

4.8 Policy Development Zone 7 – North-west Coastline (PDZ7)



Above: Newtown Estuary (National Trust); Thorness Bay.

4.8 Policy Development Zone 7 – North-west Coastline (PDZ7)

Contents

| | | |
|-----|---|-------------|
| 4.8 | Policy Development Zone 7 – North-west Coastline (PDZ7) | Page 309 |
| 1. | Overview and Description | 313 |
| 2. | Baseline management scenarios | 320 |
| 3. | Discussion and detailed policy development | 326 |
| 4. | Management Area Statements | 327 |

Key facts:

Policy Development Zone 7: includes the areas of Hamstead, Newtown Estuary and Thorness Bay.

PDZ7 frontage = approximately 39km in length (including Newtown Estuary)

PDZ7 boundaries = from eastern margin of Bouldnor to the western margin of Gurnard Luck.

As listed in SMP2 Appendices: areas IW52 to IW54

Old policies from SMP1 in 1997, reviewed in this chapter:

| Unit | Location | Length | Policy |
|--------|-------------------------------------|--------|-----------------------------------|
| NEW 6 | Bouldnor to Hamstead | 4487m | Do nothing |
| NEW 7 | Newtown Harbour | 32387m | Retreat the existing defence line |
| NEW 8 | Brickfield Farm to Thorness Wood | 3264m | Do nothing |
| NEW 9 | Thorness Marshes | 779m | Do nothing |
| NEW 10 | Thorness Bay to Cliff Farm, Gurnard | 2055m | Do nothing |

1. Overview & Description

1.1 Principal Features (further details are provided in Appendix D)

Built Environment:

The coastal frontage of this PDZ is undeveloped with scattered properties and farms at Cranmore and Hamstead and a holiday park at Thorness Bay. The coast is accessible mainly through public footpaths and the occasional small local road or track.

The Newtown estuary reaches inland from the coast, with five main branches causing the A3055 coastal road to run inland from the end of PDZ6 in the west, so the coast of PDZ7 is not visible or accessible directly from the main road. The A3055 runs through the village of Shalfleet at the inland limit of the estuary and is mainly residential, with small local business, public house, car parking and to the south a small sewage works. The hamlet of Newtown lies on a peninsula between the branches of the estuary. The small village of Porchfield and the local roads to access it are at the eastern margin of the estuary basin.

Much of the coastal land surrounding Newtown Estuary is owned by the National Trust. The eastern shore of Newtown estuary (Clamerkin Lake) is a firing range operated by South East Reserves Forces and Cadet Association (SERFCA) consisting of 810 acres. The northern border of the area is 1.5 miles of coastline and is used for beach landing exercises.

The Coastal Path runs significantly inland around the estuary and the firing range, rejoining the frontage at Thorness Bay.

Heritage and Amenity:

Heritage:

This PDZ contains two Scheduled Monuments, Bouldnor Battery, constructed in 1938 and the remains of the medieval town of Newtown. There are numerous records of finds of prehistoric implements from the intertidal zone and eroding cliffs, including a large number of Mesolithic flint picks and tranchet axes. At Bouldnor a substantial scatter of late Iron Age and Roman pottery has been found on intertidal gravel banks and a medieval antler working site was excavated from the intertidal silts in the early 1970s.

Offshore is the internationally important site of Bouldnor underwater cliff, with its extensive palaeoenvironmental deposits and evidence for human occupation of Mesolithic date at c 11.5m OD.

The eastern spit of Newtown Estuary has structures and finds that have been radiocarbon dated, producing dates in the Late Neolithic to Early Bronze Age, Early Bronze Age, Middle Iron Age, and Late Iron Age to Roman periods. Newtown Marsh, to the north of the medieval town, was reclaimed from the sea between 1656 and 1768 and surrounded by a clay bank. This reclamation may have been carried out in two stages as there are signs of an inner embankment as well as the outer embankment shown on a map of 1768. The primary purpose of the reclamation may have been either salt production or the creation of extra grazing land. The unpublished Ordnance Survey of c1800 shows salt pans inside the embankment, facing onto Clamerkin Lake. In Shalfleet there is a Grade II* Listed Building, Shalfleet Manor, which is one of the original Domesday Manors on the Island. Newtown and Shalfleet are also Conservation Areas.

The coast between Brickfield Farmhouse and Gurnard is rich in archaeological and palaeoenvironmental features. Prehistoric flint and stone implements have been recovered from the intertidal zone throughout the unit, with concentrations around Saltmead, in Thorness Bay and Gurnard Cliffs. Roman material including pottery and building material has been recorded at locations throughout the unit, including a Roman villa at Gurnard which was excavated in the 1860s, now eroded, and a possible pottery kiln at Burntwood. Thorness Bay has been recognised as being of high archaeological importance, with palaeoenvironmental deposits including organic silts and peats and recumbent trees, post alignments, hurdles and other wooden structures radiocarbon dated to the late Bronze Age, Iron Age, Roman and post medieval periods. There are numerous records of prehistoric implements from the bay, and midden deposits of Roman and Medieval date have been recorded.

Amenity:

The coastline of this unit is relatively inaccessible compared with other parts of the Isle of Wight.

The coastal frontage at Bouldnor is fronted by a predominantly shingle beach, which is littered by debris from cliff failures and is not a popular tourist beach. Woodland and agricultural land largely back these cliffs, with some residential properties behind Bouldnor Cliff.

