



Isle of Wight Shoreline Management Plan 2

(Review Sub-cell 5d+e)

December 2010

Operating Authorities:



Consulting Engineer:



HASKONING UK LTD.
COASTAL & RIVERS

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View from Blackgang along the south-west coast of the Isle of Wight towards the Needles.

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Glossary of terms

Term	Definition
AA/HRA	Appropriate Assessment. Also referred to as a Habitat Regulations Assessment (HRA). The AA is an independent check of the potential impacts of policies being put forward by the SMP with specific reference to designated European nature conservation sites (such as SACs, SPAs, etc.)
Accretion	Accumulation of sand or other beach material due to the natural action of waves, currents and wind.
Adaptation	Adaptation is the evolutionary process whereby a population becomes better suited to its habitat. Implies that there may be change in the way a feature, such as a habitat or a community, functions. In supporting adaptation, management has to recognise certain principles: <ul style="list-style-type: none"> • That adaptation may take time and may evolve slowly so that change to the overall community does not happen immediately. • That management should not encourage a progressively more vulnerable situation to develop, where there is a sudden change from one condition to another. • That specific aspects of a feature, such as individual properties or elements of habitat may change or be lost, but without substantial loss to the value of the community or the overall ecological function of the feature.
Advance the Line (ATL)	A policy decision to build new coastal defences on the seaward side of the original defences. Using this policy should be limited to those policy units where significant land reclamation is considered.
Anthropogenic	Impacts that originate from humans.
AONB	Area of Outstanding Natural Beauty: A statutory designation by the Countryside Commission. The purpose of the AONB designation is to identify areas of national importance and to promote the conservation and enhancement of natural beauty. This includes protecting its flora, fauna, geological and landscape features.
Armour	Structural protection (rock or concrete) for the shoreline
ATL	Advance the Line. Policy decision to build new defences seaward of the existing defence line where significant land reclamation is considered.
Back beach/back shore	The section of beach extending landwards from the high water mark to the point where there is an abrupt change in slope or material; also referred to as the backshore.
BAP	Biodiversity Action Plan. An element of UK environmental legislation, aimed at enhancing and protecting biodiversity within key habitat areas.
Bar	Fully or partially submerged elongated mound of sand, gravel or other unconsolidated material built on the sea-bottom in shallow water by waves and currents.
Beach face	Upper surface of the beach.
Beach nourishment	Artificial process of replenishing a beach with material from another source.
Beach profile	Side view of a beach which may extend from the top of the backshore, the face of a dune line, or a sea wall, into the sea.
Beach recharge	This is the management practice of adding to the natural amount of sediment (such as sand) on a beach by using material from elsewhere. This is also known as beach replenishment, nourishment or feeding.
Benefits (related to issue)	The service that a feature provides. In other words, why people value or use a feature. For example, a nature reserve, as well as helping to preserve biodiversity and meet national legislation, may also provide a recreation outlet much like a sports centre provides a recreation function.
Berm crest	Ridge of sand or gravel deposited by wave action on the shore just above the normal high water mark.

Term	Definition
Brackish water	Freshwater mixed with seawater.
Breaker zone	Area in the sea where the waves break.
Clastic	Pertaining to a sediment or rock composed chiefly of fragments derived from pre-existing rocks or minerals
Coastal defence	A term used to encompass both coastal protection against erosion and sea defence against flooding.
Coastal defence strategy plan	A detailed assessment of the strategic coastal defence option(s) for a management unit(s), based on Flood and Coastal Defence Project Appraisal Guidance 2.
Coastal habitat management plan (CHaMP)	A non-statutory management plan which identifies potential future changes to coastal habitats and potential compensation measures for any losses to a European designated site or group of sites.
Coastal squeeze	The reduction in habitat area that can arise if the natural landward migration of a habitat under sea level rise is prevented by the fixing of the high water mark, e.g. a sea wall.
Coastal zone management plan	Plans through which local authorities and others implement planning objectives and policies for an area of the coast, which deal with a range of issues such as landscape management, development, recreation, conservation, etc.
Communities	1) A 'community' can refer to a group of people living in one place (eg. in a coastal town or village). 2) A 'community' is also a group of organisms (e.g. plants) interacting and sharing a populated environment , in biological terms.
Concern	This is a stated actual or perceived problem, raised by an individual or stakeholder. A concern can be strategic or local.
Conservation Area	Local Planning Authorities have a duty under The Planning (Listed Buildings & Conservation Areas) Act 1990 to designate as Conservation Areas any areas considered to be of special architectural or historic interest, the character or appearance of which it is desirable to protect or enhance. There are now 32 Conservation Areas throughout the Island.
Consequence	An outcome or impact such as economic, social or environmental impact. It may be expressed as a quantity (e.g. monetary value), categorical (e.g. high, medium, low) or descriptive (see FCDPAG4).
Conservation	The political/social/economic process by which the environment is protected and resources are used wisely.
CSG	Client Steering Group. The CSG is comprised of representatives from the key operational bodies and statutory consultees involved with coastal and estuarine management within the SMP area. They provide an overseeing steer and guidance role to technical consultants and generally oversee the consultation and approvals activities required within the SMP2 programme.
CV	Capital Value. The actual value of costs or benefits.
Deep water	Area where surface waves are not influenced by the sea-bottom.
Defra	Department for Food, Environment and Rural Affairs
Defra Procedural Guidance	The Shoreline Management Plan (SMP) Procedural Guidance produced by Defra to provide a nationally consistent structure for the production of future generation Shoreline Management Plans.
Downdrift	Direction of longshore movement of beach materials.
Downdrift effects	Impacts occurring in the lee of any coastal activity resulting from associated changes to the coastal processes, particularly sediment supply.
Dredging	Excavation, digging, scraping, draglining, suction dredging to remove sand, silt, rock or other underwater sea-bottom material.
Dune	Accumulations of wind-blown sand in ridges or mounds that lie landward of the beach and usually parallel to the shoreline.
EA Flood Zone 2	See Flood Zone 2.

