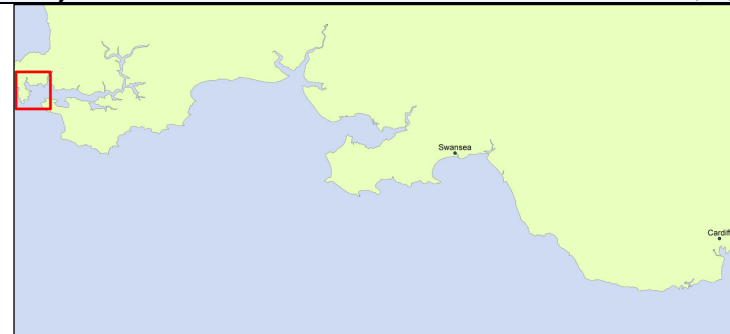


Little Castle Head to St Ann's Head (21)



Recommendations:

Long Term Plan

This rocky coastline is largely undefended and is highly valued for its landscape and environmental character. The main socio-economic asset is the village at Dale, but there are also various sections of locally importance access roads which are potentially at risk from coastal erosion and flooding. The plan is to allow the majority of the coastline to evolve naturally, whilst reducing the risk of coastal erosion and flooding to Dale and local access roads.

Location (Policy Unit)		Preferred SMP2 policy and preferred approach to implementing the Plan		
		0-20 years	20-50 years	50-100 years
21.1	Little Castle Head to The Gann, Pickleridge	Allow the coast to evolve and retreat naturally through no active intervention , which will maintain the landscape and environmental value of this coastline.		
21.2	Pickleridge (The Gann to Black Rock)	Allow the shingle ridge (seaward of the saline lagoon) at Pickleridge to evolve and retreat naturally through managed realignment , subject to further detailed studies and consultation, whilst managing the risk of coastal erosion or flooding to the B4327 minor road, which provides the only access to Dale, or developing an alternative solution, such as realignment. Flood risk to the B4327 at Mullock Bridge during severe storm events following a breach in the shingle ridge.		
21.3	Dale (Black Rock to Dale south)	Dale village includes residential and non-residential properties, tourist and amenity facilities, including a beach and sheltered bay which is used for various watersports. There may be opportunities to provide a more sustainable approach to managing coastal erosion and flood risk in this location whilst retaining the beach, which is likely to narrow as a result of future climate change/ sea level rise and the existing alignment of existing defences. The policy is therefore to continue to hold the line by maintaining existing defences for as long as possible, whilst investigating managed realignment options, in consultation with the community. Due to the limited number of socio-economic assets at risk upgrading of the existing defences is unlikely to attract public coastal erosion and flood risk management funding. Therefore the risk of coastal erosion and flooding to existing properties and assets is likely to increase over time.	The long term policy is to implement managed realignment through construction of a new set back defence, subject to consultation with the local community and further detailed studies and investigations including investigating potential funding sources.	
21.4	Dale to St Ann's Head	Allow the coast to evolve and retreat naturally through no active intervention , which will maintain the landscape and environmental value of this coastline.		

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 21.2 - the B4327 minor access road to Dale is at risk of coastal erosion and flooding. Alternatives to manage this risk need to be developed and investigated during further detailed studies which will be undertaken to investigate alternative options for managed realignment at Pickleridge. Under the proposed policy the shingle ridge would be allowed to evolve and retreat naturally as sea level rises, but this process would need to be monitored to assess the sustainability and the long term viability of this approach. Implementation of this policy is subject to the future availability of public funding for coastal erosion and flood risk management, although other sources of funding should be investigated.

Policy unit 21.4 - The timing and appropriateness of managed realignment is subject to further detailed studies, investigations and monitoring results, which will consider alternative realignment options, socio-economic impacts, environmental sustainability and other potential impacts. The policy at Dale will also partly depend on the policy recommended by the adjacent West of Wales SMP2 at Westdale Bay on the west facing coastline of the St Ann's Head peninsula. Implementation of this policy is subject to the future availability of public funding for coastal erosion and flood risk management, although other sources of funding should be investigated.

Changes from present management / SMP1 policy¹

The only change from present management and SMP1 policy is at Dale. Here, SMP1 recommended hold the line into the long term, whereas MR is proposed, which may provide a more sustainable management solution which may retain the amenity beach in response to future climate change/ sea level rise. This will, however, depend upon the outcome of further detailed studies, investigation and monitoring.