Newtown harbour is a popular destination for sailing. Hamstead Duver spit extends from Hamstead Point east across the mouth of Newtown Harbour. This sand and shingle feature is largely backed by woodland, and partially vegetated as it extends into the harbour mouth. The central Newtown Estuary is popular with walkers, kayakers and bird watchers who visit the well equipped bird hide, accessible via wooden bridge over the marshes. Land around the edge of the harbour is generally grassed or wooded with the hamlet of Newtown just inland. There is a residential scout camp which undertakes activities such as dingy sailing within the estuary and Shalffleet Quay has a boat yard and some moorings/pontoons.

To the east of Newtown Harbour is the SERFCA training grounds where low cliffs are backed by agricultural land. East of the woodland the cliffs are backed by agricultural land and the Thorness Bay Caravan Park, one of the Island's major holiday camps. The cliffs rise again in this unit, up to 45 metres south of Gurnard Ledge. North of Gurnard Ledge cliff levels gradually decrease to Cliff Farm. The cliff top land is predominantly in agricultural use, although there are a few scattered tourist properties. Thorness beach is used by walkers and anglers, although vehicle access is through the holiday park.

Nature Conservation:

There are a variety of coastal habitats within PDZ7, including soft cliffs, intertidal sandflats, estuarine mudflats, saltmarsh and coastal grazing marsh. The western extent of the zone comprises predominantly shingle beach, backed by unstable soft cliffs known as the Bouldnor and Hamstead cliffs, and is littered by debris from cliff failures. The area on top of the cliffs is mostly covered in mature pedunculate oak woodland, whilst the instability of the cliffs ensures a mixture of broadleaved woodland, scrub and early pioneer plants. The cliffs are also of geological importance, as they illustrate the succession of rocks through the Oligocene age and harbour important fossil mammals, birds, reptiles, and insects, and for this reason the cliffs are designated as a SSSI. The central area of this PDZ is dominated by the large natural undeveloped inland estuary, known as Newtown Estuary, which is the only National Nature Reserve on the Island. The estuary consists of a number of inundated small rivers and forms an integral part of the Solent's estuarine system. The habitats within the estuary range from woodland, ancient coastal grazing meadows, mudflats and marshland, and support nationally important and threatened wildlife. The estuary is a particularly significant feeding and over-wintering ground for waders and other wildfowl. The entrance of the estuary is dominated by a large expanse of intertidal sand and shingle stretching along the coastline to the east as far as Burnt Wood. The area backing the sandflats comprises low maritime cliffs backed by agricultural land that rises to over 40 metres high near Burnt Wood, where the cliffs are soft and slumping. East of the woodland is Thorness Bay, which is predominantly intertidal mudflats interspersed with rocky outcrops and ledges comprising of Bembridge Limestone, and two small areas of brackish marshland with club rush and saltmarsh. The coastline of this PDZ is almost completely undefended at present and sits within three international designations, the *Solent Maritime SAC*, the *Solent and Southampton Water SPA* and *Ramsar sites*. The entire coastline for this PDZ is part of the SAC, and includes estuaries, saltmarsh and *Spartina* swards for which it is designated. The Solent and Southampton Water SPA and Ramsar sites protect the entirety of Newtown Estuary, the coastline around the entrance and the coastline to the east until Gurnard Ledges. The extent of the SPA goes beyond that of the SAC and Ramsar sites, protecting the entire flood zone, and includes areas of coastal grazing, in particular to the east of the estuary. The PDZ also contains three SSSIs (Bouldnor and Hamstead Cliffs, Newtown Harbour and Thorness Bay) and a number of coastal SINCs (e.g. Bouldnor Copse and Hart's Farm Meadows) that support a variety of habitats including BAP priority habitats (e.g. intertidal mudflats and wetland areas) with a diverse number of national BAP priority species, as well as Red Data book species and nationally scarce and locally important species.

1.2 Key Values

The high-quality designated natural environment, relative inaccessibility and tranquillity of this coastline are key features of the PDZ, which is an Area of Outstanding Natural Beauty. The coastal cliffs are generally eroding and evolving naturally. There will be local specific issues where small communities lie adjacent to the changing coastline.

1.3 Objectives

Overarching objectives for PDZ7:

- To maintain and enhance the nature conservation values of the area through adaptation in sympathy with natural processes.
- To maintain the tranquillity of the area and its landscape.
- To support low level use and access of the area.
- To support adaptation of local communities.
- To sustain the historic landscape and environment.
- To support adaptation of agricultural use.



Above: Newtown Estuary, view looking east along the eastern spit, showing the furthest section of the eastern spit partially submerged/overwashed at high tide. November 2009.

1.4 Description

This is a quiet, relatively undeveloped coastline, characterised by the eroding cliffs of Bouldnor and Hamstead, the natural harbour of the branching Newtown Estuary and the eroding slopes and low-lying streams near Thorness to the north. Newtown Estuary forms an integral part of the Solent's estuarine system and represents one of the best examples in south-east England of a relatively unmodified estuary containing a diverse range of semi-natural habitats. It is a National Nature Reserve (NNR) and supports nationally important and threatened wildlife, and is a particularly significant feeding and over-wintering ground for waders and other wildfowl. The area is popular with birdwatchers and walkers. Permanent moorings/pontoons are available for small boats or visiting craft to anchor and enjoy the peaceful environment.



Left: Newtown Estuary: wooden access bridge to Newtown Quay and the bird hide at high tide.

Below: The coast near Thorness Bay.



The landscape of the Newtown area has changed little over the centuries and it is an area rich in features of historical interest. Newtown, formerly known as 'Francheville', was founded by the Bishop of Winchester. in 1256, chosen

because of its deep and sheltered harbour utilised for saltworks and shellfish beds, though later raids and silting up of the harbour meant the town diminished and the port was replaced by Yarmouth and Newport. The estuary came under the protection of the National Trust in 1965 when local yachtsmen and naturalists raised funds for its purchase following a proposal to develop a nuclear power station at Hamstead. It remains a beautiful, tranquil and unspoilt area of the Island.