Term	Definition
EA Flood Zone 3	See Flood Zone 3.
Ebb-tide	The falling tide, part of the tidal cycle between high water and the next low water.
Ebb-tide delta	An accretionary deposit of sand found on the seaward side of an inlet and usually formed by tidal currents. Ebb tidal deltas form at the mouths of many estuaries and their associated sand bars provide important natural coastal defence features to both the estuary mouth and the adjacent open coasts. The size of the delta depends on the tidal prism of the estuary and consequently the degree of natural protection can change as the prism changes through differing estuary management techniques.
Economic appraisal	An appraisal which takes into account a wide range of costs and benefits, generally those that can be valued in money terms.
Ecosystem	Organisation of the biological community and the physical environment in a specific geographical area.
EIA	Environmental Impact Assessment. Detailed studies that predict the effects of a development project on the environment. They also provide plans for mitigation of any significant adverse impacts.
EM	Elected Member. Elected Members are consulted with at key stages of the SMP programme. Endorsement of the preferred plan is sought from the EM prior to public consultation.
Enhance (improve)	The value of a feature increases.
Epoch	The three periods of time in which the Shoreline Management Plan is reviewed in. The first epoch is 0-20 years, the second epoch is 20-50 years and the third epoch is 50-100 years.
Erosion	The loss of land or encroachment by the sea through a combination of natural forces e.g. wave attack, slope processes, high groundwater levels.
ESA	Environmentally Sensitive Area. A non-statutory designation for an area where special land management payments are available through agreement with Defra to provide farming practices which are beneficial to the environment.
Estuary	Mouth of a river, where fresh river water mixes with the seawater.
European site	Any site that has been designated as a site of international nature conservation importance either as a Special Protection Area (SPA), a Special Area of Conservation (SAC) or a Ramsar Site. In regard to planning considerations it is Government policy to treat potential SPAs, candidate SACs and listed Ramsar Sites as if they were already designated.
Feature	Something tangible that provides a service to society in one form or another or, more simply, benefits certain aspects of society by its very existence. Usually this will be of a specific geographical location and specific to the SMP.
Fetch	The distance that the wind has passed across the water in one direction (the greater the fetch, the larger the wind-driven waves will be).
Flood Zone	A geographical area officially designated subject to potential flood damage. The Environment Agency defines Flood Zone 2 and Flood Zone 3 (see below).
Flood Zone 2	The area that could be affected by flooding from the sea, if there were no flood defences in place. Flood zone 2 shows the area that could be affected by an extreme flood from the sea, with up to a 0.1 per cent (1 in 1000) chance of occurring each year.
Flood Zone 3	The area that could be affected by flooding from the sea, if there were no flood defences in place. Flood zone 3 shows the area that could be affected by a flood event that has a 0.5 per cent (1 in 200) or greater chance of happening each year.

Term	Definition
Flooding	Refers to inundation by water whether this is caused by breaches, overtopping of banks or defences, or by inadequate or slow drainage of rainfall or underlying ground water levels. Flooding due to blocked drains and sewers or the escape of water from a water supply service will usually be the responsibility of the local water company and does not fall within the scope of a Shoreline Management Plan.
Flood-tide	Rising tide, part of the tidal cycle between low water and the next high water.
Fluxes	The rate of flow of water, as the tide or current, through a defined area.
Foreshore	Zone between the high water and low water marks.
Gabions	Wire mesh rectangular containers filled with stones.
Geomorphology/ Morphology	The branch of physical geography/geology which deals with the form of the Earth, the general configuration of its surface, the distribution of the land, water, etc.
GIS	Geographic Information System. Software which allows the spatial display and interrogation of geographical information such as ordnance survey mapping and aerial photography.
Greenhouse effect	Heating of the earth's atmosphere due to a presence in gases like carbon dioxide.
Groyne	Shore protection structure built perpendicular to the shore; designed to trap sediment.
Groyne field	Series of groynes acting together to protect a section of beach.
Habitat action plan	A biodiversity action plan for a habitat.
Habitat directive	EC Directive 92/43 on the conservation of natural habitats and of wild fauna and flora.
Habitat regulations	The conservation (Natural Habitats & c.) Regulations 1994. This transposes the Habitats Directive into UK Law.
Hazard	A situation with the potential to result in harm. A hazard does not necessarily lead to harm.
Heritage Coast	A non-statutory designation by the Countryside Commission for coasts of scenic quality, their largely undeveloped nature and their special wildlife and historic interest. Local authorities assist with the management of Heritage Coasts often with Heritage Coast officers.
Hold the Line (HTL)	A policy decision to maintain or change the standard of protection of the coastal defences along their existing line. This policy should cover those situations where work or operations are carried out in front of the existing defences (such as beach recharge, rebuilding the toe of a structure, building offshore breakwaters and so on) to improve or maintain the standard of protection provided by the existing defence line. This can include operations to the back of existing defences (such as building secondary floodwalls) where they form an essential part of maintaining the current coastal defence system.
Integrated	An approach that tries to take all issues and interests into account. In taking this approach, managing one issue adds value to the way another is dealt with.
Isobath	A line on a chart joining places of equal depth or height e.g. a contour
Issue	All issues and aspirations are related to flood and coastal defence and grouped or categorised under the three main themes: Technical; Environmental; or Socio-economic
Key Stakeholder	A person or organisation with a major interest in the preparation of, and outcomes from, a shoreline management plan. This includes agencies, authorities, organisations and private bodies with significant responsibilities or ownerships that affect the overall management of the shoreline in a plan.