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.

Little Castle Head to St Ann's Head (21) (this is a summary of impacts, for full details see Appendix G SEA Report)	
Issue	Appraisal
Receptor: Property, population and human health The frontage is generally undeveloped with the only key settlements being St Ishmael's (which is set back from the coast) and Dale. There are also a number of isolated properties. The frontage is generally undefended, although there are existing defences at Dale.	
Will SMP policy maintain coastal settlements and manage the impact of coastal flood and erosion?	<ul style="list-style-type: none"> X No risk to St Ishmael's due to its location inland from the coast. - In the short and medium terms, the aim of the Plan is to continue to manage the risk of coastal erosion and flooding to Dale. However, in the long term, the recommended policy is managed realignment (subject to the conclusions of further detailed studies, investigation and monitoring), in order to maintain the amenity beach in response to future climate change/ sea level rise. These set back defences would aim to continue to manage flood and erosion risk to the majority of existing properties and assets; however this may result in the loss of some existing properties or assets dependent upon the extent of realignment and the conclusions of further detailed studies and investigations..
Will SMP policy directly increase the actual or potential coastal erosion or flood risk to communities?	<ul style="list-style-type: none"> - Along the majority of this shoreline, the recommended policy is to continue to allow the coast to evolve naturally. There may, however, be an increased flood and erosion risk at Dale over time and as managed realignment is implemented, dependent on the nature of the proposed scheme, which is subject to further detailed studies.
Is SMP policy sufficiently flexible to take account of dynamic coastal change?	<ul style="list-style-type: none"> + The SMP policy recognises dynamic coastal change, with policies of no active intervention along much of the undeveloped frontage. The long term policy of managed realignment at Dale recognises the impact of coastal processes, particularly as sea level rises, and should enable the shoreline to respond naturally to climate change.
Could there be a detrimental impact on the fabric of coastal communities?	<ul style="list-style-type: none"> X Along most of this shoreline, there will be no impact on coastal communities due to the undeveloped nature of the shoreline. - There may be some impact on Dale in the long term, although the proposals for managed realignment would endeavour to minimise this risk.
Receptor: Land use, infrastructure and material assets There are limited assets along this frontage. Dale is a key tourist area and includes provision for water sports. There is a field studies centre at Dale Fort and a lighthouse and coastguard station at St Ann's Head.	
Will SMP policy maintain key industrial, commercial and economic assets and manage the impact of coastal flooding and erosion?	<ul style="list-style-type: none"> + Coastal erosion and flood risk to assets within Dale would be managed in the short and medium term. In the long term, the risk would be dependent on the nature of the managed realignment, although it is likely that the risk to the majority of assets would continue to be managed.
Will the SMP policy ensure critical services and infrastructure remain operational, for as long as required?	<ul style="list-style-type: none"> X Few assets at risk due to the undeveloped nature of the shoreline. + No risk to St Ishmael's Sewage Works due to its location inland. - Risk of erosion to St Ann's Head lighthouse and coastguard station, although the risk is considered minimal and is dependent on future rates of coastal erosion and localised cliff falls which are typically low. - Risk of coastal erosion and flooding to the B4327 minor road, which provides the only access to Dale, which may need to be realigned in order to allow the managed realignment policy to be implemented. However, alternative access routes are available. Flood risk to the B4327 at Mullock Bridge during severe storm events following a breach in the shingle ridge.
Will there be an impact on marine operations and activities?	<ul style="list-style-type: none"> + The policy of managed realignment at Dale is intended to enable water sports to continue to be undertaken from the beach and within the sheltered bay.
Will SMP policy impact coastal flooding or erosion on agricultural activities?	<ul style="list-style-type: none"> - Risk of loss of small areas of cliff top agricultural land, although this would be dependent on future rates of coastal erosion. Areas lost are unlikely to be significant.
Will the SMP policy ensure that MoD (Qinetiq) ranges remain operational?	<ul style="list-style-type: none"> X There are no MoD (Qinetiq) assets along this shoreline.
Receptor: Amenity and recreational use Dale is the main tourist centre along this frontage, providing amenity facilities, and is a popular centre for water sports. The area is in the Pembrokeshire National Park and the Pembrokeshire Coast Path follows the shoreline.	
Could the SMP policy have an impact on tourism in the area?	<ul style="list-style-type: none"> + In the short and medium term, coastal erosion and flood risk to tourist amenities and facilities in Dale will continue to be managed through maintenance of the existing defences. In the long term, assuming studies indicate that it is feasible, a policy of managed realignment would aim to preserve or enhance the amenity value of the local area, by maintaining the amenity beach. + The remainder of the coast will be allowed to remain undisturbed, thereby maintaining the natural landscape, which is a key element of the tourist interest.
Will SMP policy affect coastal access along, or to, the coast?	<ul style="list-style-type: none"> - 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,