The nearest principal roads run further inland and do not provide views of, or immediate access to the coast, and the coastal footpath also diverts inland from the coast.

There are scattered farms and properties and small communities at Hamstead, Newtown and the large holiday park at Thorness Bay, with large numbers of static caravans occupied for 10 months of the year. Minor managed realignment activities have been tested in Thorness Bay through the Environmental Stewardship Scheme, administered by Defra through the Rural Development Service (RDS).

1.5 Physical Processes

1.5.1 Coastal Processes (further details are provided in Appendix C1).

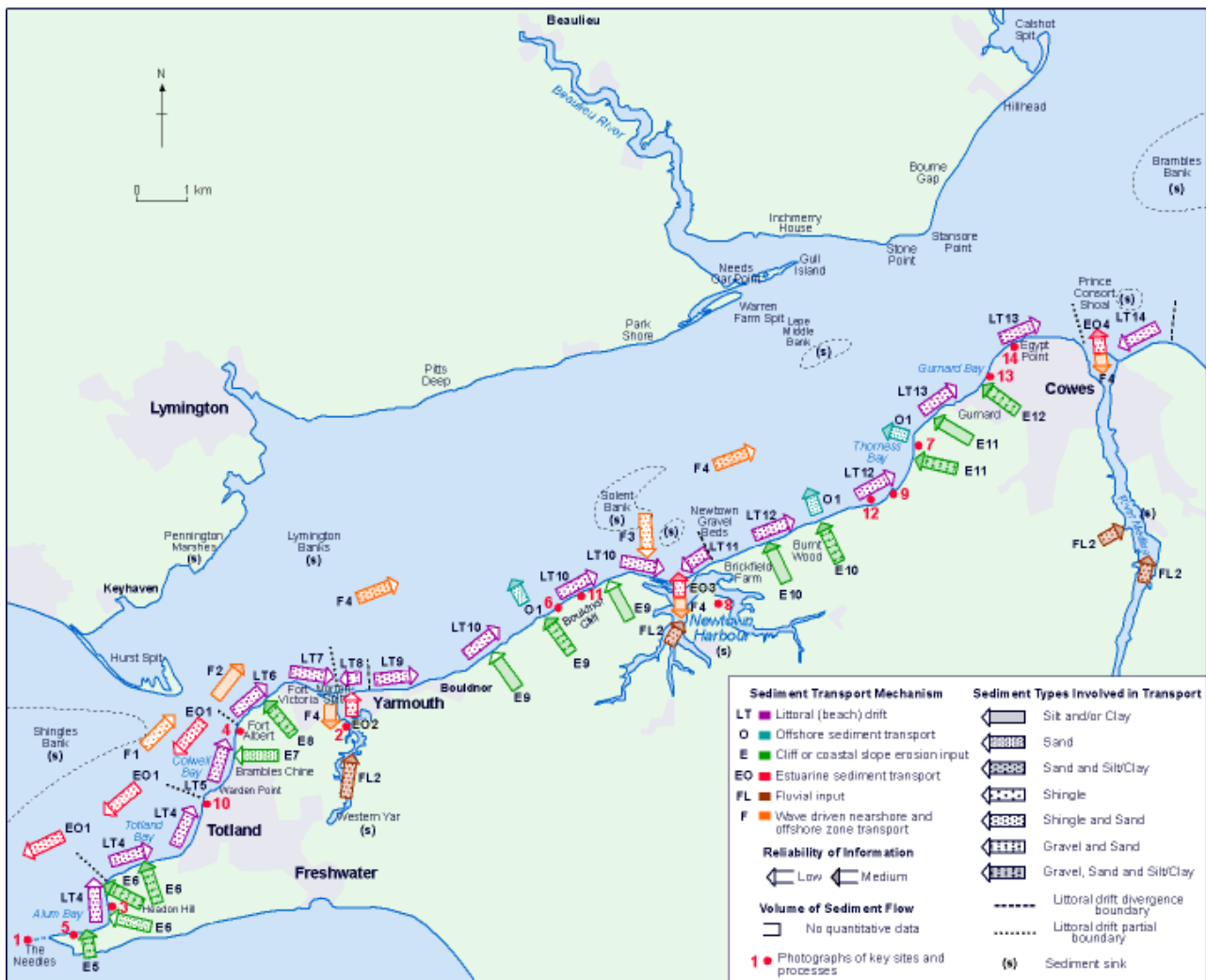
This PDZ is a quiet, relatively undeveloped coastline, characterised by the eroding cliffs of Bouldnor and Hamstead, the natural harbour of the branching Newtown Estuary and the eroding slopes and low-lying streams near Thorness to the north. The following summary outlines the wave climate, tidal flows, geomorphological controls, sediment supplies and coastal processes characterising PDZ7. The general pattern of sediment movement is summarised in the following diagram from the SCOPAC Sediment Transport Study.

The coast has been formed by erosion into gently north eastward dipping, soft clayey, late Eocene and early Oligocene strata. Mudslides are an especially prevalent slope degradation mechanism within these strata. The coastal topography is generally undulating with high points at Bouldnor Cliff (61m), Burnt Wood (57m) and Gurnard Cliff (45m) where major landslide systems have developed.

In marked contrast to the sedimentation-dominated Northern Solent shores, the coast of this unit has been subject to long term retreat. The overall sediment input from the eroding cliffs is considerable, but most of the erosion products are transported offshore and do not contribute to protect local beaches.