Term	Definition
Land reclamation	Process of creating new, dry land on the seabed.
Landslide	A coastal landslide can be regarded as a flow of sediment from an area of elevated topography to the foreshore. Slope instability and a semi-continuous sediment cascade is maintained by basal erosion which can act in two ways: (i) degraded materials are removed from the base of the slope, which prevents a stable slope angle being achieved; (ii) basal erosion of in-situ strata can undercut the cliff toe so that the slope is steepened to a greater repose angle than would naturally be maintained by the ground-forming materials. From a coastal viewpoint the result is the same, in that sediment is supplied to the littoral zone, and, assuming it is removed thereafter, the coast retreats.
Listed Building	Buildings that have been recognised for their special architectural or historic interest can be listed and have legal protection under planning law, specifically "The Planning (Listed Buildings and Conservation Areas) Act 1990".
LDF	Local Development Framework. The Isle of Wight LDF is called the Island Plan.
Lithology	Mineralogy, grain size, texture, and other physical properties of granular soil, sediment, or rock.
Littoral	The littoral zone extends from the high water mark, which is rarely inundated, to shoreline areas that are permanently submerged. It always includes the intertidal zone and is often used to mean the same as the intertidal zone.
LNR	Local Nature Reserves. A statutory designation for sites established by local authorities in consultation with Natural England. These sites are generally of local significance and also provide important opportunities for public enjoyment, recreation and interpretation.
Longshore current	A movement of water parallel to the shore, caused by waves and tides.
Longshore transport	Movement of material parallel to the shore also referred to as longshore drift.
Maintain	That the value of a feature is not allowed to deteriorate.
Managed Realignment (MR)	A policy decision to allow the shoreline to move backwards or forwards, with management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences).
Management Area (MA)	Management Area, defined by SMP2. A collection of Policy Units (PU) that are interdependent and should therefore be managed collectively.
MDSF	Modelling and Decision Support Framework. Mapping linked computer tool used in the evaluation of assets at risk from flooding or erosion.
Mean sea level	Average height of the sea surface.
MHW	Mean High Water. The average of all high waters observed over a sufficiently long period.
MLW	Mean Low Water. The average of all low waters observed over a sufficiently long period.
Natura 2000	European network of protected sites which represent areas of the highest value for natural habitats and species of plants and animals which are rare, endangered or vulnerable in the European Community.
Nearshore	The region of land extending from the backshore to the beginning of the offshore zone.
NNR	National Nature Reserves. A statutory designation by Natural England. These represent some of the most important natural and semi-natural ecosystems in Great Britain and are managed to protect the conservation value of the habitats that occur on these sites.
No Active Intervention (NAI)	A policy decision to not invest in coastal defences or operations. Where no defences are present, natural change of the coastline will continue. NAI is also a scenario or prediction used in SMP2 to understand potential future coastal change. The scenario assesses the consequences of

Term	Definition
	applying a policy of NAI to the shoreline, allowing existing defences to fail and coastal change to occur.
Objective	A desired state to be achieved in the future. An objective is set, through consultation with key parties, to encourage the resolution of the issue or range of issues.
Offshore breakwater	Structure parallel or angled to the shore, usually positioned in the sea, which protects the shore from waves.
Offshore zone	Extends from the low water mark to deeper water, and is permanently covered with water.
Operating Authority	A body with statutory powers to undertake flood defence or coast protection activities, usually the Environment Agency or maritime District Council. The two Operating Authorities for the Isle of Wight are the Isle of Wight Council and the Environment Agency.
PDZ	Policy Development Zone. A length of coastline with a particular character defined in the SMP for the purpose of assessing all issues and interactions to develop management scenarios. These zones are only used in the procedure of developing policy. Policy Units and Management Areas are then used for the Final definition of the policies and the management of the coast.
Pile	Long heavy section of timber, concrete or metal, driven into the ground or seabed as support for another structure. Especially around/or at the toe of a shore protection structure.
Policy	In the context of the SMP, "policy" refers to the generic shoreline management options (No Active Intervention, Hold the Line, Managed Realignment, Advance the Line).
Policy Scenario	A combination of policies selected against the various feature/benefit objectives for the whole SMP frontage.
Policy Unit (PU)	Policy Unit, defined by SMP2. A section of coastline for which a certain coastal defence management policy has been defined. These are then grouped into Management Areas (MA).
PV	Present Value. The value of a stream of benefits or costs when discounted back to the present day. For this SMP the discount factors used are the latest provided by Defra for assessment of schemes, i.e. 3.5% for years 0-30, 3.0% for years 31-75, and 2.5% thereafter.
Ramsar	Designated under the, "Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat" 1971. The objective of this designation is to prevent the progressive encroachment into, and the loss of wetlands.
Residual life	The time to when a defence is no longer able to achieve minimum acceptable performance criteria in terms of serviceability or structural strength.
Residual risk	The risk which remains after risk management and mitigation. It may include, for example, risk due to very severe storms (above design standard) or risks from unforeseen hazards.
Retaining wall	Wall built to hold back earth.
Revetment	Shore protection structure made with stones/ rock laid on a sloping face.
RIGS	Regionally Important Geological/Geomorphological Sites. A non-statutory designation identified by locally developed criteria and are currently the most important places for geology and geomorphology outside statutorily protected land such as SSSI's.
Risk assessment	Consideration of risks to people and the developed, historic and natural environment.
Risk management	The process of analysing exposure to risk and determining how to best handle such exposure.
SAC	Special Area of Conservation. This designation aims to protect habitats or