Little Castle Head to St Ann's Head (21) (this is a summary of impacts, for full details see Appendix G SEA Report)	
Issue	Appraisal
	if there is sufficient notice. At Dale, managed realignment would involve the realignment of a section of the coastal footpath in the long term.
Receptor: Historic environment There are four cliff top Scheduled Monuments, namely Little Castle Head, Great Castle Head, Dale Fort and West Blockhouse Fort. There are a number of listed buildings at Monk Haven and Dale. Local archaeology includes wrecks and evidence of prehistoric occupation, historic settlement and associated archaeology, extensive military defence evidence.	
Will SMP policy maintain the fabric and setting of key historic listed buildings, cultural heritage assets and conservation areas?	<ul style="list-style-type: none"> - There is a risk of coastal erosion to Scheduled Monuments and listed buildings along the cliff top at Monk Haven, although risk is considered minimal and is dependent on future rates of coastal erosion and localised cliff falls. As these are located on undeveloped frontages, the recommended policy is to allow continued natural erosion of the coast. - Foreshore wrecks are at risk of erosion or submergence. The level of risk is dependent on erosion rates and rates of sea level rise. + The risk of coastal erosion and flooding to listed buildings within Dale would continue to be managed in the short and medium term. Risk in the long term would be dependent on the nature and extent of the managed realignment scheme (assuming that studies indicate that this would be feasible).
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 and future erosion.	<ul style="list-style-type: none"> • Along currently undefended sections there is no intent to provide new defences, as this would not be socio-economically justified and is considered unsustainable. However since coastal erosion rates tend to be low this should allow time for monitoring, assessment and mitigation measures to be developed and implemented, where appropriate. + At Dale, maintenance of the existing defences in the short and medium term would reduce the risk of coastal erosion and flooding to archaeological assets. Although there may be risk to these features in the long term, there would be time for monitoring, assessment and mitigation measures to be developed and implemented, where 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?	<ul style="list-style-type: none"> • For much of this shoreline there is no proposed change from existing policy, therefore minimal change to the landscape, particularly in the short term.
Could SMP policy lead to the introduction of features which could be unsympathetic to the character of the landscape?	<ul style="list-style-type: none"> - New set-back defences could be constructed at Dale and Pickleridge in the long term, subject to the conclusions of further detailed studies. However, Dale is currently defended and set-back defences, if required, at Pickleridge are likely to be low-key. The managed realignment schemes will be designed to complement the character of the landscape.
Receptor: Biodiversity, flora and fauna Pembrokeshire Marine Special Area of Conservation (SAC) and Milford Haven Waterway SSSI covers the coastline west to Dale Point. Dale and South Marloes Coast SSSI extends along the remainder of the frontage.	
Will SMP policy enable a sustainable approach to habitat management?	<ul style="list-style-type: none"> + 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. A policy of managed realignment at Pickleridge presents an opportunity for habitat enhancement, subject to further detailed studies.
Will SMP policy maintain or enhance any international, national or local sites of natural conservation interest?	<ul style="list-style-type: none"> • There could be natural loss of designated cliff top and cliff face habitats including bat and chough roosts, designated as part of many of the designated sites, but the low erosion rates means losses are likely to be small. Newly exposed cliff faces could be colonised by interesting new species. • As sea level rises, there would be natural intertidal narrowing, leading to submergence and loss of habitat, particularly where resistant cliffs prevent retreat. • At Pickleridge, there will be increased risk of overtopping and roll back of the shingle ridge as sea level rises. This could lead to change of habitats in the designated saline lagoons to landward, and reduction in area as they become infilled with shingle. The process will be monitored and managed under the draft recommended policy.
Will SMP policy <u>accelerate</u> intertidal narrowing (coastal squeeze) and will this affect designated habitats?	<ul style="list-style-type: none"> - There may be intertidal narrowing, i.e. coastal squeeze, in the short and medium term at Dale. + In the long term, a policy of managed realignment would aim to reduce coastal squeeze. The intent of the Plan is to allow the greater part of 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 climate change/ sea level rise.
Will there be a net loss of BAP habitat within the SMP timespan as a result of SMP policy?	<ul style="list-style-type: none"> + Subtidal mixed muddy sediment would be retained in the short, medium and long term.

