



West of Wales Shoreline Management Plan 2

Section 4. Coastal Area A

November 2011

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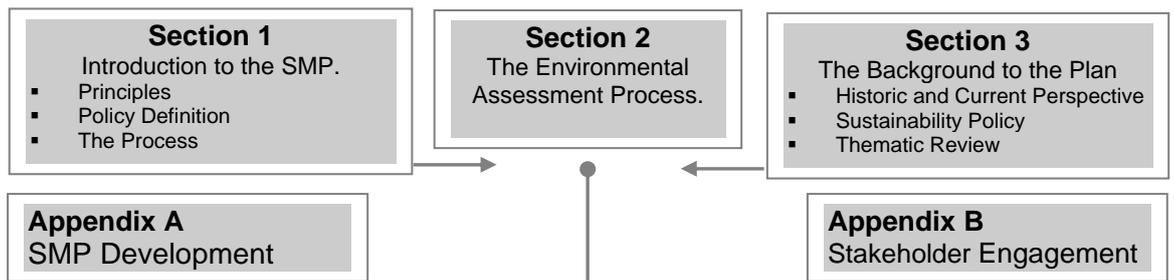
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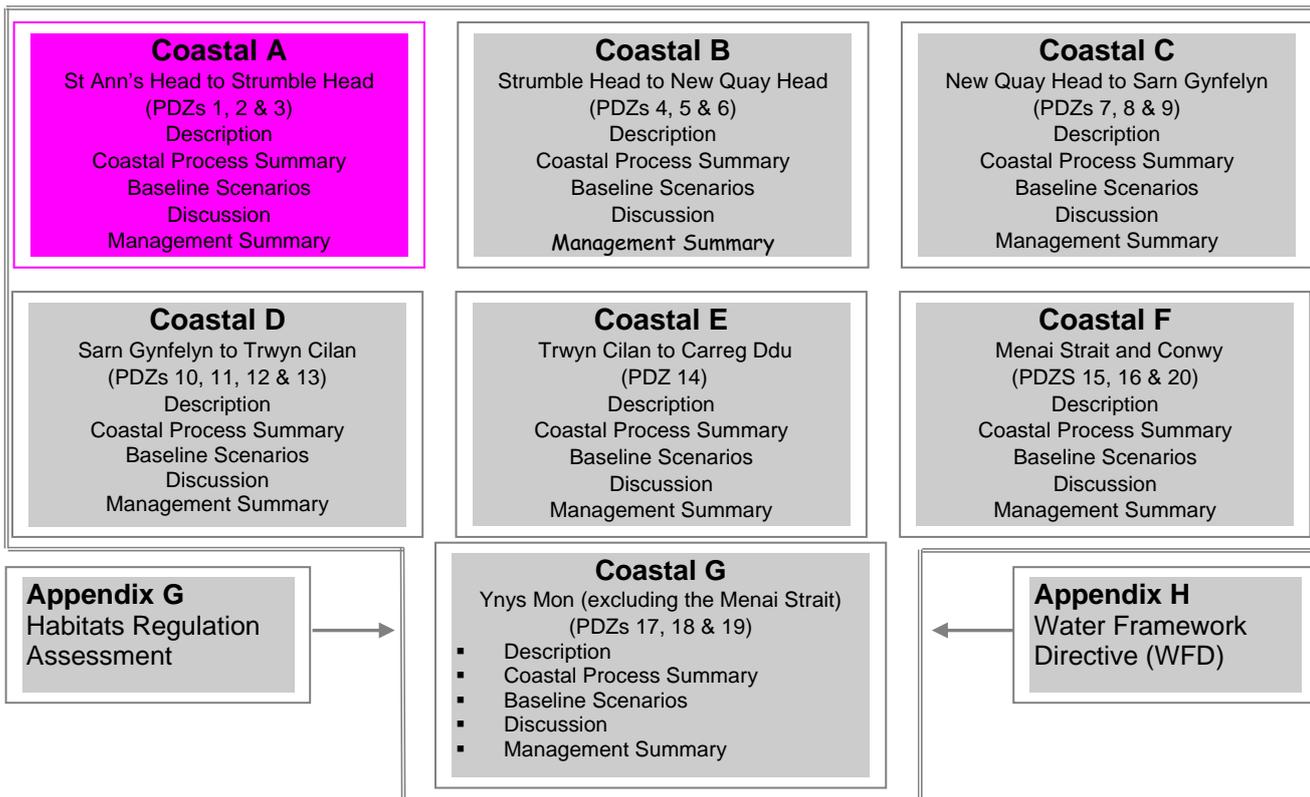
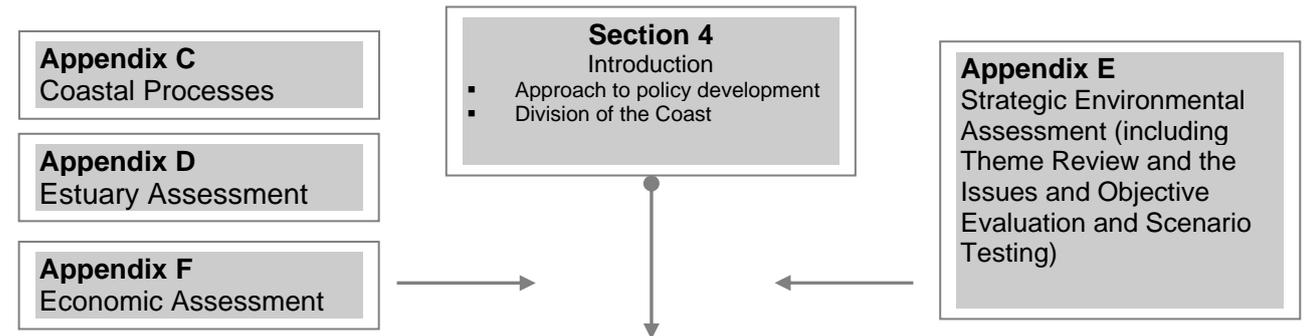
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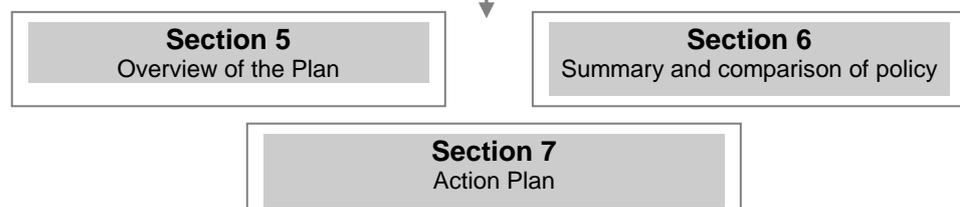
INTRODUCTION AND PROCESS



