



West of Wales Shoreline Management Plan 2: Appendix G: Habitats Regulations Assessment

Pembrokeshire County Council

November 2011

Stage 4: Appropriate Assessment

9T9001/A9

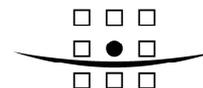


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Document title	West of Wales Shoreline Management Plan 2: Appendix G: Habitats Regulations Assessment
Status	Stage 4: Appropriate Assessment
Date	November 2011
Project name	West of Wales Shoreline Management Plan
Project number	9T9001/A9
Client	Pembrokeshire County Council
Reference	9T9001/A9/Version3/304041/Exet

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CONTENTS

		Page
1	INTRODUCTION	1
	1.1 Purpose	1
	1.2 Shoreline Management Plans (SMPs) and the West of Wales	1
	1.3 Requirement for a Habitats Regulations Assessment for the West of Wales SMP2	5
	1.4 Report Structure	6
2	HRA ASSESSMENT METHODOLOGY	7
	2.1 Development of Assessment Areas – Policy Development Zones	7
	2.2 HRA Process	8
	2.3 Stages 1 and 2: Combined Screening and Scoping	8
	2.4 SMP Habitat Impacts for Appropriate Assessment	12
	2.5 Appropriate Assessment Methodology	14
	2.6 Provision of an ‘In Combination’ and Cumulative Assessment	17
	2.7 Levels of Assessment of Adverse Effect on the International Sites	17
	2.8 Stage 4: Approval or Refusal of the Plan	18
	2.9 Roles of Organisations in the HRA Process	19
	2.10 Consultation	20
3	BASELINE SUMMARY OF THE RELEVANT INTERNATIONAL SITES	22
	3.1 Conservation Objectives	22
	3.2 Summary of the Relevant International Sites	23
4	CONSIDERATION OF OTHER PLANS AND PROJECTS	27
	4.1 Introduction	27
	4.2 Plans and Projects within the SMP Area	28
5	THE ‘ALONE’ ASSESSMENT OF SMP POLICY	29
	5.1 Introduction	29
	5.2 Summary of West of Wales SMP Policy Under Assessment	29
	5.3 Information to Inform the Appropriate Assessment	29
	5.4 PDZs Considered to have No Adverse Effect on Integrity of International Sites	30
	5.5 PDZs where AEOI of International Sites can be concluded	41
6	IN-COMBINATION AND CUMULATIVE ASSESSMENT	63
	6.1 Introduction	63
	6.2 The In-Combination and Cumulative Assessment with other Plans and Projects	63
	6.3 The Cumulative Assessment	72
7	CONSIDERATION OF MITIGATION MEASURES, ALTERNATIVE SOLUTIONS, IROPI, AND COMPENSATORY HABITAT REQUIREMENTS	90
	7.1 Introduction	90
	7.2 Consideration of Preventative and Mitigation Measures	90
	7.3 Test of Alternative Solutions	93
	7.4 Test of Imperative Reasons of Overriding Public Interest (IROPI)	99
	7.5 Compensatory Habitat Requirements	103

7.6	Risks	109
7.7	Status and Timescale	109
8	CONCLUSIONS	110
8.1	Introduction	110
8.2	Summary of Adverse Effects on Integrity of the International Sites	111
8.3	Test for Alternative Solutions	113
8.4	Test for Imperative Reasons of Overriding Public Interest (IROPI)	113
8.5	Compensatory Habitat Requirements	114
9	REFERENCES	115
10	GLOSSARY OF TERMS	117
11	LIST OF ABBREVIATIONS	119

SUPPORTING ANNEXES

Annex H-I	Figures Showing Designated Sites
Annex H-II	HRA Scoping Report
Annex H-III	HRA Consultation Responses
Annex H-IV	Detailed Assessment Tables
Annex H-V	Summary of Policies that are Likely to Affect International Sites
Annex H-VI	Assessment of SMP Effects on <i>Sabellaria alveolata</i> Reef
Annex H-VII	Test for Alternative Options by Policy Unit
Annex H-VIII	Compensatory Habitat Identification Summary

FIGURES

Figure 1.1	West of Wales SMP2 Study Area and PDZs	2
Figure 2.1	Internationally Designated Nature Conservation Sites around the West of Wales SMP2 Coastline	9
Figure 2.2	A Summary of the Stages 2 and 3 of the HRA Process	10