The north west coast of the Island is sheltered from the open sea and incident waves generated in the West Solent are fetch-limited and generally are less than 1m in height. Weak littoral drift generally operates north eastward along the whole coast with the exception of local reversals on the eastern entrances to inlets. Rivers on the north coast of the Island are small due to limited catchments and therefore contribute negligible sediment to the coast. The configurations of spits at estuary entrances do not appear stable due to shortages of sediment such that there is a tendency for these features to be driven into each estuary, possibly in association with breaching events.

Newtown Estuary occupies a low valley, with narrow twin gravel spits protecting diverging branches of the estuary which extend over 3km inland. The Newtown Estuary gravel entrance spits are exposed and evolving, the eastern spit overtopping at high tides. A small infilled low valley also occurs further east within Thorness Bay, fronted by a gravel beach.



Sediment transport sources, pathways and sinks on the north west coast, from SCOPAC Sediment Transport Study, 2004.

West of Newtown Estuary the cliffs, developed within the predominantly clayey strata of the Bouldnor Formation (Solent Group) rise from beach level at Bouldnor village (the western edge of the PDZ) to 61m at Bouldnor Cliff and 35m at Hamstead Cliff before declining steadily east to the Newtown Harbour inlet. The coastal slope exhibits complex morphology and degrades by mudslides, relatively shallow multiple translational slides and infrequent deep-seated rotational slides.

East of Newtown Harbour there are simple low cliffs developed in clays of the Bouldnor Formation. Abundant landslide debris and fallen trees on the beach indicate rapid recession. There is a mixed, mud, sand and boulder foreshore, interrupted periodically by lobes of landslide debris that surge across the beach from the cliffs above. Topography rises rapidly eastwards to Burnt Wood. There is a wide degradation zone characterised by shallow multiple translational landsliding and mudslide lobes. Thorness Bay is a small low lying valley floor. From Thorness to Gurnard the cliffs rise to 45m and comprise clays and marls of the Bouldnor Formation overlying Bembridge limestone at beach level. The limestones outcrop as foreshore reefs to form the protective Gurnard Ledge. There is much evidence of coast erosion with debris accumulations on the foreshore being fed with material from mudslides and shallow translational slides within a cliff degradation zone.

High long term cliff recession rates are typical within this frontage, although it should be noted that the cliff top recession process involves high magnitude low frequency failures that can result in loss of between 5 and 25m within single events associated with intense mudsliding downslope.

Unconstrained scenario:

The 'unconstrained' scenario provides a vision of how the coast could evolve if not controlled by man-made structures such as coastal defences. This is a key step in understanding the 'natural' response of the coast.

The trend for narrowing of the foreshore suggests that debris and cliff toe erosion will continue or intensify in the future and the cliffs remain unstable and actively eroding. Increases in sediment supply to beaches due to the acceleration of freely eroding cliffs would be unlikely to generate substantial protective beaches because most of the cliff materials are clay and mechanisms exist for seaward removal of these sediment grades. Instead, there may be very local increases in beach accumulation at Hamstead Duver and in Thorness Bay.

A breach in the eastern Newtown spit would be unlikely to seal naturally due to limited sediment supply, possibly resulting from the proximity of a local drift reversal and divide. Instead it is likely that the breach would enlarge in the short-term and the spit breakdown further as sea level rises. The corresponding western spit is rather more stable because it is sustained by a modest sediment supply from the cliffs to the west. It would be likely to remain static or slowly migrate into the harbour inlet. The effect of these changes would primarily be to permit increased wave penetration into the harbour with implications for the erosion of saltmarshes and mudflats.

1.5.2. Existing Defences

The following description of coastal defences outlines the current condition and expected remaining effective life of the defences in the area, if no further maintenance is carried out. In addition to the following summary, individual defences are described in Appendix C2_Defence Appraisal areas IW52 to 54.

PDZ7 is largely undefended with only minor defence or access structures in limited locations. No defences are present along the western frontage from Bouldnor to Newtown Estuary, with the exception of a short 30m concrete revetment located at Hamstead (residual life 10-15 years). Within Newtown Estuary the branching shoreline is undeveloped with the exception of short lengths of masonry walls and embankments at Shalfleet Quay and Newtown Quay (residual life approx 15-25 years) providing local quayside access for the National Trust. No defences are present along the eastern frontage from Newtown Estuary to Gurnard Luck. There are two short sections of gabions immediately approaching Gurnard Luck (residual life 1-10 years).

1.5.3 Potential Baseline Erosion Rates

The SMP reviewed a wide range of data to define the current and potential rates of coastal erosion and cliff retreat along the Isle of Wight coast using the best available information. Full details can be found in Appendix C3. Future erosion rates are predicted using Walkden & Dickson formula (2008) and allow for future sea level rise –the full methodology is explained in the Appendix. Predicted sea level rise rates of 4mm/yr (to 2025), 8.5mm/yr (to 2055), 12mm/yr (to 2085) then 15mm/yr (to 2105) have been used, in accordance with SMP national guidance by Defra. These rates equate to 7cm of sea level rise (above the 2009 baseline) by 2025, 32cm by 2055 and 98cm by 2105. The IW numbering units refer to lengths of coast for which future behaviour is described and mapped in Appendix C (based on SMP1 and Strategies). These are not SMP2 policy units which are developed in section 3 below.

Potential total erosion over the next 100 years is shown, however it is important to note that this is an estimate that is based on an undefended coastline. Within Appendix C3, these erosion rates are only applied following the predicted failure date of each individual element of the defences within the unit; therefore the resulting erosion amounts shown in the Appendix C3 tables and maps

(and used in the development of this SMP) will show smaller erosion totals than the overview provided below.