Term	Definition
	species of European importance and can include Marine Areas. SACs are designated under the EC Habitats Directive (92/43EEC) and will form part of the Natura 2000 site network. All SACs sites are also protected as SSSI, except those in the marine environment below the Mean Low Water (MLW).
Schedule IV	'Waters excluded for purposes of definitions of 'sea' and 'seashore' (refer to Coast Protection Act, 1949).
Scheduled Monument (SM)	Scheduled Monument. A statutory designation under the Ancient Monuments and Archaeological Areas Act 1979. This Act, building on legislation dating back to 1882, provides for nationally important archaeological sites to be statutorily protected as Scheduled Ancient Monuments.
Scour	Removal of underwater material by waves or currents, especially at the toe of a shore protection structure.
SEA	Strategic Environmental Assessment. In SMP terms an SEA is an independent audit of the SMP process and the policies it puts forward. SEA assesses policies for potential impacts against a series of environmental themes.
Seawall	Massive structure built along the shore to prevent erosion and damage by wave action.
Sediment	Particles of rock covering a size range from clay to boulders.
Sediment cell	A length of coastline and its associated near shore area within which the movement of coarse sediment (sand and shingle) is largely self contained. Interruptions to the movement of sand and shingle within one cell should not affect beaches in an adjacent sediment cell.
Sediment sub-cell	A sub-set of a sediment cell within which the movement of coarse sediment (sand and shingle) is relatively self contained.
Setback	Prescribed distance landward of a coastal feature (e.g. the line of existing defences).
SFRA	Strategic Flood Risk Assessment. The Isle of Wight SFRA assesses flood risks on the Isle of Wight, and in particular the flood risks associated with areas being considered for future development as part of the emerging Local Development Framework (LDF).
Shore	Narrow strip of land in immediate contact with the sea.
Shoreline	Intersection of a specific water height with the shore or beach, e.g. the high water shoreline is the intersection of the high water mark with the shore or beach.
Shoreline Management Plan	A non-statutory plan, which provides a large-scale assessment of the risks associated with coastal processes and presents a policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner. The first SMP (SMP1) was completed for the Isle of Wight in 1997. The SMP is periodically reviewed. The second SMP (SMP2) is being completed in 2010.
Significant effect	Where a plan or project is likely to affect a European Site it is necessary to decide whether or not it would have a significant effect. If there is any doubt, the operating authority must consult English Nature/Countryside Council for Wales. They will advise whether, in their view, the proposed scheme would be likely to have a significant effect.
Sink	Area at which beach material is irretrievably lost from a coastal cell, such as an estuary, or a deep channel in the seabed.
SLA	Special Landscape Area. A non-statutory designation for an area usually identified by local authorities as having a strategic landscape importance.
SMA	Sensitive Marine Area. A non-statutory designation for nationally important locations around the coast that require a cautious and detailed approach to management. They are identified by Natural England for their important benthic populations, spawning or nursery areas for fish, fragile

Term	Definition
	intertidal communities, or breeding, feeding, and roosting areas for birds and sea mammals.
SMP	Shoreline Management Plan. A non-statutory plan, which provides a large-scale assessment of the risks associated with coastal processes and presents a policy framework to reduce these risks to people and the developed, historic and natural environment in a sustainable manner. The first SMP (SMP1) was completed for the Isle of Wight in 1997. The SMP is periodically reviewed. The second SMP (SMP2) is being completed in 2010.
SNCI	Site of Nature Conservation Importance. A non-statutory designation defined by the Wildlife Trusts and Local Authorities as sites of local nature conservation interest. These form an integral part in the development of planning policies relating to nature conservation issues.
SPA	Special Protection Area. A statutory designation for internationally important sites, being set up to establish a network of protected areas of birds.
SSSi	Sites of Special Scientific Interest. A statutory designation notified by Natural England representing some of the best examples of Britain's natural features including flora, fauna, and geology.
Stakeholder	A person or organisation with an interest in the preparation of a shoreline management plan or affected by the policies produced. This broad interpretation has been taken to include agencies, authorities, organisations and private persons. See "Key stakeholder".
Storm surge	A rise in the sea surface on an open coast, resulting from a storm.
Strategic	Used to describe the undertaking of any process in a holistic manner taking account of all associated impacts, interests of other parties and considering the widest possible set of potential options for the solution of a problem. In the context of this document, the word 'strategic' does not imply any particular level in the hierarchy of the planning process.
Sustain	Refers to some function of a feature. A feature may change, but the function is not allowed to fail.
Sustainable policies	Sustainable policies lead to coastal defence solutions that avoid tying future generations into inflexible and/or expensive options for defence. They will usually include consideration of interrelationships with other defences and likely developments and processes within a coastal cell or sub-cell. They will also take account of long-term demands for non-renewable materials.
Swell	Waves that have travelled out of the area in which they were generated.
Temporal	Referring to the passage or a measurement of time
Tidal current	Movement of water in a constant direction caused by the periodic rising and falling of the tide. As the tide rises, a flood-tidal current moves in one direction and as the tide falls, the ebb-tidal current moves in the opposite direction.
Tidal inlet	A river mouth or narrow gap between islands, within which salt water moves landwards during a rising tide.
Tidal prism	The volume of water within an estuary between the level of high and low tide, typically taken for mean spring tides.
Tide	Periodic rising and falling of large bodies of water resulting from the gravitational attraction of the moon and sun acting on the rotating earth.
Toe protection	Material, usually large boulders, placed at the base of a sea defence structure like a seawall to prevent wave scour.
Topography	Configuration of a surface including its relief and the position of its natural and man-made features.
Transgression	The landward movement of the shoreline in response to a rise in relative sea level.

Term	Definition
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.
Updrift	Direction opposite to the predominant movement of longshore transport.
VMCA	Voluntary Marine Conservation Areas. A statutory designation to protect the marine conservation importance of a site and to provide a focus for liaison, co-operation and education for a sustainable marine environment.
Water table	The upper surface of groundwater; below this level, the soil is saturated with water.
Wave direction	Direction from which a wave approaches.
Wave refraction	Process by which the direction of approach of a wave changes as it moves into shallow water.
Wetlands	Low-lying areas that are frequently flooded and which support vegetation adapted to saturated soils e.g. mangrove swamps.
WFD	Water Framework Directive. European legislation which seeks to improve the quality of both freshwater and coastal water bodies.
WPM	With Present Management. WPM is a scenario or prediction used in SMP2 to understand potential future coastal change. The WPM scenario essentially describes the current regime of management which exists for a given frontage. WPM scenario assumes that defences will be maintained in their present position and other management practices, e.g. beach re-nourishment, will continue as at present.

1. Introduction

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1 Introduction

1.1 The Shoreline Management Plan

A Shoreline Management Plan (SMP) provides a large-scale assessment of the risks associated with coastal evolution and presents a policy framework to address these risks to people and the developed, historic and natural environment in a sustainable manner. In doing so, an SMP is a high-level document that forms an important part of the Department for Environment, Food and Rural Affairs (Defra) strategy for flood and coastal defence (Defra, 2001).

The plan provides both a broad scale assessment of these risks but also quite specific advice to operating authorities in their management of defences. Through this and through the identification of issues covering a wide spectrum of coastal interests, the SMP supports the Government's aims, as set out in Defra's strategy "Making Space for Water" (Defra 2005):

- To reduce the threat of flooding and coastal erosion to people and their property; and
- To deliver the greatest environmental, social and economic benefit, consistent with the Government's sustainable development principles.