PLAN AND POLICY DEVELOPMENT



OVERVIEW



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4A.1 GENERAL DESCRIPTION

1.1 Character

(Further detail for the area is covered in Appendix E with individual features of the coast identified in the features and issues tables.)

The area is dominated by its physical structure, with the high, resistant rock headlands of; St Ann's Head; The Marloes/St Brides peninsular running out towards Skomer Island; the St David's peninsula, with Ramsey Island separated by the deep channel of Ramsey Sound; and the rugged rock coastline through to Strumble Head.



Geology and Geomorphology of West Pembrokeshire.

The whole area is exposed to the Atlantic swell with the deeply indented St Bride's bay carved into the softer shales and sandstones lying within the core of a major downfold or syncline. At a more local scale, the coast is formed as a series of smaller bays and drowned river valleys, cutting through or formed between harder sandstone headlands, with major outcrops of igneous intrusions and extrusion. The underlying character of the whole area may be expressed by the statement by Owen (1973) that Pembrokeshire is a "geologist's paradise" or that by Steers (1981) that "no part of the coastline of England and Wales is more beautiful or more interesting than that of Pembrokeshire"¹.

¹ The Coast of Dyfed and South West Glamorgan, An environmental Appraisal: J. Smith et al, Filed Studies Council Research Centre (1995)

The whole area, including the three major islands of Skokholm, Skomer and Ramsey, and the more numerous smaller islands, all lies within the Pembrokeshire National Park. With the exception of Broad Haven and Newgale, the whole area is also designated as Heritage Coast. Much of the Marine area is designated as SAC, as are large sections of the cliff line, together with the SPA designation of all the main islands and much of the coastline around St David's Headland. The area around Skomer is designated as a Marine Nature Reserve (MNR).

