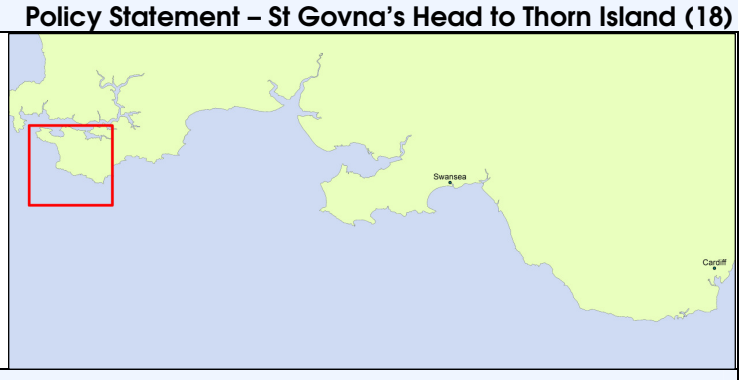
St Govan's Head to Thorn Island (18)



Recommendations:

Long Term Plan

This frontage comprises limestone cliffs to the south and sandstone cliffs to the north, separated by the bays of Frainslake Sands and Freshwater West. The Castlemartin MoD training area covers 2,390 hectares, extending between St Govan's Head and Frainslake Sands and is used for realistic training, especially for various types of live firing. Military ownership and management has prevented other land use, preserved the natural landscape and is partially responsible for the high conservation value of this area.

The bays are characterised by wide sand and shingle beaches backed by the dune systems of Linney Burrows and Brownslade Burrows at Frainslake Sands and Broomhill Burrows at Freshwater West. The plan is to allow the coast to evolve naturally, thereby conserving its natural ecological, geological and landscape value.

There are limited assets at risk along this undeveloped shoreline, with the main exception being West Angle Bay, where there are localised defences. These defences are not thought to be having an impact on the wider shoreline, therefore it would not be considered contrary to this plan to allow maintenance of the existing defences, subject to the availability of funding. Public coastal erosion and flood risk management funding is unlikely to be available due to the limited value of socio-economic assets at risk.

Location (Policy Unit)		Preferred SMP2 policy and proposed approach to implementing the Plan		
		0-20 years	20-50 years	50-100 years
18.1	St Govan's Head to Frainslake Sands	Allow the shoreline to naturally evolve and retreat along this frontage through **no active intervention**, to maintain natural landscape and environmental value.		
18.2	Frainslake Sands and Freshwater West	**Managed realignment** to enable the dune system to function naturally with minimal interference, whilst allowing localised dune management as required. A decision would also need to be made regarding the future of the local B4319 access road, which may become unsustainable or detrimental to the natural dune evolution over time.		
18.3	Freshwater West to Thorn Island	This is a largely undeveloped coast, of significant environmental and landscape value, therefore the policy for the majority of this coastline is to allow the coast to evolve and retreat naturally through **no active intervention**. Within West Angle Bay, there is a stretch of isolated defences, which reduce the risk of coastal erosion and flooding to a car park, cafe and caravan park. Continued maintenance or upgrading of these defences would be unlikely to attract public coastal erosion and flood risk management funding due to the limited socio-economic value of assets at risk, Alternative funding sources could be used to either continue to maintain existing defences or to relocate assets inshore. Any change to the existing defences, would however, be subject to obtaining the necessary consents, licences and approvals.		

A review of the impacts of the preferred SMP2 policies on coastal evolution and behaviour is provided in Appendix E: Policy Development and Appraisal, Section E1.3.

Policy sensitivities and key uncertainties (further detail is included in Appendix K)

Policy unit 18.2 - Although it is unlikely that the policy would change, improved monitoring would improve our understanding of dune systems and their future response to climate change.

Changes from present management / SMP1 policy[1]

There is no change in policy from SMP1 policy or current management practices, apart from at West Angle Bay, where future defence provision would depend upon availability of alternative funds.

[1] The SMP1 documents should be referred to for more details as unit boundaries do not always align with SMP2 policy units and the policies refer to different time periods.