Potential coastal erosion rates (all figures in metres/year):-

| Numbering in SMP2 Appendices (2010) (area and name, clockwise) | | Historical Rate | Current to 2025 | 2025 to 2055 | 2055 to 2085 | 2085 to 2105 | Potential 100 year erosion (if undefended) -total in metres |
|--|--|-----------------|-----------------|--------------|--------------|--------------|---|
| 52 | Bouldnor Cope & Hamstead | 0.30 | 0.35 | 0.46 | 0.53 | 0.58 | 48 |
| 53 | Newtown Estuary -western spit | 0.60 | 0.69 | 0.91 | 1.06 | 1.15 | 96 |
| | Newtown Estuary -eastern spit | 0.62 | 0.72 | 0.94 | 1.10 | 1.19 | 99 |
| | Newtown Estuary -inside eastern spit | 0.20 | 0.23 | 0.30 | 0.35 | 0.38 | 32 |
| 54 | Thorness Bay (& cliffs west to meet Newtown gravel spit) | 0.40 | 0.46 | 0.61 | 0.71 | 0.77 | 64 |

Note:

- i) Erosion rates have been determined from monitoring data and examination of historical records and have been calculated to take account of sea level rise. –see Appendix C3 for details.
- ii) The IW numbering units refer to lengths of coast described in Appendix C . These are not SMP2 policy units.

2. Baseline management scenarios

2.1 Present Management

Present management of the shoreline is taken as the policy defined by SMP1, modified by subsequent strategies or studies. It should be noted that in the case of SMP1 the period over which the assessment was carried out was 50 years. SMP2 extends this to an assessment period of 100 years. The table below sets out the current shoreline management policies for Policy Development Zone 7. This SMP2 will assess all the available evidence and update these previous management policies.

The key documents outlining the present management of the shoreline in this PDZ are:-

Isle of Wight Shoreline Management Plan 1 (1997)

The first Shoreline Management Plan (SMP1) for the Isle of Wight's coast was published in 1997. It consists of two volumes.

- Volume 1 is the 'Data Collection and Objective Setting', which presents information on a range of topics including coastal processes, natural environment, etc.
- Volume 2 is the 'Management Strategy', which presents information for each Management Unit around the Island's coast and sets a management Policy for each unit.

Coastal Defence Strategy Studies, Isle of Wight:

Whilst the Shoreline Management Plan provides the risk framework for management of the coast, Coastal Defence Strategy Studies provide a more detailed assessment of particular frontages in order to identify the most suitable type of coastal defence schemes that may be required to fulfil the agreed shoreline management policy and to plan a programme of future works.

West Wight Coastal Defence Strategy Study

A Coastal Defence Strategy Study for the West Wight Coastline will be completed following the publication of SMP2.

Catchment Flood Management Plan

The Environment Agency has undertaken a programme of Catchment Flood Management Plans (CFMPs) for the major river catchments in the Southern Region. A CFMP is a large scale plan that covers an entire river catchment or group of catchments that identifies long-term, sustainable policies to manage flood risk within the catchment. These policies form the basis for development of Strategy Plans, covering all or part of the overall catchment area, which will identify in more detail appropriate flood defence measures.

Whilst CFMPs principally address fluvial (river) flooding, SMPs address tidal (sea) flooding, alongside coastal erosion. The Isle of Wight Catchment Flood Management Plan (Summary Report) was published in December 2009.

- Sub Area 2: Newtown River and the Chines

“The issues in this sub-area: There is a relatively low risk of fluvial flooding. Surface water flooding occurs in some urban areas due to the capacity of drains being exceeded. Nearer the coast, river flooding may be affected by high tide levels, which will get worse with predicted future sea level rise. Only modest urban development is planned.”

Policy Option 2 – areas of low to moderate flood risk where we can generally reduce existing flood risk management actions.

The previous shoreline management policies set for this PDZ are listed in the table below:

The IW numbering units refer to lengths of coast for which previous shoreline management policies were set in SMP1, modified by subsequent Strategy Studies (where available), used to gather information in the Appendices. These are not SMP2 policy units which are developed in section 3 below.

| Numbering in SMP2 Appendices (2010) | | SMP1 (1997) | |
|-------------------------------------|--------------------------------------|-------------|-----------------------------------|
| Area (clockwise) | Name | Unit | Policy |
| IW52 | BOULDNOR COPSE & HAMSTEAD | NEW 6 | Do nothing |
| IW53 | NEWTOWN ESTUARY | NEW 7 | Retreat the existing defence line |
| IW54 | THORNESS BAY | NEW 8 | Do nothing |
| | | NEW 9 | Do nothing |
| | | NEW 10 | Do nothing |

2.2 Baseline Scenarios for the Policy Development Zone

2.2.1 No Active Intervention (Scenario 1, NAI):

The western section of this PDZ until Hamstead Point, Newtown Bay has no defences. Under the NAI scenario the coastal slopes would continue to evolve naturally, with erosion of the cliff toe and cliff foot debris triggering mudslides, translational slides and infrequent deep-seated rotational slides. Towards the third epoch, increased erosion and higher winter rainfall are expected to promote a significant increase in coastal landsliding activity at Cranmore and Hamstead. These ongoing processes would provide additional sources of sediment to the local beaches, particularly Hamstead, and the West Solent. This retreat will allow the nature conservation interest (sea cliffs and reefs associated with Solent Maritime SAC and Solent and Southampton Water SPA/Ramsar) and landscape of the area to evolve naturally but is likely to impact upon several properties on the seaward edge of Cranmore in the second and third epochs.