Man has a long association with the coast and shoreline, as demonstrated by the many and varied heritage features identified; from the numerous prehistoric forts on many of the headlands or the Huts and Cairns on Skomer, through to more modern features such as the Lime Kilns, the colliery at Trefane, the slate quarry at Abereiddy and the associated industrial port at Porth-gain. This assemblage of features defines the area as generally having a diverse and important historic landscape, which is expressed more formally in the designation of the areas of St Ann's Head, St David and Strumble Head as Historic Landscape Areas.

This overall environmental and historical importance of the area is equally demonstrated by extensive lengths and areas of coastline owned and managed by the National Trust.

The majority of the coastal area is given over to agricultural use, with small businesses associated with the local towns and villages. St David's is the major settlement of the area, although the associated economic hub for the coastal area is further inland at Haverfordwest. The coastal settlements, therefore, provide important satellite residential areas to the main developed part of Pembrokeshire, whilst also being important communities in their own right. The coast and its local settlements also provide an important recreational resource to the inland and industrial area of Pembrokeshire. They are also, along with the natural and historic value, an important aspect of the very significant tourist industry of the region. The village of Little Haven has a high proportion of second homes reflecting the importance of the area for tourism and attracting value from outside the area.

This tourism and recreational value comes most obviously from the natural landscape but also the car parks, beaches, launching facilities which support traditional family beach use and the significant water sports of surfing, diving and boat use. The seaside activities are mainly focused along the more open beach frontages of St Brides Bay, but also with popular beaches at Whitesands Bay and Abereiddy. Solva provides a sheltered and important mooring area, with other moorings at Porth Clais, Porth-gain and Abercastle, while there are several boat launch sites, such as Little Haven, Broad Haven and Whitesands Bay. There are ferry services to the islands from Martin's Haven to Skomer, and St Justinian's to Ramsey. There is also an RNLI Lifeboat station at St Justinian's.

There is a locally important coastal road (The Welsh Road) running close to or in some places, which is located to the back of the shoreline between Broad Haven and Newgale. This road links the villages of Little Haven, Broad Haven, Haroldston, Nolton Haven and New Gale. The main A487 joins the coast at Newgale and continues through Solva as one of the principal road links to St David's. Other access roads to various communities come from inland, running towards the coast.

1.2 Physical Process Overview

(Further detail on coastal processes and geomorphology is provided in Appendix C).

Processes

EXPOSURE

Water levels: Significant variation between Milford Haven and Fishguard with tidal ranges of 6.3m and 4m respectively. High water levels at Solva and Little Haven would suggest extremes relate more to Fishguard; however the tidal range would suggest values closer to those given for Milford Haven.

Location	Tide m. AOD				Extreme Levels (return period) m AOD			
	MLWS	MLWN	MHWN	MHWS	10 yr	50 yr	100 yr	200 yr
Fishguard	-1.64	-0.44	0.96	2.36	3.21	3.38	3.49	3.56
Solva	-2.40	-0.80	1.10	2.40				
Little Haven	-2.55	-0.95	1.15	2.65				
Milford Haven	-3.01	-1.21	1.49	3.29	4.31	4.44	4.56	4.64

Waves: Dominated by swell from SW to W, the southern headland of St Brides Bay provides shelter to the southern part of the bay. The northern headland (St. David's) provides shelter to the coast to the north. The islands and local headlands provide shelter to local bays.

GEOMORPHOLOGY: Dominated by hard rock coastline, with St Brides Bay cut back in softer geology, although the back shore of the bay is held by the harder, higher cliffs at Haroldston and Rickets Head (Nolton) in the centre of the bay. The bay curves to reflect the change in wave energy between the north and the south. The smaller bays reflect the dominant wave climate with little curvature. The exposed geologically constrained shoreline provides little opportunity for dune development apart from Whitesands Bay.

Drift: Generally swash aligned with little evidence of substantial net drift. Particularly within the smaller bays local wave direction can result in movement of sediment.

Erosion/
Accretion: Generally very low erosion over much of the hard rock frontages. Locally, there is continuing and higher erosion at the back of bays, with the potential for roll back of shingle ridges in response to Sea Level Rise. Local areas of cliff instability.

LONG TERM EVOLUTION:
(unconstrained) Continued very slow erosion of the hard rock shoreline. Local erosion of softer cliffs within bays, typically within the order of 50m over the next 100 years.
Roll back of sand and shingle banks in response to Sea Level Rise (SLR) in areas such as Broad Haven, Newgale, Whitesands Bay and Abereiddy; typically some 20m to 50m with 1m SLR.
Continuing landslip and cliff crest recession in local areas, most notably with Marloes Sands Bay, the Haroldston to Nolton frontage and to areas south of Strumble Head.