This SMP2 document, developed by the Isle of Wight Council and supporting Client Steering Group (CSG), sets out the results of the first revision to the original SMP for the area of coast extending around the Isle of Wight (Figure 1.1). This SMP2 collates information from the original SMP for sub-cells 5d+e and subsequent strategies and studies.

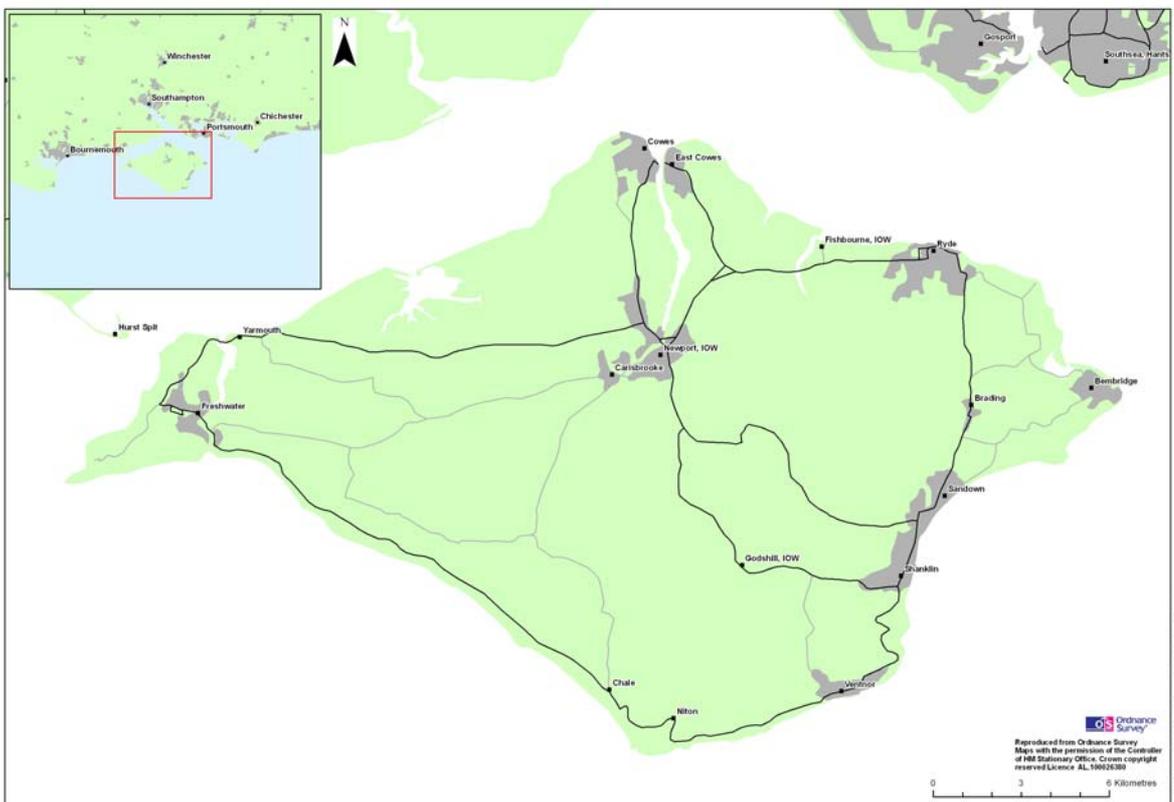


Figure 1.1: SMP coastline and estuaries,, the Isle of Wight

1.1.1 SMP Principles

The SMP2 is a non-statutory policy document for coastal defence management planning. It takes account of other existing planning initiatives and legislative requirements, and is intended to inform wider strategic planning. It does not set policy for anything other than coastal defence management. However, from this perspective, it aims to provide the context to, and consequence of, management decisions in other sectors of coastal management. Following the adoption of the SMP, the operating authorities will implement the Action Plan set out in Chapter 6 of this SMP, including (subject to the availability of funding) the development of Coastal Defence Strategy Studies (which identify the nature and type of works required for implementation of the SMP policy) and resulting Schemes (the design, construction and maintenance of coastal defences).

The SMP2 promotes management policies for a coastline into the 22nd Century that achieve long-term objectives without committing to unsustainable defence. It is, however, recognised that due to present day objectives and acceptance, wholesale changes to existing management practices may not be appropriate in the very short-term. Consequently, the SMP provides a timeline for objectives, policy and management changes; i.e. a 'route map' for decision makers to move from the present situation towards the future.

The first SMP for the Isle of Wight was completed in 1997 and worked clockwise around the coast. Since that time, more detailed Strategy Studies have been undertaken over sections of the coastline (listed in section 1.3.1) and these, together with academic research and monitoring by the responsible authorities, have improved our understanding of how the coast behaves. In addition, many lessons have been learnt with respect to how the SMP should be conducted and indeed how we should be viewing the management of the shoreline. Defra (2001, 2003) undertook a review of the results from SMP1, considering their strengths and weaknesses. This has led to revised guidance. Some of this guidance is targeted at achieving greater consistency in the assessments and presentation of the plans, but there are more fundamental issues that have been identified, which this and other SMP2s must address.

One significant issue is the inappropriateness of certain policies which, when tested in more detail with a view to being implemented, may be found to be unacceptable or impossible to justify; either in terms of economics or from a perspective of what communities need from the coast. It is, therefore, important that the SMP2 must be realistic given known legislation and constraints. There will be no value in a long-term plan which has policies driven by short-term politics or works that prove to be detrimental when considered several decades into the future.

Equally, the plan must also remain flexible enough to adapt to changes in legislation, politics and social attitudes. The plan, therefore, considers objectives, policy setting and management requirements for 3 main epochs; from the present day, medium term and long term, corresponding broadly to time periods of 0 to 20 years, 20 to 50 years and 50 to 100 years respectively. There is a need to have a long-term sustainable vision, which may change with time, but the SMP must demonstrate that defence decisions made today are not detrimental to achievement of that vision.