TABLES

Table 1.1	Shoreline Management Policy Options (Defra, 2006)	2
Table 1.2	Potential Generic Implications of Each SMP Option.....	4
Table 2.1	The Four Stages of the Habitats Regulations Assessment	8
Table 2.2	International Sites of Nature Conservation Interest on the West of Wales Coastline	10
Table 2.3	List of SAC and SPA Interest Features that are Likely to be Significantly Affected by the SMP2 Policies	13
Table 3.1	Qualifying Features of the Natura 2000 and Ramsar Sites included in this Assessment	23
Table 5.1	Anticipated Habitat Loss in PDZ 2 as a result of SMP Policy	42
Table 5.2	Anticipated Habitat Loss in PDZ 3 as a result of SMP Policy	44

Table 5.3	Predicted Habitat Loss in PDZ 10 as a result of SMP Policy.....	46
Table 5.4	Predicted Habitat Loss in PDZ 11 as a result of SMP Policy.....	49
Table 5.5	Predicted Habitat Loss in PDZ 12 as a result of SMP Policy.....	53
Table 5.6	Predicted Habitat Loss in PDZ 13 as a result of SMP Policy.....	56
Table 5.7	Predicted Habitat Loss in PDZ 16 as a result of SMP Policy.....	58
Table 5.8	Predicted Habitat Loss in PDZ 20 as a result of SMP Policy.....	61
Table 6.1	Cumulative Assessment: Summary of Impacts on the International Sites	72
Table 6.2	Summary of Cumulative Effect on Integrity of International Sites...	88
Table 7.1	Policy Units where NAI is Selected	93
Table 7.2	Policy Units where MR is Selected.....	95
Table 7.3	Policy Units where HTL is Selected.....	97
Table 7.4	Summary of Predicted Compensatory Habitat Requirements.....	104
Table 7.5	Habitats Lost as a Result of Compensation.....	107
Table 8.1	Habitats Lost as a Result of Compensation.....	112

1 INTRODUCTION

1.1 Purpose

1.1.1 This appendix is the Stage 4 Habitats Regulations Assessment (HRA) component of the second West of Wales Shoreline Management Plan review (known as SMP2), which has been prepared by Royal Haskoning for Pembrokeshire County Council (the lead operating authority) and Ceredigion County council, Gwynedd Council, Isle of Anglesey County Council, Powys county council and Conwy Borough county Council.

1.1.2 European Union policy is fundamental to coastal management and decision-making. An HRA is a requirement of Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora, referred to as the 'Habitats Directive'. The Habitats Directive is transposed into UK law by means of The Conservation of Habitats and Species Regulations 2010 (SI 2010 No 490). These regulations make HRA a mandatory requirement for certain plans and programmes that are likely to have significant environmental effects on International and European sites. The Countryside Council for Wales (CCW) has determined that SMPs, as plans which can influence International nature conservation designations, should be subject to such assessment.

1.1.3 This Habitats Regulations Assessment Report represents Stage 4 of the HRA process, the Appropriate Assessment and test for alternative options, test for IROPI, and identification of compensation, which is preceded with a summary of Stages 1 and 2 (Screening and Scoping), and providing the detailed assessment presented during Stage 3 with edits and additional information and assessment where identified during consultation on the Stage 3 report.

1.1.4 During the preparation of this document we have referred to, where applicable, the following guidance and supporting information:

- The Assessment Development Plans in Wales under the provisions of Habitats Regulation (WAG, 2006);
- TAN 5 - Nature Conservation Planning (WAG, 2009);
- Assessing Projects Under the Habitats Directive – Guidance for Competent Authorities (CCW, 2008);
- Planning for the Protection of European Sites: Appropriate Assessment (DCLG, 2006);
- Appropriate Assessment of Flood Risk Management Plans Under the Habitats Regulations (Environment Agency Wales, Draft document).

1.2 Shoreline Management Plans (SMPs) and the West of Wales

1.2.1 Including estuaries, the total length of the coast within the West of Wales SMP2 study area is approximately 460km. The majority of the West of Wales coastline is undefended i.e. natural defences with only 28% defended by manmade structures (hard and soft defences).