FLOOD RISK Key areas of increasing flood risk are to Little Haven, Broad Haven, Newgale and Solva. Increasing Sea Level Rise potentially opens large areas to increased risk to the Newgale valley and more locally at Solva.

1.3 Present Management and Key Issues and Objectives

Existing management practice

The following table sets out SMP1 policy (developed over 50 year period), how the coast has been subdivide into management units and where relevant where more recent decisions have been made, or discussion is ongoing with respect to individual areas.

SMP1				Subsequent Management Approach
No.	Unit	Policy	Ch.	
North Pembrokeshire. (Note policy was developed for short term and long term over the 50 year period.)				
17SAH/A	Annes Head to Great Castle Head	DN/DN		
17MAR	Great Castle Head to Gateholm Stack	DN/DN		
17MH/B	Gateholm Stack to Wooltack Point	DN/DN		
17ISL	Skomer and Skokholm Islands	DN/DN		
18STB/MH	Wooltack Point to Little Haven	DN/DN		
18LH /A	Little Haven	HLT/HTL		
18LH/B	Little Haven (undefended)	DN/DN		
18BRH/A/B/C	Broad Haven	HTL/HTL		Minor improvement to defences
18BRH/D	The Settlands	DN/deferred		
18NT/B	Broad Haven to Nolton Haven	DN/DN		
18NT/A	Nolton Haven	HTL/HTL		
18NG/C	Nolton Haven to Newgale Sands	DN/DN		
18NG/B	Newgale Sands	HTL/deferred		Response management to shingle overwash.
18NG/A	Newgale Sands to Cwm Bach	DN/DN		
18SOL/B	Cwm Bach to Solva	DN/DN		
18SOL/A	Solva	HLT/HTL		
18PCL/B	Solva to Porth Clais	DN/DN		
18PCL/A	Porth Clais	SHTL/SHTL		
18STJ/B	Porth Clais to Ynys Bery(Ramsey)	DN/DN		
19 STJ	Ynys Bery to Whitesands Bay	DN/DN		
19WSB/A	Whitesands Bay	SHTL/R		
19RAM	Ramsay and Grassholm Islands	DN/DN		
19ACY/B	Whitesands Bay to St. Davids Head	DN/DN		
20ACY/B	St.Davids Head to Aber-pwll	DN/DN		
20AEY/B	Aber-pwll to Abereiddi	DN/DN		
20AEY/A	Abereiddi	HTL/R		Current discussion on potential realignment
20PGN/B	Abereiddi to Porth Gain	DN/DN		
20PGN/A	PorthGain	HTL/HTL		
20TRF/B	Port Gain to Aberdraw	DN/DN		
20TRF/A	Aberdraw	DN/DN		
20ACS/B	Aberdraw to Abercastle	DN/DN		
20ACS/A	Abercastle	DN/HTL		
20MTY/C	Abercastle to Aber Mawr	DN/DN		
20MTY/B	Aber Mawr to Aber Bach	DN/DN		
20MTY/A	Aber Bach to Trwyn Liwyd	DN/DN		
20FH/D	Trwyn Liwyd to Strumble Head	DN/DN		
21FH/D	Strumble Head to Fishguard Harbour	DN/DN		

Key: DN – do nothing, HTL – Hold The Line, SHTL – Selectively Hold The Line, R – Retreat, deferred – policy deferred subject to further monitoring or study.

Under SMP1 policy and as a result of subsequent study, much of this area of the coast remains undefended. Defence is provided to local areas where there are existing settlements.

Key Management issues

Only locally are there significant pressures on the coast due to interaction with defences. The natural defence at Newgale is overtopped quite regularly and under severe conditions this has caused significant flooding and disruption to the main road. Cliff instability threatens the local coastal road in places and there are flood issues potentially affecting the road network.

With increased sea level many of the transport issues will increase, most particularly at Newgale, but also at Little Haven, Broad Haven and Solva. As sea level rises there would be substantially greater pressure for the coast to roll back with disruption to natural defences at Newgale and the potential for increased loss of beaches where man made defences are in place. Increased risk of flooding would also occur at Little Haven, Broad Haven and Solva, but also to many of the other smaller communities.

Although over much of the area Sea Level Rise would not substantially increase erosion of the hard rock cliffs, there is continuing risk to many of the headland archaeological sites, impacting both specifically on heritage features and more generally on the historic landscape.