Newtown Estuary is a significant undefended, undeveloped and naturally evolving inlet with a few scattered short sections of masonry wall and timber breastwork at Shalfleet Quay, Newtown Quay (saltworks) and on the upper reaches of Shalfleet Lake. These are expected to fail within the first epoch. The entrance of the estuary has two entrance spits which perform a natural coastal defence function, sheltering the branches of the estuary behind forming a natural harbour. The effect of erosion or retreat/roll back of the spits in the first epoch will could lead to increased wave penetration with implications for the erosion of saltmarshes and mudflats. Leading into the second epoch, rising sea levels will open the whole frontage to more aggressive wave attack and tidal inundation of the National Nature Reserve and increased salt penetration on adjacent farmland with impacts on the bordering woodlands. The tidal flooding may periodically inundate the local access road links to Newtown village from the south (near Fleetlands Farm), the channel approaching Porchfield and cross the Porchfield-Shalfleet road at Clamerkin Bridge. By the third epoch, rising sea levels will mean that significant amounts of the frontage could be under standing water throughout the year. The estuary will evolve naturally under the NAI scenario, and in the long term there is potential for gain of saltmarsh and intertidal flats (which support international nature conservation designations) as the coast is allowed to roll back. Changes to other important habitats are expected: coastal grazing marsh and lagoons will be altered as a result of increasing saline intrusion over time and shingle habitat associated with the entrance spits may be lost. There would be flooding of part of a Scheduled Monument (the remains of the medieval town of Newtown) and widespread exposure and loss of intertidal archaeological resources. Brickfields farmhouse on the eastern spit will be lost to erosion.

Thorness Bay, and the eastern section of this PDZ, is a stretch of undefended, relatively undeveloped slumping coastal slopes and cliffs. Under the NAI scenario coastal erosion resulting in slope retreat of the weak coastal cliffs will continue and increase in future epochs, providing

sediment both to the beach at Thorness Bay and to the overall system. From the second epoch potential tidal flood risk extends up to 900m inland in two adjacent inlet zones within Thorness Bay, crossing the Porchfield to Northwood road. Retreat within low-lying Thorness Bay could form a small intertidal area controlled by the topography, similar in scale to the present King's Quay inlet on the north-east coast. The tidal prisms would be small and marginal in stability and potentially subject to episodes of periodic closure and breaching. Coastal retreat will allow the landscape of the area to evolve naturally but will impact upon the seaward edge of the Thorness Bay Holiday Park and several small cliff top properties north of Thorness stream in the third epoch, as well as loss of intertidal archaeological resources. Habitats of nature conservation importance will also be allowed to evolve naturally. Cliffs will continue to undergo erosion and succession, and there is potential for gain of saltmarsh and intertidal flats in Thorness Bay as the coast is allowed to roll back. Club rush swamp habitat may be altered as a result of increasing saline intrusion.

2.2.2. With Present Management (Scenario 2, WPM):

Under this scenario the PDZ would function similarly as described under the NAI scenario with the exception of Newtown Estuary. Maintenance of the short sections of defences within the harbour would provide a small amount of additional 'time' for both habitats and historical structures but it would not have an overall impact on the behaviour of the system as a whole, or mitigate the increasing flood risk throughout the estuary.

Table 1a. Economic Assessment – Erosion damages

The following table provides a brief summary of damages determined by the SMP2 MDSF analysis for the whole PDZ. Further details are provided in Appendix H. Where further, more detailed information is provided by studies, this is highlighted. The table aims to provide an initial high level assessment of potential damages occurring under the two baseline scenarios.

ASSESSMENT OF EROSION DAMAGES

| Epoch | 0 -20 year | | | 20 – 50 years | | | 50 – 100 years | | | |
|---------------------------------------|-----------------------|------------|------------------|-----------------------|------------|------------------|-----------------------|------------|------------------|------------------------|
| No Active Intervention | Number of properties: | | Value x £1000 | Number of properties: | | Value x £1000 | Number of properties: | | Value x £1000 | PV Damages (£x1000) |
| Location | Residential | Commercial | | Residential | Commercial | | Residential | Commercial | | |
| Bouldnor Copse and Hamstead | 0 | 2 | 30 | 1 | 3 | 289 | 2 | 7 | 579 | 175 |
| Newtown Estuary | 0 | 2 | 0 | 0 | 1 | 0 | 0 | 1 | 30 | 5 |
| Thorness Bay and southern Gurnard Bay | 0 | 0 | 0 | 0 | 4 | 90 | 0 | 26 | 672 | 89 |
| Total for PDZ7 | | | | | | | | | | 269 |
| With Present Management | Number of properties | | Value x £1000 | Number of properties | | Value x £1000 | Number of properties | | Value x £1000 | PV Damages (£x1000) |
| Location | Residential | Commercial | | Residential | Commercial | | Residential | Commercial | | |
| Bouldnor Copse and Hamstead | 0 | 2 | 30 | 1 | 3 | 289 | 2 | 7 | 579 | 175 |
| Newtown Estuary | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 30 | 5 |
| Thorness Bay and southern Gurnard Bay | 0 | 0 | 0 | 0 | 4 | 90 | 0 | 26 | 672 | 89 |
| Total for PDZ7 | | | | | | | | | | 269 |
| Notes | | | | | | | | | | |
| SMP. | | | | | | | | | | |

Table 1b. Economic Assessment –Flood damages

The following flood damages have been determined through use of MDSF. These figures are aimed to indicate the level and impact of flood risk rather than being a detailed economic appraisal. In many areas substantial numbers of properties would be liable to flooding on the more frequent events both under NAI and WPM, a nominal write off value has been allowed in the table for properties at frequent risk; this generally excludes values at risk at present on a 1:1 year event, in 50 years time for the 1:10 year event and in 100 year time the 1:50 year event.