SMP Aims and Objectives

- 1.2.2 A Shoreline Management Plan (SMP) is a non-statutory policy document that provides a consistent approach to the high level assessment of the risks over the next 100 years from flooding and coastal erosion (taking into account cliff stability). It needs to take account of existing defences and the natural and built environments, and be compatible with adjacent coastal areas. An SMP aims to manage risk by using a range of methods which reflect both national and local priorities to reduce the threat of flooding and erosion to people and their property and benefit the environment, society and the economy as far as possible, in line with the Government's 'sustainable development principles'.
- 1.2.3 The West of Wales SMP2 study area originally assessed by the Shoreline Management Partnership (Cardigan Bay Coastal Group; Gwynedd Council and Conwy County Council) and assessed the following coastline: St Anne's Head to Teifi Estuary; St David's Head to Bardsey Sound; Dyfi Estuary to Aberdaron and Ynys Enlli to the Great Orme Head. These were completed in the early 2000s and have now been amalgamated into one SMP for the first review – West of Wales SMP2. For the SMP2, sections of the coast are considered with respect to their influence on (and interaction with) other areas of the SMP, and therefore a series of twenty Policy Development Zones (PDZs), as illustrated in **Figure 1.1**, have been developed which incorporate specific sections of the coast. These sections of coastline have been considered with respect to their influence on, and interaction with, other areas of the SMP. Furthermore, each PDZ has been divided into Management Units (MANs), of which there are 62 in total, and which themselves are then divided into discrete Policy Units (PUs).
- 1.2.4 The most appropriate option for shoreline management will depend on the section of coastline in question and on technical, environmental, social and economic circumstances. The four options considered for shoreline management in the second generation SMPs are presented in **Table 1.1**.

Table 1.1 Shoreline Management Policy Options (Defra, 2006)

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 covers 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. It also includes 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); and

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

- 1.2.5 Within the development of an SMP, an epoch (time periods) based approach is used for planning purposes, with the three epochs being 0 – 20 (2005 – 2025), 20 – 50 (2025 – 2055) and 50 – 100 (2055 – 2105) years hence.

Figure 1.1 West of Wales SMP2 Study Area and PDZs

Implications of SMP Policy on the Natural Environment

1.2.6 Each of the SMP policies presented in **Table 1.1** has the potential to impact the natural environment in one or more ways. **Table 1.2** presents potential implications of each option.

Table 1.2 Potential Generic Implications of Each SMP Option

SMP Option	Positive Impacts	Negative Impacts
Hold the line (HTL)	<ul style="list-style-type: none"> • Protection of habitat landward of defences. • Provides stability to areas of coastline, within a wider management context. 	<p>Coastal squeeze (with sea level rise):</p> <ul style="list-style-type: none"> • Reduction in the extent of coastal habitat. • Change in physical and biological characteristics and thus functionality of habitat.
Advance the line (ATL)	<ul style="list-style-type: none"> • Protection of habitat landward of defences. 	<p>Change / interruption of coastal processes:</p> <ul style="list-style-type: none"> • Change in physical and biological characteristics and thus functionality of coastal and marine habitats. • May increase/decrease rate of coastal erosion either side of the advanced line. • Restriction of cliff coastal erosion • Alteration to cliff succession and associated habitats and species. • Change in physical and biological characteristics. • May increase/decrease rate of coastal erosion either side of the defended toe.
Managed realignment (MR)	<ul style="list-style-type: none"> • Coastal habitats allowed to move landwards under rising sea levels. • Habitat created for juvenile fish and other aquatic organisms (benefits to environment and fishing communities). • Promotes natural coastal processes. • Contributes towards a more natural management of the coast. • Creation of high tide roosts and feeding areas. 	<p>Saline intrusion:</p> <ul style="list-style-type: none"> • Causes a change in nature of habitat originally landward of defences. • Change in physical and biological characteristics. • Reduction in extent of terrestrial habitats. <p>Change / interruption of coastal processes:</p> <ul style="list-style-type: none"> • Change in physical and biological characteristics and thus functionality of coastal and marine habitats. • May increase/decrease rate of coastal erosion either side of the advanced line.
No active intervention (NAI)	<ul style="list-style-type: none"> • Coastal habitats allowed to move landwards under rising sea levels. • Promotes natural coastal processes. • Contributes towards a more natural management of the coast. 	<p>Saline intrusion:</p> <ul style="list-style-type: none"> • Increased risk of inundation to landward habitats under rising sea levels.