Little Castle Head to St Ann's Head (21) (this is a summary of impacts, for full details see Appendix G SEA Report)	
Issue	Appraisal
	<ul style="list-style-type: none"> + Fragile sponge habitat would be retained in the short, medium and long term. - Existing sheltered muddy gravels would be lost in the short term ● Sheltered muddy gravels would be allowed to roll back in the medium and long term.
Receptor: Earth heritage, soils and geology	
Pembrokeshire Marine Special Area of Conservation (SAC) and Milford Haven Waterway SSSI covers the coastline west to Dale Point. Dale and South Marloes Coast SSSI extends along the remainder of the frontage.	
Does SMP policy work with natural processes and enhance or maintain natural features?	<ul style="list-style-type: none"> + The SMP plan is for no active intervention along the majority of the shoreline, thereby working with natural coastal processes with managed realignment at Pickleridge to allow the shingle ridge to evolve and retreat naturally. At Dale, the frontage is already defended, and therefore there are few geological exposures.
Will SMP policy maintain or enhance the visibility of coastal geological exposures, where designated?	<ul style="list-style-type: none"> + 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. ● Sea level rise may, in the long term, reduce visibility of foreshore exposures, and lead to submergence of 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?	<ul style="list-style-type: none"> x There are no known contamination issues along this shoreline.
Will SMP policy adversely affect water bodies in the coastal zone?	<ul style="list-style-type: none"> + The Milford Haven Outer water body will see improvement in biological quality elements as MR at Pickleridge (PU21.2) would allow more natural development of the shingle ridge. Should this occur the gravel lagoons (Pickleridge Lagoon coastal water body) may become permanently marine. However, their current conservation and environmental interest is limited and this change would not constitute a significant adverse effect for biological quality elements. Overall, it is considered that WFD objectives will be supported. The very short coastal reach in the Pembrokeshire South water body will be unaffected. ● The Cleddau and Pembrokeshire groundwater body and river water bodies will be unaffected.

Impact colour key	+ Positive	● Neutral	- Negative	x Not applicable
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Little Castle Head to St Ann's Head (21)						
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	21.2	Undertake detailed studies, investigations and monitoring into feasibility of managed realignment policy at Pickleridge including consideration of options for managing the risk of coastal erosion or flooding to the B4327 minor road, which provides the only access to Dale. Consider alternative funding options where it is not possible to justify public investment in coastal erosion and flood risk management.	WAG	PCC (EAW & CCW)	0 to 20 years
	2.2	21.3	Undertake detailed studies, investigations and monitoring into feasibility of managed realignment policy at Dale, including socio-economic assessment, assessment of impact on the community and natural environment, consideration of location and extent of realignment and potential benefits with respect to the existing amenity beach. Community engagement will be undertaken to identify alternative coastal erosion and flood risk management options (including wide ranging adaptation options) and alternative funding options if it is not possible to justify public investment in coastal erosion and flood risk management.	WAG	PCC	0 to 20 years
3. Strategy			-			
4. Scheme work			-			
5. Monitoring (data collection)	5.1	All	Undertake beach and coastal defence asset monitoring to inform future studies and SMP reviews. In particular at Dale, Pickleridge and cliff erosion rates between Dale and St Ann's Head should be monitored. This information should not only be used in future coastal management but also 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 modelling, 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 risk to the 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	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	WAG	EAW	0 to 20 years

SUPERSEDED
Contact SCBCEG for current action plan

	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/ 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	21.3	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 at Dale (for example following breach or overtopping).	WAG	PCC	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 foundation 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.						