along this section are variable in condition. The reclaimed area east of Hill Head harbour is protected by a sheet steel piled wall.

Natural environment

The foreshore is all within the Lee-on-the-Solent to Itchen Estuary SSSI (also proposed Ramsar site and SPA within Fareham Borough), designated for biological and geological interests. The Lee-on-the-Solent lower foreshore is rich in fossils, while the Hill Head frontage has shingle communities and intertidal feeding grounds for birds. Shoreline management must comply with statutory procedures.

Land use

The immediate backshore of much of the frontage is high value open space, with residential developments or MoD property further to landward. Part of the Hill Head frontage is privately owned. The MoD property at HMS Daedalus is subject to redevelopment. There are a number of recreational facilities along the frontage including slipways and sailing clubs. There are also five outfalls, all of which affect the condition of the beach.

Human environment

The area is highly valued for public recreation and access to the shore. The Lee-on-the-Solent frontage has a promenade. Parts of the Hill Head frontage have more restricted public access. There are a number of sites of historic/archaeological interest, including several in the intertidal and nearshore zone.

Planning policies

The immediate backshore is designated as Coastal Zone. The Lee-on-the-Solent frontage is Public Open Space while most of Hill Head and HMS Daedalus are designated as Countryside. The only area of proposed housing development runs along the northeast side of Lee-on-the-Solent away from any shoreline influence.

- Statutory policy documents* - Hampshire County Structure Plan, Deposit Draft
 - Hampshire Minerals and Waste Plan, Deposit Draft
 - Gosport Borough Local Plan
 - Fareham Borough Local Plan, Consultation Draft

Strategic defence options

Table 12.2 Impact matrix

	Do nothing	Hold the line	Retreat the line	Advance the line
Effects on physical environment and coastal processes	Erosion of shoreline where defences fail. Ongoing loss of shingle beach.	Future increase in wave attack.	Reduced wave attack.	Increased wave attack. Drift interrupted.
Effects on human environment	Loss of recreation land and facilities Loss of access to shoreline. Loss of some private property. Damage to outfalls.	Improve existing situation.	Loss of recreation land and facilities. Loss of some private property. New outfalls required.	Reclaimed land available for recreation or development.
Effects on natural environment	New geological exposures.	Reduce geological interest.	New geological exposures.	Loss of geological interest.
Implications for coastal defence	Loss of existing defences.	Improved defences required.	New line of defence required.	Substantial new defences required.
Impact on adjacent units	Additional feed to Unit 11.	Interrupt drift to Unit 11.	Additional feed to Unit 11.	Interrupt drift to Unit 11.

Losses due to “do-nothing” option

Along the southeastern part of Hill Head wave overtopping will occur in the short to medium term but will not cause damage/loss of properties. Beach huts and the car park further northwest will be at risk of overtopping. These facilities will be lost as beach levels drop due to loss of effective groynes.

At Salterns Park and Crofton Cliffs recreation land and road use will be lost as the beaches and defences deteriorate. From Crofton Cliff to Giblet Ore wave overtopping will reduce property value and a line of houses may become uninhabitable immediately east of Giblet Ore in the medium term.

From Giblet Ore to Hill Head harbour increased wave overtopping will damage the cliff face and reduce recreational value. The road along the cliff top may be affected by cliff erosion in the medium term.

Preferred option

The economic and recreation losses due to a do-nothing policy are not acceptable along most of the frontage. There is no existing requirement for reclaimed land to justify the high costs and environmental losses of advancing the line. Modest realignment of the existing shoreline in areas with a low lying backshore may be viable in the medium-term to achieve a more stable plan shape, but the preferred option is to **hold the line** by maintaining the existing defences. Appropriate standards of defence range from 1:50 along recreational frontages to 1:100 years along developed areas.

Suggested management operations

- Short term*
- Manage beach and maintain seawalls and groynes along full frontage.
 - Incorporate and/or redesign outfalls within beach control system when they require upgrading.
 - Establish planning restrictions on new developments in areas at risk from flooding or erosion.

Preliminary economic assessment (Fareham Borough only as coast defence works are underway along the Lee-on-the-Solent frontage)

Losses due to “do-nothing”

- Erosion/flood loss of high value recreation land and damage to shoreline roads £1M

Cost of “hold the line”

- Maintain defences, beach management £1M

Short term tangible benefits do not justify costs of upgrading defences. Recreational benefits and traffic disruption due to loss of road use may need to be investigated if significant public funds are to be used for capital works.