1.3 Requirement for a Habitats Regulations Assessment for the West of Wales SMP2

- 1.3.1 The West of Wales coastline supports a wide variety of nationally and internationally important ecological systems, habitats and species. The special qualities of these natural habitats around the coast are recognised in the number of International, European and national designations as illustrated in **Figure 1.2** (for more detailed maps of the sites considered within this report refer to **Annex H-I**). The diverse range of coastal habitats includes maritime cliffs, coastal saltmarsh, coastal saline lagoons, intertidal flats and seagrass, grazing marshes, intertidal and subtidal rocky reefs and estuaries, with 75% of the coastline and 32% of Welsh territorial waters being designated for its International environmental importance. A high proportion of the West of Wales defences are fronted and/or backed by internationally-designated sites. Therefore, the West of Wales SMP2 policies are likely to have some form of significant effect upon these designated habitats, whether these defences are held or re-aligned, thereby triggering the requirement for an Appropriate Assessment (AA). Within this assessment, the environmental designations equate for an area approximately 5,303 km², which is 26% of the total area of Wales (20,779km²).
- 1.3.2 The need for AA arises under the requirements of The Conservation of Habitats and Species Regulations 2010 (see **paragraph 1.1.2**). On the 20th October 2005, the European Court of Justice (ECJ) ruled that the UK had not transposed Articles 6(3) and (4) of the EC Habitats Directive fully into UK law. As such, a new amendment came into force in August 2007 to implement the ECJ judgement. The amendment included the addition of Part IVa to the Regulations entitled “AA for Land Use Plans in England and Wales”. Articles 6 (3) and 6 (4) of the Habitats Directive, implemented through Regulation 61(1), states that detailed assessment is required for “any plan or project, which either alone or in combination with other plans or projects, is likely to have a significant effect on a European site and is not directly connected with or necessary for the management of the site”. The process under this requirement is referred to as HRA. Commission Guidance on the Habitats Directive sets out four distinct stages for HRAs, of which AA is the third stage (see **Section 2**).
- 1.3.3 HRA is the process to support a decision by the 'Competent Authority', as to whether the proposed plan or project would have an adverse effect on the integrity of any International Site. ODPM's 2005 Government Circular on Biodiversity and Geological Conservation defines a site's integrity as the *coherence of the site's ecological structure and function, across its whole area, or the habitats, complex of habitats and/or population of the species for which the site is classified. An adverse effect on integrity is likely to be one that prevents the site from maintaining the same contribution to favourable status for the relevant feature(s), as it did when the site was designated.*

1.4 Report Structure

1.4.1 This report is composed of ten sections which provide a staged approach to the full HRA Process for the West of Wales SMP2. This introduction forms **Section 1**. The remainder of the report is structured as follows:

- **Section 2** HRA Assessment Methodology;
- **Section 3** Baseline Summary of the Relevant International Sites;
- **Section 4** Consideration of Other Plans and Projects;
- **Section 5** The 'Alone' Assessment of SMP Policy;
- **Section 6** In-Combination Assessment;
- **Section 7** Consideration of Mitigation Measures, Alternative Solutions, IROPI, and Compensatory Habitat requirements;
- **Section 8** Conclusions;
- **Section 9** References;
- **Section 10** Glossary of Terms;
- **Section 11** List of Abbreviations.

2 HRA ASSESSMENT METHODOLOGY

2.1 Development of Assessment Areas – Policy Development Zones

2.1.1 The assessment is being provided at PDZ level, in the same way as that was used in the Strategic Environmental Assessment (SEA). Further details of these PDZs can be found in Section 4 of the main SMP document.

2.1.2 The twenty PDZs within the West of Wales SMP2 have been defined as (starting from the southern boundary of the West of Wales SMP2 area and moving northwards):

- PDZ 1 - St Anns Headland to St Anns Head to Borough Head
- PDZ 2 – Borough Head to Dinas Fach
- PDZ 3 – Dinas Fach to Pen Anglas
- PDZ 4 – Pen Anglas to Pen-y-Bal
- PDZ 5 – Pen y Bal to Cardigan
- PDZ 6 – Pencribach to New Quay Head
- PDZ 7 – New Quay Head to Llanina Point
- PDZ 8 – Gilfach to Llanrhystud
- PDZ 9 – Carreg to Sarn Gynfelyn
- PDZ 10 – Upper Borth to Tonfanau
- PDZ 11 – Tonfanau to Mochras
- PDZ 12 – Mochras to Pen ychain
- PDZ 13 – Pen ychain to Trwyn Cilan
- PDZ 14 – Trwyn Cilan to Carreg Du
- PDZ 15 – Carreg Ddu to Trwyn y Tal
- PDZ 16 – Trwyn Dylan to Llanfairfechan
- PDZ 17 – Teyn y Parc to Twyn Cliperau
- PDZ 18 – Twyn Cliperau to Trwyn Cwmrwd
- PDZ 19 – East Bays Anglesey
- PDZ 20 – Llanfairfechan to Llanrwst

2.1.3 The development of policy within this SMP2 has been devised in response to a consideration of the environmental, social and economic features of the West of Wales and of the coastal processes and systems which shape the coast. Each PDZ has been defined to offer the most appropriate spatial breakdown of the coast, where processes can be managed (as appropriate) at a scale which is driven by wider management objectives. Essentially, the PDZ is the level at which the SMP 'makes sense' when establishing the intent of management. It therefore follows that an assessment of SMP policy is undertaken at the PDZ scale.

2.2 HRA Process

2.2.1 The HRA process follows a number of steps which are illustrated in **Figure 2.1** and can be grouped into four key stages, as set out by Commission Guidance on the Habitats Directive and shown in **Table 2.1** below. The key stages for the HRA are discussed below.