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Issue	**Appraisal**
Receptor: Property, population and human health This frontage is generally undeveloped, although there are a number of isolated properties. The Castlemartin MoD training area covers much of the eastern half of this coast.	
Will SMP policy maintain coastal settlements and manage the impact of coastal flood and erosion?	x Limited assets at risk due to the undeveloped nature of the shoreline.
Will SMP policy directly increase the actual or potential coastal erosion or flood risk to communities?	− Along the majority of this shoreline there are currently no defences and limited isolated properties at risk.
Is SMP policy sufficiently flexible to take account of dynamic coastal change?	+ The SMP policy recognises dynamic coastal change, with policies of no active intervention along much of the cliffed shoreline. At Frainslake Sands and Freshwater West the dunes would be allowed to develop naturally through a policy of managed realignment.
Could there be a detrimental impact on the fabric of coastal communities?	x Along most of this shoreline, there will be no impact on coastal communities due to the typically undeveloped nature of the shoreline. − The loss of defences at West Angle Bay is only likely to directly impact on non-residential properties and assets (car park, café and caravan park).
Receptor: Land use, infrastructure and material assets There is limited infrastructure located along this largely undeveloped coastline. Castlemartin MoD training area (direct fire AFV live gunnery range) is situated on the cliffs, with the danger area extending from immediately west of Broad Haven to Gupton Burrows between Frainslake Sands and Freshwater West. There is a car park, café and caravan park, at West Angle Bay.	
Will SMP policy maintain key industrial, commercial and economic assets and manage the impact of coastal flooding and erosion?	− There will be an increased risk of coastal erosion and flooding to limited assets at West Angle Bay (car park, café and caravan park).
Will the SMP policy ensure critical services and infrastructure remain operational, for as long as required?	x There is no major infrastructure along this section of coast. − Following failure of defences there would be an increased risk of flooding and erosion to the amenity facilities at West Angle Bay. Many of these assets will, however, be lost at the same time as the properties they serve. + Little risk to minor roads.
Will there be an impact on marine operations and activities?	x There are no large scale marine operations along this frontage.
Will SMP policy impact coastal flooding or erosion on agricultural activities?	− Risk of loss of small areas of cliff top agricultural land, although this would be dependent on future rates of coastal erosion, which are typically slow. Areas lost are not anticipated to be significant over the SMP2 period.
Will the SMP policy ensure that MoD (Qinetiq) ranges remain operational?	− There is risk of loss of small areas of cliff top land from the Castlemartin MoD training area (direct fire AFV live gunnery range), as the cliffs erode, with risk dependent on future rates of coastal erosion and localised cliff falls. However, this would not be expected to lead to any loss of functionality of the site as the key assets are unlikely to be affected.
Receptor: Amenity and recreational use There is a caravan park, car park and amenity facilities at West Angle Bay. The entire area is a popular tourist destination with tourist access to the coast at a number of locations, including to sites of interest such as St Govan's Chapel and the Green Bridge of Wales which are accessed through the firing range. The coastline is within the Pembrokeshire Coast National Park which attracts many people to enjoy the scenery and outdoor activities. The Pembrokeshire Coast Path follows much of the length of the coastline, detouring inland around the main firing area.	
Could the SMP policy have an impact on tourism in the area?	− Failure of defences at West Angle Bay, and their ongoing deterioration would have a negative visual impact, as well as the potential loss of assets. This could affect the tourist value of the coastline. + Undeveloped stretches of coastline will be allowed to remain undisturbed, thereby maintaining the natural landscape, which is provides the main tourist interest.
Will SMP policy affect coastal access along, or to, the coast?	− There is a small risk to the coastal footpath, due to cliff erosion or localised cliff falls. This risk is expected to increase over time. There is potential for the footpath to be relocated or realigned slightly inshore, if there is sufficient notice.
Receptor: Historic environment Historic assets include nationally important prehistoric occupation sites within caves. There are also Coastal Iron Age promontory forts such as West Pickard Camp and Promontory Fort, Sheep Island, and extensive nationally important military defences including East Blockhouse and East Blockhouse battery, all of which are Scheduled Monuments. There are also a number of wrecks on the foreshore and in the intertidal zone.	
Will SMP policy maintain the fabric and setting of key historic listed buildings, cultural heritage assets and conservation areas?	− There is a risk of erosion of cliff top Scheduled Monuments, although the risk is considered minimal and is dependent on future rates of coastal erosion. Since these are located on undeveloped frontages, the recommended policy is to allow continued natural erosion. − There is a risk of erosion or submergence of prehistoric assets located in caves, and wrecks situated on the foreshore and in the intertidal zone. The level of risk is dependent on erosion rates and rates of sea level rise.
Will the SMP provide sustainable protection of archaeological and palaeo-environmental features or ensure adequate time for monitoring, assessment and mitigation measures to be devised in response to ongoing	● As the foreshore is currently undefended, there is no intent to provide new defences, as this would not be economically justified and is considered unsustainable. However, rates of erosion tend to be low