This plan covers an area of significant environmental value, but also has a strong history of human settlement and present use. These uses and interests are not inherently opposed. In reality it is the natural attraction combined with the historical coastal use, which gives this

area its distinct and considerable value to man in the present day. While individual core objectives or aims may therefore be set, and indeed are set with respect to each specific aspect of the area, the aim of the SMP2 must be to develop policy where, as far as possible, these specific objectives are not set in conflict. The underlying principle for the development of the plan has been to consider the specific circumstances of the differing sections of the coast and through this understanding, attempt to deliver the greatest benefit to the totality of coastal communities in an area.

1.1.2 SMP Process Objectives

The objectives of the SMP process (as distinct from the objectives for management of the coast) are as follows:

- To provide an understanding of the coast, its behaviour and its values;
- To define, in general terms, the risks to people and to the developed, natural and historic environment within the SMP area over the next century;
- To identify the likely consequence of different management approaches and from this;
- To identify the preferred policies for managing those risks or creating opportunity for sustainable management;
- To examine the consequences of implementing the preferred policies in terms of the objectives for management;
- To set out procedures for monitoring the effectiveness of the SMP policies;
- To inform others so that future land use and development of the shoreline can take due account of the risks and preferred SMP policies; and
- To comply with international and national nature conservation legislation and biodiversity obligations.

1.1.3 Key Principles

The following list of principles reflects the aspirations of all stakeholders. It will be used together with stakeholder objectives identified for each area of the coast and will aid policy development and identification of specific objectives. These objectives have been developed by consulting the CSG, Elected Members and key stakeholders, and are presented as aggregated objectives for each area. It is important to note that these come from the values that stakeholders place on the issues and features in each area. Some of these objectives therefore conflict with others. Because of this, the SMP will not be able to achieve all of these objectives. It should be noted that these principles have been set out in no particular order.

- To support an integrated approach to spatial planning, in particular recognising the interrelationships between:
 - Centres of development and surrounding communities;
 - Human activity and the natural and historic environment -in being essential for community identity, well being and vitality and in being highly significant for tourism and economic regeneration.
- To contribute to sustainable communities and development:
 - To maintain and support the main centres of economic activity;
 - To sustain the vitality and support adaptation, resultant from climate change and predicted sea level rise/increased erosion rates, of smaller scale settlements.
- To maintain the iconic status of the Isle of Wight.
- To minimise reliance on coastal defence and increase the resilience of communities.
- To maintain or enhance the high quality landscape.

- To support tourism and recreational opportunities.
- To avoid damage to and seek sustainable opportunities to enhance the natural environment in line with natural processes.
- To support the historic environment and cultural heritage where practicable.
- To maintain access to and from the Island.

1.1.4 Policies

The generic shoreline management policies considered are those defined by Defra; they are represented by the statements:

- **No Active Intervention (NAI):** where there is no investment in coastal defences or operations.
- **Hold the existing defence Line (HTL):** by maintaining or changing the standard of protection. This policy should cover those situations where work or operations are carried out in front of the existing defences (such as beach recharge (see the glossary), rebuilding the toe of a structure, building offshore breakwaters and so on) to improve or maintain the standard of protection provided by the existing defence line. You should include in this policy other policies that involve operations to the back of existing defences (such as building secondary floodwalls) where they form an essential part of maintaining the current coastal defence system.
- **Managed Realignment (MR):** by allowing the shoreline to move backwards or forwards, with management to control or limit movement (such as reducing erosion or building new defences on the landward side of the original defences).
- **Advance the existing defence line (ATL):** by building new defences on the seaward side of the original defences. Using this policy should be limited to those policy units where significant land reclamation is considered.

Further information to clarify these policies is provided below:

No Active Intervention

The policy of NAI has developed from two distinct sets of circumstances. In the first, the SMP has identified the need for the coast to be allowed to develop naturally. Typically, it may be that erosion of a frontage is providing sediment to other sections of the coast and therefore, it may be important that the coast is allowed to continue to erode if sustainable intervention is to be achieved elsewhere. Where this or some similar condition applies, this is discussed in the SMP. The other situation where the policy of NAI is defined may arise, is where it is unlikely that operating authorities would provide funding for defence. It may be that works have a benefit/cost ratio which is not high enough, or there may not be priority funding. Where appropriate, the SMP introduces caveats to make this distinction. The SMP has identified that privately funded works may still be permissible, however, there may be conditions associated with this such that private works do not result in negative impacts on other interests.

Hold the Line

The intent of this policy is to maintain defence protection to important assets or interests at the coast. This does not necessarily mean that the existing defences would be maintained in exactly the same form as they are at present. There may be a need to adjust the local alignment in the future or to replace, or add, structures. In this way, constructing cross shore or shore linked structures, such as groynes or breakwaters, may be the approach adopted in the future under this policy, in specific cases. The proposed policy therefore sets the intent to maintain defence of the important features in an appropriate manner. In areas where HTL has been recommended, it is possible that funding may not be

forthcoming from the Flood and Coastal Erosion Risk Management (FCERM) budget, the main source of Government funding. The SMP has highlighted this and also identified what additional opportunities and benefits may be gained from a HTL policy. HTL also allows maintenance or improvement of private defences by landowners. Caveats are made in these circumstances highlighting the need for collaborative funding to achieve the proposed management plan. It may be difficult to deliver the HTL policy if neither Government nor alternative funding can be secured.

Managed Realignment

This policy may arise from a series of different circumstances and objectives. The ethos of this policy is that management of the shoreline would be improved by either allowing for and/or creating the conditions for the coast to realign. A very obvious example of this is in moving a linear flood defence back from the active coastal zone, providing a more secure position for such a defence while the shoreline re-adjusts. Other examples are where intervention at the coast may be less onerous if the coast is allowed to retreat before intervention is undertaken. This may, for example, create the opportunity to retain a beach in front of a set back hard defence. A further example of MR is in considering how adjacent policy units function together. For example there could be a situation where in one unit there is a HTL policy and by implementing this, the coast in the adjacent unit is managed in a way to function more naturally. In summary, MR is used where there is a need for continued intervention either locally or more remotely, so as to achieve a specific outcome.