Table 2.1 The Four Stages of the Habitats Regulations Assessment

Stage		Task
1 & 2	Screening and Scoping	<ul style="list-style-type: none"> • Determine whether the SMP is necessary for site management. • Identify all International and European Sites that are likely to be significantly affected by the SMP and acquire conservation objectives for each Site. • Agree method and level of detail for Appropriate Assessment. • Assess likely significant effect of SMP policies.
3	Appropriate Assessment	<ul style="list-style-type: none"> • Assess and quantify the significant effects of the SMP policies. • Determine whether the SMP will have an adverse effect on the integrity of a European Site either alone or in combination. • Assess possible adverse effects and consider mitigation measures.
4	Approval or refusal of plan	<ul style="list-style-type: none"> • Determine Overriding Public Interest where there are no viable alternatives. • Quantify compensation if needed and secure through EA Regional Habitat Creation Programme.

2.3 Stages 1 and 2: Combined Screening and Scoping

2.3.1 A combined Screening and Scoping Report was produced to identify the extent and availability of information about the designated sites that were considered likely to be significantly affected by the SMP, as well as identifying the methodology for the Appropriate Assessment (see **Annex H-II**).

2.3.2 Information on the International sites along the West of Wales coastline was collected to provide a baseline against which the likely significant effects of the SMP could be measured and assessed. The baseline data identifies the primary reasons for their designation, the factors influencing the condition of the sites, and the sites' conservation objectives (where available) and sensitivities. The baseline can be found in **Annex H-II** of this document.

2.3.3 These sites and their features have been identified by gathering relevant information from the following sources, as well as consultation with key organisations:

- JNCC website for protected sites;
- Natura 2000 standard data forms;
- Regulation 33 advice on the various designated sites (see Section 8 References for full list); and
- Site of Special Scientific Interest (SSSI) conservation objectives.

Figure 2.1 Internationally Designated Nature Conservation Sites around the West of Wales SMP2 Coastline