ASSESSMENT OF POTENTIAL FLOOD RISK

| No Active Intervention | Flood risk tidal 2010 | | | Flood risk tidal 2060 | | | Flood risk tidal 2110 | | | PVD (£x1000) |
|--|-----------------------|----------|-------------|-----------------------|----------|-------------|-----------------------|----------|-------------|--------------|
| | No. of properties | | AAD x £1000 | No. of properties | | AAD x £1000 | Number of properties | | AAD x £1000 | |
| Location | < 1:100yr | >1:100yr | | < 1:100yr | >1:100yr | | < 1:100yr | >1:100yr | | < 1:100yr |
| Western Haven (N1) | 25 | 4 | 215 | 29 | 1 | 357 | 32 | 0 | 581 | 8,830 |
| Clamerkin Lake (N2) | 50 | 4 | 74 | 54 | 1 | 127 | 58 | 2 | 218 | 3,137 |
| Little Thorness (0) | 3 | 0 | 5 | 3 | 0 | 12 | 3 | 0 | 30 | 284 |
| Agricultural Total | | | 5 | | | 6 | | | 7 | 156 |
| Total for PDZ7 | | | | | | | | | | 12,407 |
| With Present Management | No. of properties | | AAD x £1000 | No. of properties | | AAD x £1000 | No. of properties | | AAD x £1000 | PVD (£x1000) |
| Location | < 1:100yr | >1:100yr | | < 1:100yr | >1:100yr | | < 1:100yr | >1:100yr | | |
| Western Haven (N1) | 1 | 28 | 29 | 2 | 28 | 47 | 2 | 30 | 13 | 976 |
| Clamerkin Lake (N2) | 4 | 50 | 11 | 2 | 53 | 16 | 2 | 58 | 5 | 348 |
| Little Thorness (0) | 3 | 0 | 5 | 3 | 0 | 2 | 3 | 0 | 1 | 105 |
| Agricultural Total | | | 1 | | | 2 | | | 2 | 44 |
| Total for PDZ7 | | | | | | | | | | 1,473 |
| Note: These estimated flood damages relate to scattered structures around the five inland branches of the estuary (26km of coastline), and include modest structures such as bird hides, boatsheds and abandoned farm buildings. | | | | | | | | | | |

Table 2. General Assessment of Objectives

The following table provides an overall assessment of how the two baseline scenarios impact upon the overall objectives agreed by stakeholders. These objectives are set out in more detail within Appendix E. The table aims to provide an initial high level assessment of the two baseline scenarios, highlighting potential issues of conflict. These issues are discussed in the following section, examining alternative management scenarios from which SMP2 policy is then derived.

| STAKEHOLDER OBJECTIVE | NAI | | | WPM | | |
|---|-------|---------|------------|-------|---------|------------|
| | Fails | Neutral | Acceptable | Fails | Neutral | Acceptable |
| To maintain and enhance the nature conservation values of the area through adaptation in sympathy with natural processes. | | | | | | |
| To maintain the tranquillity of the area and its landscape. | | | | | | |
| To support low level use and access of the area. | | | | | | |
| To support adaptation of local communities. | | | | | | |
| To sustain the historic landscape and environment. | | | | | | |
| To support adaptation of agricultural use. | | | | | | |

3. Discussion and detailed policy development

The overriding character of the PDZ is one of a naturally evolving coastal and estuary system, although the discussion provided above of the two baseline scenarios highlights that even with the present management (NAI) some of the high level objectives while not failing neither are they being achieved, particularly in the central section of the PDZ. Flooding in Newtown Estuary will encroach onto the medieval field system which is part of the Scheduled Monument of the remains of the medieval town of Newtown, formerly known as Francheville. Also, coastal change will lead to the progressive widespread exposure and loss of intertidal archaeology (palaeo-environmental features) and potentially impact on local agricultural land.

Along the open coast of the PDZ, there is no reason to alter the current management. The same holds true in the estuary where the landowner, the National Trust, would allow natural coastal processes to occur in the entirety of the estuary and foreshore within their ownership at Newtown. This will enable the habitats within the estuary, which support international nature conservation designations, to develop in a natural and dynamic way in response to coastal change. Benefits in the form of gain of intertidal habitats are likely. This would not preclude gentle local management at the former coastal defence structures at Shalfleet Quay and Newtown Quay where there are still short lengths of masonry wall, wooden walkways and two stone built quays. These are currently maintained to provide access to visitors on foot and for small boat users and in some cases represent historical features. At Newtown Quay there is a maintained embankment around a tidal lagoon which was formerly part of a salt manufacturing process. The lagoon is now valued as a habitat for specialist species and is a feature of the Solent Marine SAC. All the built structures will be maintained for as long as practically possible and if necessary adapted to continue to provide access, but not preventing the natural processes within the estuary.

PDZ7 Management Area Statements

- **Bouldnor Copse to southern Gurnard Bay (MA 7)** includes three policy units.

Within these areas a summary of policy is provided below. Management Areas statements are provided in the following sheets, with maps showing each area.


| | |
|---------------------------|--|
| Location reference | Bouldnor Cope to southern Gurnard Bay |
| Management Area reference | MA 7 |
| Policy Development Zone | PDZ 7 |

The following descriptions are provided to assist interpretation of the maps shown of each Management Area.