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and future erosion.	which should allow time for monitoring, assessment and mitigation measures to be devised and implemented, as appropriate.
Receptor: Landscape character and visual amenity The shoreline is within the Pembrokeshire Coast National Park, noted for its spectacular landscape of rugged cliffs, sandy beaches, wooded estuaries and wild inland hills.	
Will SMP policy maintain a range of key natural, cultural and social features critical to the integrity of the coastal landscape?	● For much of this shoreline there is no proposed change from existing policy, therefore minimal change to the landscape, particularly in the short term. This will allow the undeveloped areas of coastline to continue developing naturally and maintain their beauty. − A policy of no active intervention at West Angle Bay may adversely affect the visual landscape locally, as defences deteriorate and fail. The only requirement to remove the remains of defences would be if they represented a health and safety risk.
Could SMP policy lead to the introduction of features which could be unsympathetic to the character of the landscape?	+ There is no intent to provide any additional defences.
Receptor: Biodiversity, flora and fauna There are a range of designated sites: Pembrokeshire Marine Special Area of Conservation (SAC) covers the length of the coastline; from St Govan's Head to Gravel Bay, the coastline is designated as part of the Limestone Coast of South West Wales SAC; Castlemartin Coast SPA extends westwards from St Govan's Head as far as Gravel Bay; Castlemartin Cliffs and Dunes SSSI covers the coastline between St Govan's Head and Gupton Burrows; Broomhill Burrows SSSI; and Angle Peninsula SSSI covers the coast from Gravel Bay to Thorn Island.	
Will SMP policy enable a sustainable approach to habitat management?	+ There are no new defences proposed in currently undefended areas, therefore this is considered a sustainable approach to natural evolution of the coastline and its habitats.
Will SMP policy maintain or enhance any international, national or local sites of natural conservation interest?	● There could be natural loss of cliff top and cliff face habitats, designated as part of many of the designated sites, but the low rates of coastal erosion mean that losses are likely to be small. Newly exposed cliff faces could be colonised by interesting new species. Although the cliffs provide bird breeding habitat, ongoing erosion could maintain this through exposure of new cliff faces. ● As sea level rises, there would be natural intertidal narrowing, leading to submergence and loss of habitat, particularly where resistant cliffs prevent retreat. ● Linney, Brownslade and Broomhill Burrows dune systems are likely to maintain their overall integrity although there could be foredune erosion as sea level rises, and localised patterns of erosion and accretion. This could lead to change in habitat.
Will SMP policy <u>accelerate</u> intertidal narrowing (coastal squeeze) and will this affect designated habitats?	− In the short term there may be intertidal narrowing, i.e. coastal squeeze, at West Angle Bay. + Once these defences fail, the plan is to allow the coast to evolve naturally, with no artificial backshore constraints. In places natural intertidal narrowing may still occur as the resistant cliffs may not retreat at the same rate as the sea level rises. This is dependent upon future rates of sea level rise.
Will there be a net loss of BAP habitat within the SMP timespan as a result of SMP policy?	+ Extension of *Sabellaria alveolata* reefs in the short, medium and long term due to natural evolution of the coastline. + Extension of *Musculus* beds at Frainslake Sands in the short, medium and long term due to realignment of the defences inland. + Extension of fragile sponge habitat in the short, medium and long term due to natural evolution of the coastline.
Receptor: Earth heritage, soils and geology There are a range of designated sites: Pembrokeshire Marine Special Area of Conservation (SAC) covers the length of the coastline; from St Govan's Head to Gravel Bay, the coastline is designated as part of the Limestone Coast of South West Wales SAC; Castlemartin Coast SPA extends westwards from St Govan's Head as far as Gravel Bay; Castlemartin Cliffs and Dunes SSSI covers the coastline between St Govan's Head and Gupton Burrows; Broomhill Burrows SSSI; and Angle Peninsula SSSI covers the coast from Gravel Bay to Thorn Island.	
Does SMP policy work with natural processes and enhance or maintain natural features?	+ There are no new defences proposed, therefore this is considered a sustainable approach to habitat management.
Will SMP policy maintain or enhance the visibility of coastal geological exposures, where designated?	+ Where the shoreline is currently undefended, there is no intention to build new defences, therefore geological exposures in the cliffs will be maintained, which will maintain much of the geological interest . The long term aim of allowing existing defences to fail at West Angle Bay, may also enhance designated features. ● Sea level rise may, in the long term, reduce visibility of foreshore exposures, and lead to submergence of the sea caves.
Receptor: Water There are numerous coastal, freshwater, transitional (areas of water near river mouths, which are partially saltwater but are influenced by freshwater) and groundwater bodies in the SMP2 area that have the potential to be affected by SMP2 policies.	
Will SMP policy manage the risk of pollution from contaminated sources?	x There are no known contamination issues along this shoreline.
Will SMP policy adversely affect water bodies in the coastal zone?	+ Biological quality elements in the majority of the frontage in the Pembrokeshire South and Milford Haven Outer water bodies will not be significantly as a result of primarily NAI. However, MR at Frainslake Sands and Freshwater West (PU18.3) will allow development of a more naturally functioning shoreline and sand dune systems, and contribute to WFD objectives for both water bodies (since this frontage overlaps both).