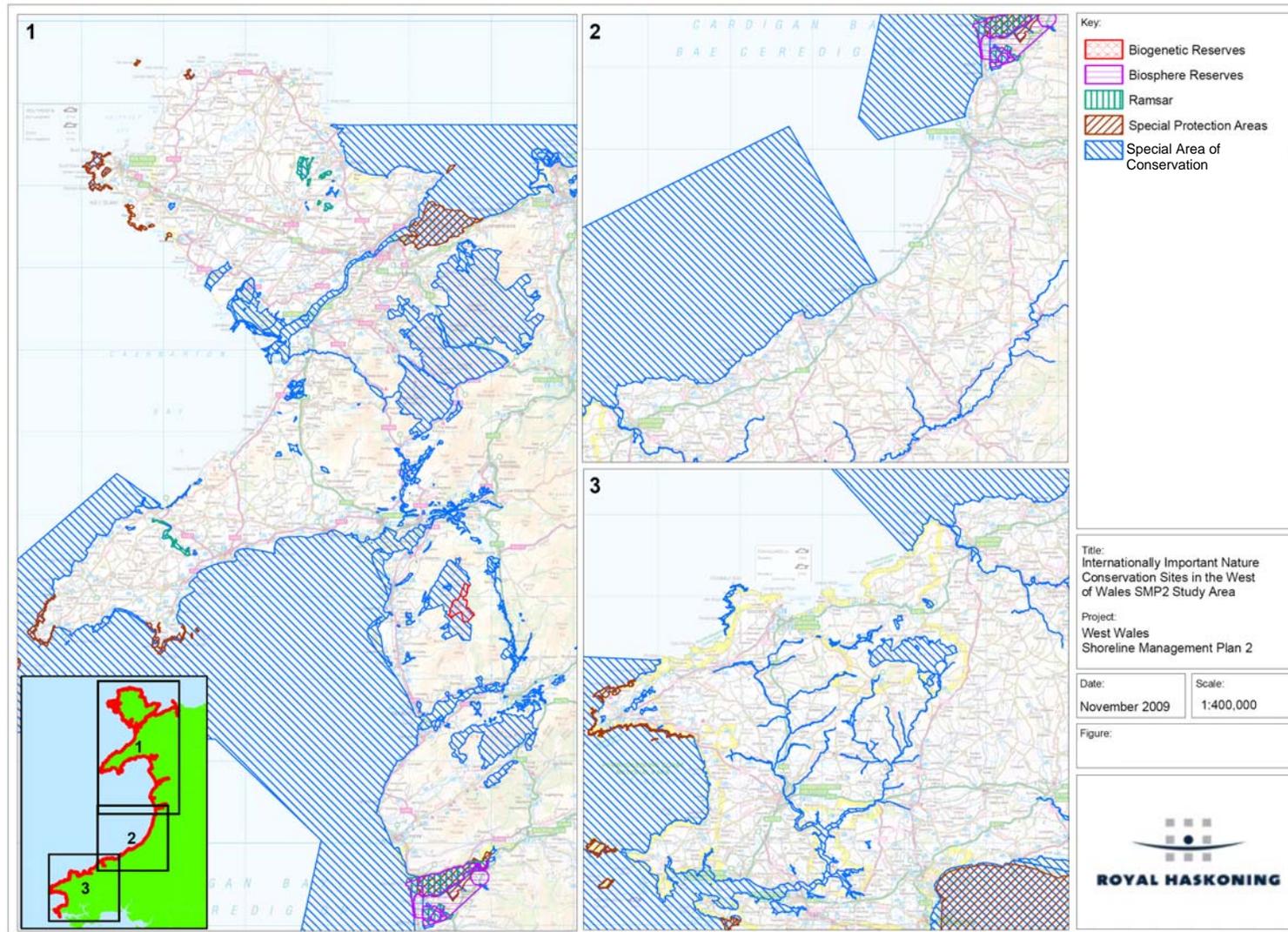
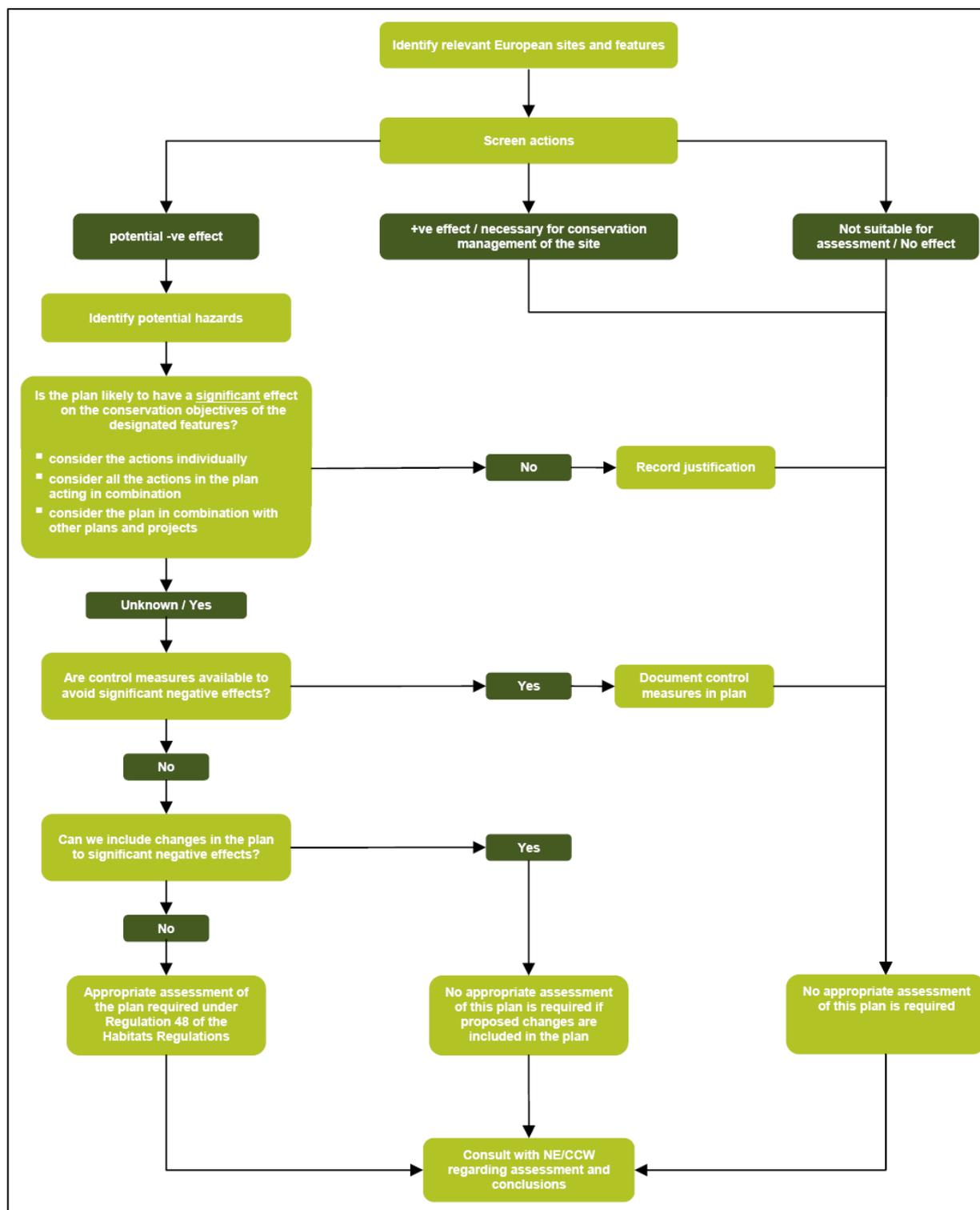