* Note: Predicted shoreline mapping is based on a combination of monitoring data, analysis of historical rates and geomorphological assessment with allowance for sea level rise. Due to inherent uncertainties in predicting future change, these predictions are necessarily indicative. For use beyond the purpose of the shoreline management plan, reference should be made to the baseline data (see Appendix C3).


100 year shoreline position:

The following maps aim to summarise the anticipated position of the shoreline in 100 years under the two scenarios of “With Present Management” and under the “Preferred Policy” being put forward through the Shoreline Management Plan.

 In some areas the preferred policy does not change from that under the existing management approach. In some areas where there are hard defences this can be accurately identified. In other areas there is greater uncertainty. Even so, where the shoreline is likely to be quite clearly defined by a change such as the crest of a cliff the estimated position is shown as a single line.


- Where there is a difference between With Present Management and the Preferred Policy this distinction is made in showing two different lines:


 With Present Management.
 Preferred Policy.


-  In some areas, the Preferred Policy either promotes a more adaptive approach to management or recognises that the shoreline is better considered as a width rather than a narrow line. This is represented on the map by a broader zone of management:

Flood Risk Zones:

All flood risk zones are based upon the current tidal EA Flood Zone 2. This is an extreme flood event (1:1000 year at current levels) meaning that it has 0.1% chance of occurring each year.

 General Flood Risk Zones. The explanation of these zones is provided on the Environment Agency’s web site www.environment-agency.gov.uk. The maps within this SMP document show where SMP policy might influence the management of flood risk.

 Indicate areas where the intent of the SMP policy is to continue to manage this risk.

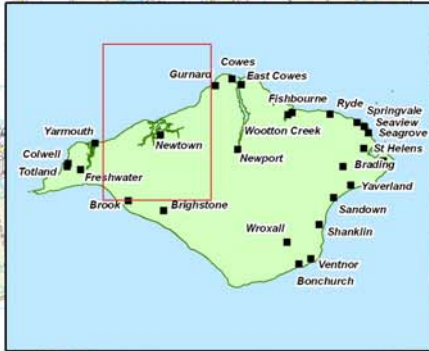
 Indicate where over the 100 years the policy would allow increased risk of flooding.

The maps should be read in conjunction with the text within the SMP document.

Note: This Management Area corresponds to IW52 to 54 in selected Appendices.

**Policy Development Zone 7 - North-west Coastline
Management Area 7 - Bouldnor to Gurnard (Ch 121 - 157)**

- Key**
- Policy Development Zone boundary
 - Management Area boundary
 - Policy Unit boundary
 - Existing Coastline and Chainage (km)
 - Scheduled Monument



This map is based on Ordnance Survey material with the permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown copyright and may lead to prosecution or civil proceedings 100019229 2010.

Key 100 Year Shoreline Position:

- Preferred Policy would be the same as With Present Management
- With Present Management where this differs from the Preferred Policy
- Preferred Policy where this differs from the With Present Management
- Indicative shoreline zone under the Preferred Policy
- Existing Indicative EA Flood Risk Zone 2
- EA Flood Risk Zone 2 where SMP policy is for continued management of defence
- EA Flood Risk Zone 2 where under SMP policy there would be increased probability of flooding



I:\977634\Technical_Data\GIS\Projects\Figures\SMP_Figures\Baseline_Location_Maps

SUMMARY OF PREFERRED PLAN RECOMMENDATIONS AND JUSTIFICATION

PLAN:

The overriding intent of the plan is to maintain the important nature conservation and landscape quality of the area. The policy for the frontage is for No Active Intervention but with potential for local management by the National Trust on the quays and walkways. There are no overriding issues that conflict with this approach, although localised adaptation to coastal change will be required for isolated areas of property.

| PREFERRED POLICY TO IMPLEMENT PLAN: | |
|-------------------------------------|--|
| From present day | No Active Intervention but encouraging the private landowner to adapt the current localised structure within the estuary |
| Medium term | No Active Intervention |
| Long term | No Active Intervention |

SUMMARY OF SPECIFIC POLICIES

| Policy Unit (& length) | | Policy Plan | | | Comment |
|--|--|-------------|---------|---------|---|
| | | to 2025 | to 2055 | to 2105 | |
| PU7.1 | Bouldnor Cope and Hamstead (4,424m) | NAI | NAI | NAI | Allow cliff erosion, supporting the natural habitats. |
| PU7.2 | Newtown Estuary (26,269m) | NAI | NAI | NAI | Allow tidal flooding and erosion. This would not preclude local management by the landowner during the first epoch to maintain limited quay structures and access walkways. |
| PU7.3 | Thorness Bay and southern Gurnard Bay (6,139m) | NAI | NAI | NAI | Allow cliff erosion, supporting the natural habitats. |
| Key: HTL - Hold the Line, A - Advance the Line, NAI – No Active Intervention MR – Managed Realignment | | | | | |

CHANGES FROM PRESENT MANAGEMENT

No change

IMPLICATION WITH RESPECT TO BUILT ENVIRONMENT

| Economics | | by 2025 | by 2055 | by 2105 | Total £k PV |
|-----------------|-----------------------------------|---------|---------|---------|-------------|
| Property | Potential NAI Damages/ Cost £k PV | 3,701 | 4,506 | 4,314 | 12,521 |
| | Preferred Plan Damages £k PV | 3,701 | 4,506 | 4,314 | 12,521 |
| | Benefits £k PV | - | - | - | - |
| | Costs of Implementing plan £k PV | 0 | 0 | 0 | 0 |

The economic viability of the preferred plan for this Management Area is not applicable since the benefits and costs of implementation are both zero. There will be no need to justify any flood and coastal erosion risk management expenditure.