Increasing the level or extent of defences could impact significantly on the nature conservation values, in particular on the important geological features of the area.

The main management issues are quite specific and local, although potentially having a broader impact beyond the coastal area. These issues are summarised as:

- The significant risk to the road network.
- The potential loss of beaches due to coastal squeeze and the general impact on nature conservation values.
- Local but significant issues of increased flooding and erosion.
- Impact on and access to water based activities such as boat use and diving.
- Potential loss of or significant impact on communities.

The general character and values of the area, with respect to shoreline management, can be brought together in the following statement.

Underpinning the whole area is its important natural and historic landscape, nature conservation and geology. In addition to its inherent value, this provides the context of support for regionally important tourism and the high recreational value of the area. This in turn adds important value to and sustains local communities. Important infrastructure such as coastal access, the access to the islands and the road network is essential in supporting use and values of the area. Within the regionally important values, the aim must be to support local communities in adapting to increased flood and coastal erosion risk.

Because many of the issues are at a local scale and because there is little overall interaction in terms of coastal processes along the shoreline the area may be further subdivided into three Policy Development Zones (PDZs) within which these local issues may be considered in more detail. Three PDZs are identified as set out below.

- PDZ1** **Marloes and St Brides Peninsula:**
St Ann's Head to Borough Head, including the Islands of Skokholi
Skomer.
Chainage: 0km to 28km
- PDZ2** **St Brides Bay:**
Borough Head to Dinas Fach
Chainage: 28km to 47km.
- PDZ3** **St David's to Strumble Head**
Dinas Fach to Pen Anglas, including Ramsey Island
Chainage: 47km to 137km.

Overarching objectives are defined based on the overall principles upon which the SMP is developed and drawing together the various specific detailed objectives set out in the features and issues table contained within Appendix ***. These overarching objectives aim to guide the assessment of different management scenarios and the development of individual SMP policies.

Overall Objectives

Principles	Objectives	Relevant to
To contribute to sustainable communities and development.	<ul style="list-style-type: none"> Reduce risk to life. Protect properties from flood and erosion loss. 	All All
To minimise reliance on defence and increase resilience of communities.	<ul style="list-style-type: none"> Minimise the need for increasing effort and management of coastal defences. Avoid reliance on defence, particularly where there is a risk of catastrophic failure. 	PDZ2 & 3 PDZ2 & 3
To support an integrated approach to spatial planning, in particular recognising the interrelationships between:		
- centres of development and surrounding communities.	<ul style="list-style-type: none"> Maintain access to villages along St Brides Bay and connectivity with Haverfordwest. Maintain main residential centres. 	PDZ2 PDZ2
- human activity and the natural and historic environment: this being essential for community identity, well being and vitality and in being highly significant for tourism and economic regeneration.	<ul style="list-style-type: none"> Maintain recreational use of beaches. Maintain access to the coast including car parking and facilities. Maintain access for boat use and associated diving activity. Maintain access to the Islands. 	PDZ2 & 3 All All PDZ1 & 3
To maintain and support the main centres of economic activity.	Not applicable to this area.	
To sustain the vitality and support adaptation of smaller scale settlements.	<ul style="list-style-type: none"> Maintain character and integrity of coastal communities. 	All
To support the cultural heritage and the use of the Welsh language.	<ul style="list-style-type: none"> Identify risk and reduce risk of loss of heritage features where possible. Maintain historic landscape. Prevent disturbance or deterioration to historic sites and their setting. 	All All All
To avoid damage to and seek opportunity to enhance the natural environment.	<ul style="list-style-type: none"> Maintain or enhance the condition or integrity of the international (SAC, SPA) designated sites and interest features within the context of a dynamic coastal system. Maintain or enhance the condition or integrity of the national (SSSI) designated sites and interest features within the context of a dynamic coastal system. Maintain and enhance educational and scientific understanding of geology and geomorphology. 	All All All
To maintain or enhance the high quality landscape.	<ul style="list-style-type: none"> Avoid damage to and enhance the natural landscape. Maintain the human landscape and character of communities. 	All All
To sustain sustainable accessibility in terms of maintaining national and regional connectivity.	<ul style="list-style-type: none"> Maintain access to St David's. 	PDZ2 & 3

Note: All objectives would be assessed in each management scenario, not all objectives will necessarily be met