Figure 2.2 A Summary of the Stages 2 and 3 of the HRA Process



2.3.4 The study area for the HRA of the West of Wales SMP2 consists thirty-five Natura 2000 sites (SACs and SPAs) designated under the Birds and Habitats Directives within the West of Wales SMP2 study area (along or near the coastline), and one site designated under the Ramsar Convention. These are illustrated on **Figure 1.2** and listed in **Table 2.2**.

Table 2.2 International Sites of Nature Conservation Interest on the West of Wales Coastline

Name of International Nature Conservation Designation	
English	Welsh
Special Protection Areas (SPA) - designated under the Birds Directive (2009/147/EC)	
Castlemartin Coast	
Dyfi Estuary	Aber Dyfi
Aberdaron Coast and Bardsey Island	Glannau Aberdaron and Ynys Enlli
	Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal
Ramsey and St David's Peninsula Coast	
Skokholm and Skomer	
Lavan Sands, Conwy Bay	Traeth Lafan
Ynys Feurig, Cemlyn Bay and The Skerries	
Puffin Island	Ynys Seiriol
Holy Island Coast	Glannau Ynys Gybi
Special Areas of Conservation (SAC) - designated under the EU Habitats Directive (92/43/EEC)	
Cors Fochno (and Dyfi)	
Holy Island Coast	Glannau Ynys Gybi
Menai Strait and Conwy Bay	Y Fenai a Bae Conwy
Cleddau Rivers	Afonydd Cleddau
	Afon Gwyrfai a Llyn Cwellyn
River Teifi	Afon Teifi
Cardigan Bay	Bae Ceredigion
Seacliffs of Lleyn	Clogwyni Pen Llyn
Pembrokeshire Marine	Sir Benfro Forol
Cemlyn Bay	Bae Cemlyn
Creuddyn Peninsula Woods	Coedwigoedd Penrhyn Creuddyn
Anglesey Coast: Saltmarsh	Glannau Môn: Cors heli
Great Orme's Head	Pen y Gogarth
Limestone Coast of South West Wales	Arfordir Calchfaen de Orllewin Cymru
	Llyn Dinam
	Morfa Harlech a Morfa Dyffryn
Pembrokeshire Bat Sites and Bosherton Lakes	Safleoedd Ystlum Sir Benfro a lynno
St David's	Ty Ddewi
Abermenai to Aberffraw Dunes	Y Twyni o Abermenai i Aberffraw
	Coedydd Aber
Lleyn Fens	Corsydd Llyn
North West Pembrokeshire Commons	Comins Gogledd Orllewin Sir Benfro
Lleyn Peninsula and the Sarnau	Pen Llyn a'r Sarnau
	Glynllifon
Meirionnydd Oakwoods and Bat Sites	Coedydd Derw a Safleoedd Ystlumod Meirion

Name of International Nature Conservation Designation	
English	Welsh
Ramsar sites - Wetlands of International importance designated under the Ramsar Convention	
	Cors Fochno (and Dyfi)

- 2.3.5 The HRA Scoping Report was submitted to the Client Steering Group (CSG) and specifically to CCW and the Environment Agency Wales for comment in relation to scoping in or out of Natura 2000 Sites depending on a number of physical factors (distance, lack of pathway from source to Site, etc). The HRA Scoping Report produced for comment is presented in **Annex H-II**. Comments received and discussions on the HRA draft Scoping Report with CCW and the Environment Agency Wales were used to structure this assessment and report. The scoping responses and HRA topic group meeting minutes have been collated and are presented in **Annex H-III**.

Assessment of Likely Significant Effect

- 2.3.6 The 'Likely Significant Effect' (LSE) of the SMP2 policy options on the integrity of potentially affected International sites was assessed during the scoping stage, so as to identify which sites were carried through to the Appropriate Assessment phase. Following this assessment, a number of sites were scoped out of the HRA, as there is no likelihood of significant effects occurring on these sites (see **Annex H-II**).