Advance the line

An ATL policy may be adopted where advancement of the shoreline would assist in creating a more robust defensive position and provide additional opportunity for increased intertidal width and/or land reclaim. Advancement of the line may not necessarily require the construction of structures seaward of the existing shoreline. Examples include the construction of tidal barriers or outer harbour walls where this provides a more sustainable solution based on the objectives and core values of a given community or settlement. Alternatively, advancing the line can be used in order to introduce variation into the plan shape of a coastal frontage and encourage the accumulation of sediment and promote sustainable management of the intertidal width.

This defines the level of detail required by the SMP. However, in developing these generic policies there is also a basic requirement to state the intent of the policy, such that it is the intent, not the definitions given above, that drive future management.

1.2 Structure of the SMP

The preferred plan and policies presented in this SMP are the result of collating and interpreting information from all the available studies and assessments of how the coast behaves physically. There is, therefore, a need to draw these threads together to provide clarity for different readerships. To this end, the documentation to communicate and support the plan is provided in a number of parts. At the broadest level these are divided into two; the SMP itself, and a series of supporting appendices. In addition, key contributing information is collated in a geographical information system (GIS) and database allowing information to be taken forward in implementing the plan for future users.

1.2.1 SMP Report Structure

This document provides a plan for the future and the policies required for this plan to be implemented. This is intended for general readership and is the main tool for communicating the intention of future management. Whilst the justification for decisions is

presented, it does not provide all of the information behind the recommendations, this being contained in other documents. The plan is presented in seven parts:

- Chapter 1 *Introduction:* Gives details on the principles, aims, structure and background to the development of the Shoreline Management Plan. This chapter includes definitions of the four choices of management policies that can be applied to the shoreline.
- Chapter 2 *Environmental assessment:* Provides details of how the SMP meets the requirements of an Habitats Regulations Assessment (HRA) and Strategic Environmental Assessment (SEA).
- Chapter 3 *Basis for development of the Plan:* Provides a broad overview of the Isle of Wight coast, describing the concepts of seeking sustainable policies and an understanding of the constraints and limitations on adopting certain policies.
- Chapter 4 ***Policy development and the preferred Plan:*** This chapter contains the core of the SMP –the policies for each Policy Unit. It is important to understand the thought process of developing the SMP policies, not just the actual policies themselves. This chapter, therefore, is a key component of the SMP2 and leads the reader through the process of understanding why the decisions have been made.

The chapter starts with a discussion of the key risks the Isle of Wight coast faces in the future, followed by the definition of large segments of the coast, each with its own character (called Policy Development Zones; PDZs). The Isle of Wight coast is divided into seven PDZs, so Chapter 4 is then divided into seven sections.

- Cowes and the Medina Estuary (PDZ1)
- Ryde and the North-east Coastline (PDZ2)
- Bembridge and Sandown Bay (PDZ3)
- Ventnor and the Undercliff (PDZ4)
- South-west Coastline (PDZ5)
- West Wight (PDZ6)
- North-west Coastline (PDZ7)

Within each of the seven sections the coast is described and the potential future behaviour of the coast is explained in two ways:

- A) if no further coastal defence work was undertaken (the NAI or 'No Active Intervention' scenario);
- B) if present coastal management practices are continued into the future (the WPM or continuing 'With Present Management' scenario).

These are defined as the two 'baseline scenarios' in this SMP. These two predictions provide an understanding of what will be at risk if natural change is allowed to occur, or where our previous approach to management may become unsustainable in the future. It allows an assessment to be made of whether, under each scenario, the important uses and characteristics of the coast are retained or lost. This reveals where efforts are required to reduce the risks of coastal flooding and erosion in the future.

From this assessment, the preferred Plan is developed. To achieve this Plan, individual policies for sections of the coast are derived (Policy Units; PU). The Policy Units are grouped together into Management Areas (MA). Within a Management Area, the policy units have a basic interdependency. Together, the policies deliver co-ordinated management for the whole of the Management Area.

Within each of the seven sections (PDZ), the final part of the section is a series of **Management Area Statements**. These summarise how each area will be managed in the future and present the specific Policies for each Policy Unit within the area. The necessary actions over different time scales and the impacts of the preferred policies are summarised. Starting from an initial seven PDZs, the Isle of Wight coast is divided into sixty one Policy Units which are grouped into fifteen Management Areas.

Chapter 5 *Policy summary of preferred Plan and implications*: Provides a brief summary of the policies specified in Chapter 4 above, and brings together the overall plan, highlighting important issues in relation to the future management of the coast. It is appreciated that many readers will focus upon the local conclusions of the SMP. However, it is important to recognise that the SMP is produced for the coast as a whole, considering issues beyond specific locations. Therefore, this summary should be read in the context of the wider-scale issues and implications reported in Chapter 4 and supported by information in the Appendices.

Chapter 6 *Action Plan*: Following consultation on the draft plan, an Action Plan is completed, providing a programme of future activities which are required to progress the SMP between now and its next review in 5 to 10 years time, and in the longer term.

1.2.2 The Supporting Appendices

The accompanying documents provide all of the information required to develop and support the SMP policies. This is to ensure that there is clarity in the decision-making process and that the rationale behind the policies being promoted is both transparent and auditable. This information is largely of a technical nature and is provided in eleven Appendices:

- A. *SMP Development*: This reports the history of development of the SMP, describing more fully the plan and policy decision-making process.
- B. *Stakeholder Engagement*: Details of the stakeholder involvement process are provided here, together with information arising from the consultation process.
- C. *Baseline Process Understanding*: Includes reports on coastal processes, the current condition of the coastal defences, and the future coastal flooding and erosion risks (NAI and WPM scenarios).
- D. *Natural and Built Environment Baseline (Thematic Review)*: This report identifies the human, natural, historical and landscape features around the coast in terms of their significance and how these need to be recognised by the SMP.
- E. *Issues and Objectives Evaluation*: Identifies a series of issues and objectives for each section of the Isle of Wight coast, used as part of the Plan development.