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	● The Pembrokeshire Carboniferous Limestone groundwater body and river water bodies will be unaffected.

Impact colour key	+ Positive	● Neutral	− Negative	x Not applicable

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ACTION PLAN						
Action	**Action Ref**	**Policy Unit**	**Action Description** (to be approved)	**Potential source for funding** (subject to approval)	**Responsibility** Lead partner * (supporting partners)	**When by** (subject to funding)
1. Studies for Scenario Area	1.1	All	Develop a long term sustainable plan for the Pembrokeshire Coast Path to identify sections which are currently at risk from coastal erosion/ flooding and those which are likely to be at risk in future under a range of future climate change/ sea level rise scenarios. Develop adaptation/ mitigation measures to maintain a continuous coastal footpath.	WAG	PCC (PCNPA)	0 to 20 years
2. Studies for Policy Units	2.1	18.2	Develop a long term sustainable management strategy for Frainslake Sands and Freshwater West (Townslade, Kilpaison and Broomhill Burrows dunes) in response to a range of future climate change scenarios and in liaison with all key stakeholders. This will involve developing management objectives and triggers for intervention and the development and assessment of alternative options to identify the best approach to deliver the managed realignment policy. A decision would also need to be made regarding the future of the local B4319 access road, which may become unsustainable or detrimental to the natural dune evolution over time.	WAG/ National Trust	National Trust (PCC)	0 to 20 years
	2.1	18.3	Develop adaptation solutions to provide amenity facilities at West Angle Bay which are sustainable in the long term following failure of existing defences and in response to a range of future climate change/ sea level rise scenarios. Consider alternative funding options where it is not possible to justify public investment in coastal erosion and flood risk management.	WAG/ Private	PCC (Private)	0 to 20 years
3. Strategy			-			
4. Scheme work			-			
5. Monitoring (data collection)	5.1	All	Undertake beach and dune monitoring to inform future studies and SMP reviews. In particular, dune systems, and their response to climate change, should be considered. This information should not only be used in future coastal management, but also to assist in stakeholder liaison by use of data in public education campaigns.	WAG	PCC (Wales Coastal Monitoring Centre)	0 to 100 years
	5..2	All	Extend current beach profile monitoring programme which is currently undertaken between Lavernock Point and St Govan's Head to cover this shoreline and provide information to the Wales Coastal Monitoring Centre for storage and analysis. Use beach profile data to identify the future risk of undermining and overtopping of existing defences,	WAG	Coastal Group (Wales Coastal Monitoring Centre)	0 to 100 years
	5.3	All	Undertake periodic defence inspection, including condition assessment and photographs, Confirm defence crest levels.	WAG	PCC (Wales Coastal Monitoring Centre)	0 to 100 years