- F. *Strategic Environmental Assessment*: Provides a systematic appraisal of the potential environmental consequences of the high-level decision-making of the SMP.
- G. *Scenario Testing*: This table assesses whether a policy of 'No Active Intervention' and also the 'Preferred Plan' achieve the objectives set for each length of coast.
- H. *Economic Appraisal*: Presents the economic analysis undertaken in support of the Preferred Plan.
- I. *Habitat Regulations Assessment – Appropriate Assessment (AA)*: Sets out the information for an AA of the SMP.
- J. *Water Framework Directive (WFD)*: Presents the WFD assessment with respect to the SMP policies.
- K. *Reference list & bibliographic database*: Presents the sources of data used in the development of the SMP.
- L. Information to the Secretary of State according to Regulations 49(5) and 51(2) of the Habitats Regulations.
- M. Statement of Environmental Particulars.

1.2.3 GIS and Database

The SMP2 provides a future management framework. It is accepted that our understanding of the coast can be improved, addressing the many areas of uncertainty that we are presently confronted with. There will also be changing circumstances not only as the coast evolves but as our use of the coast changes. During the development of the SMP, information such as the condition of defences, heritage information and erosion rates has been recorded.

This supplementary information is summarised in the SMP and recorded in a GIS and database provided to the operating authorities. This information is recorded in association with the actual plan so that, as new information emerges, this may be used to update the management system. The intent is two-fold. First, that information is recorded and may be compared with our existing knowledge such that better informed coastal management decisions can be made. Second, when the review for SMP3 is commissioned, the information is readily available for this process.

One important feature of this information is in the responses and issues which were raised during the stages of the consultation process. This data is recorded and contributes to the issues, features and objectives appendix (supporting appendix E) used for developing and appraising policy and in developing the final plan. Management of this information will help those managing the coast in the future to identify issues at a local scale, ensuring that views can be readily identified during the actual implementation of the Plan. The degree of effort all consulted have put in to developing the Plan is fully appreciated. The storage of issues information should help ensure that people's concerns are recognised in the future.

1.3 The Plan Development Process

1.3.1 The Need for Revision

The original SMP1 for the Isle of Wight (sub-cells 5d+e) was completed in 1997. It has always been recognised that part of the SMP process is that plans should be reviewed on a regular basis and re-considered in line with changes in legislation and guidance. In this first

revision, therefore, the development of the Plan has been able to draw upon and has had to take account of:

- Latest studies and modelling undertaken since the last SMP such as that provided by Futurecoast and the SCOPAC Sediment Transport Study (2004);
- Issues identified by most recent defence planning (i.e. the several draft and published coastal defence strategy plans which have now been produced to cover most of the Isle of Wight coastline –listed below);
- Changes in legislation (e.g. the EU Directives, guidance with respect to the Water Framework Directive (WFD), PPS25);
- Changes in national flood and coastal defence planning requirements (e.g. the need to consider 100 year timescales in future planning, modifications to economic evaluation criteria etc.);
- Improved information from strategic flood risk assessments; and
- The emerging thinking on Integrated Coastal Zone Management.

Recent Strategies, produced following the production of SMP1, have been as follows:

- North East Coastal Defence Strategy, led by Isle of Wight Council (completed in 2004);
- Eastern Yar Flood and Erosion Risk Management Strategy, led by Environment Agency (completed in 2010);
- West Wight Coastal Defence Strategy (in progress, scheduled for review and completion in the SMP Action Plan following completion of the SMP -action 0.18);
- Sandown & Undercliff Coastal Defence Strategy (in progress, scheduled for review and completion in the SMP Action Plan following completion of the SMP -action 0.19).

The period between the development of SMP1 and SMP2 has, therefore, been one of quite rapid change. With the manner in which the SMP2 has now been organised and the further understanding that has been developed, shoreline management has to be seen as an ongoing process providing a platform for more local decision making. It is anticipated that subsequent reviews may be undertaken in 10 years time. This timescale would ultimately be driven by the scale of change on the coast itself.

1.3.2 Review and Development Procedure

The development of the SMP has been led by a steering group (called the Client Steering Group or CSG) which for this sub-cell comprises representatives from the two operating authorities (voting members) with associate partners and several key stakeholders (non-voting members). The operating authorities are the Isle of Wight Council-Coastal Management (Lead Authority) and the Environment Agency. The associate partners include Natural England and English Heritage. Due to the unique nature of the IW SMP with a limited number of Operating Authorities covering a wide area, several key stakeholders were also included as part of the CSG to ensure the information used in the development of the plan was accurate and to provide regular stakeholder input. These include: National Trust (significant landowner); Isle of Wight Council Planning Policy, Ecology and the IW Archaeological Centre; and also the Isle of Wight Estuaries Officer (a partnership including Cowes Harbour Commissioners and Yarmouth Harbour Commissioners). Together with the appointed Consultants, Royal Haskoning, the CSG have managed the necessary stages of the SMP2 process to produce this management plan.

The SMP development process has sought involvement from over 270 organisations or individuals including elected representatives, with principal periods of consultation being conducted during the in October 2008 and March 2010, with a three-month period of consultation on the full Draft Plan in July to October 2010. In addition, key stakeholders have also been involved through the CSG throughout the Plan development process.

The main activities in producing the SMP have been:

- Analysis of coastal processes, coastal defences and coastal evolution for baseline cases of not defending and continuing to defend as at present;
- Thematic reviews, reporting upon human, historic and natural environmental features and issues, evaluating these to determine relative values of the coast;
- Development and analysis of issues and objectives for various locations, assets and themes;
- Agreement of objectives with the CSG and stakeholders, and from this determining possible policy scenarios;
- Development of policy scenarios which consider different approaches to future shoreline management;
- Examination of the coastal evolution in response to these scenarios and assessment of the implications for the human, historic and natural environment; and
- Determination of the preferred plan and policies through review with the CSG, prior to compiling the SMP draft document.

This was followed by:

- Consultation on the proposed plan and policies;
- Consideration of responses and finalising the SMP; and
- Dissemination of the findings and policy contained within the Plan
- The finalisation of the action plan, to include Strategy Studies.