	5.4	All	Undertake further studies, and associated modeling, to better understand sediment regimes in the SMP area and inform future coastal management.	WAG	Coastal Group	0 to 20 years
	5.5	All	Monitor and review coastal footpath and investigate potential re-routing of the path where appropriate.	WAG	PCC	Ongoing
6. Asset management	6.1	All	Ensure that extents of public and privately owned defences are defined and mapped to inform future management decisions.	WAG	PCC (Wales Coastal Monitoring Centre)	0 to 20 years
	6.2	All	Undertake an appraisal of asset inspection and beach profile monitoring data to assess the existing and future risk of undermining and overtopping of existing structures.	WAG	PCC (Wales Coastal Monitoring Centre)	0 to 20 years
7. Communication	7.1	All	Undertake consultation with the local community, key stakeholders and general public during the development of alternative solutions and whenever appropriate to ensure an acceptable approach is developed and adopted.	WAG	PCC (PCNPA and National Trust)	0 to 20 years
	7.2	All	Undertake monitoring and management of Action Plans to ensure SMP policies are put into practice.	WAG	Coastal Group	0 to 100 years
8. Interface with planning and land management	8.1	All	Continue with risk-based improvements to flood risk maps to provide an appraisal of likely future projected sea level rise.	WAG	EAW	0 to 20 years

	8.2	All	Ensure SMP policies and flood and erosion risks are accounted for in the next revisions of land use plans in order to help manage residual risks from coastal erosion and flooding, and to inform future planning decisions.	WAG	PCC planning and PCNPA	0 to 20 years
	8.3	All	Establish an officer working group in order to consider the possible effects of sea level rise on the transport infrastructure of Pembrokeshire in order to identify specific vulnerabilities and possible mitigation. The group should identify the timescale for such impacts under a range of sea level rise values from 0.5m to 2m and make recommendations as to mitigation and adaptation measures.	WAG	PCC/ PCNPA	0 to 20 years
9. Emergency response	9.1	18.2	Development, monitoring and review of emergency response plans to prepare for storm events which are likely to exceed existing defence standards of protection or lead to failure of existing defences (for example following breach or overtopping).	WAG	PCC (National Trust)	0 to 20 years
10. Adaptation/ resilience			-			
11. Flood forecasting and warning	11.1	All	Continue with risk-based improvements to flood risk maps and inundation modelling to provide improved flood warning service.	WAG	EAW	0 to 20 years
12. Habitat creation and environmental mitigation	12.1	All	Welsh Assembly Government instructed Environment Agency Wales to scope out the scale of potential coastal habitat gains and losses for Wales. The scoping exercise was completed in February 2011 and identified potential options for implementation of a National Habitat Creation Programme for Wales. How this programme is to be delivered and funded has yet to be decided.	WAG	TBC	Ongoing
* Note: It is recommended that the lead partner/s investigate the potential for local partnerships and alternative sources of funding.						