2.4 SMP Habitat Impacts for Appropriate Assessment

- 2.4.1 A generic assessment of what impacts are caused by each of the four SMP policies, and this could affect the conservation objectives of internationally designated coastal and marine habitats is given in **Table 1.2**. Specific impacts that are more relevant at scheme or project level have not been assessed, for example impacts that would specifically occur during construction (though they could on the whole be avoided through the use of appropriate mitigation measures). Therefore the impacts for this plan have been limited to:

- coastal squeeze;
- changes in coastal processes;
- saline intrusion of freshwater sites (i.e. as defences are overtopped, within the epochs, or realigned); and
- restriction of coastal erosion (i.e. defences at the toe of cliffs to stabilise them thus not allowing them to be naturally disturbed by erosion over time and subsequently preventing material being added to the rocky foreshores).

- 2.4.2 The above impacts have been assessed against the 'interest features' which they might affect for each of the designated sites and recorded in **Table 2.3**.

Table 2.3 List of SAC and SPA Interest Features that are Likely to be Significantly Affected by the SMP2 Policies

Impacts	Code	Interest Features
Coastal Squeeze / Coastal Processes	1310	<i>Salicornia</i> and other annuals colonising mud and sand
	1320	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)
	1330	Spartina swards (<i>Spartinion maritimae</i>)
	1140	Mudflats and sandflats - not submerged at low tide
	1110	Sandbanks - slightly covered by sea water all the time
	2120	Shifting white dunes along the shoreline with <i>Ammophila arenaria</i>
	1130	Estuaries
	1210	Annual vegetation drift lines
	1220	Perennial vegetation of stony banks
	8330	Submerged and partially submerged sea caves
	1170	Reefs
	1160	Large shallow inlets and bays
	1330	Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)
	2110	Embryonic shifting dunes
	2120	Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')
	2130	Fixed dunes with herbaceous vegetation ('grey dunes')
	2150	Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>)
	2170	Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)
	2190	Humid dune slacks
	Saline intrusion	1330
2160		Dunes with <i>Hippophae rhamnoides</i>
1150		Coastal lagoons. *Priority feature
6210		Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>)
4030		European dry heaths
3260		Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation
7110		Active raised bogs
91E0		Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)
4010		Northern Atlantic wet heaths with <i>Erica tetralix</i>
3130		Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>
7120		Degraded raised bogs still capable of natural regeneration
7150		Depressions on peat substrates of <i>Rhynchosporion</i>
91D0		Bog woodland
3150		Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation
7140		Transition mires and quaking bogs
7230		Alkaline fens
7210		Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i>
91A0		Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles
9180		<i>Tilio-Acerion</i> forests of slopes, scree and ravines
6410		<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion</i>

Impacts	Code	Interest Features
		<i>caeruleae</i>)
	8310	Caves not open to the public
	3140	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara spp.</i>
Restriction of coastal erosion	1230	Vegetated sea cliffs of the Atlantic & Baltic coasts

2.5 Appropriate Assessment Methodology

2.5.1 The AA is the main stage of the whole HRA process (illustrated in **Figure 2.1**). Its objective is to ascertain that the SMP2 will not have an adverse effect on the integrity of the International Sites, either alone or in combination with other plans and projects, and to quantify any adverse effect arising from the Plan. The adverse effects of the West of Wales SMP2 policies on the internationally designated sites that could be affected have been described, including where possible, mitigation measures to offset the adverse impacts.

2.5.2 As stated in **paragraph 1.3.1**, an adverse effect on Site integrity is likely to be one that prevents the Site from reaching or maintaining favourable status for the relevant feature(s). Favourable conservation status of an International Site is defined by Article 1 of the Habitats Directive and it is through this definition that the Site's conservation objectives can be identified. The effects of a plan or project on the International Sites concerned must be assessed against these conservation objectives.

2.5.3 AA methodologies devised for large scale developments have been evaluated to ensure that the approach provided here is based on actual practical implementation of The Conservation of Habitats and Species Regulations 2010. The approach developed has also been tailored to ensure that the requirements of these Regulations and supporting guidance are met. The need to ensure that the assessment is actually 'appropriate' to the evaluation of policies relating to shoreline management activities has also been recognised.

2.5.4 Significant effects have been screened using the RSPB guidance (2007) which states that a significant effect is triggered when:

- There is the probability or a risk of a plan or project having a significant effect on a International Site;
- The plan is likely to undermine the Site's conservation objectives; and
- A significant effect cannot be excluded on the basis of objective information.

2.5.5 The Appropriate Assessment of the SMP policies is supported by a tabulated account, which is presented in **Annex H-IV**. Tables provided show the interest features of the Site, the attributes relevant to such features, the identified management targets for the Site and known sensitivities or management issues. The assessment will evaluate and tabulate the policies (over three epochs) against each interest feature within each designation. This will record the potential impacts of the policies and any preventative measures that could be taken to avoid any adverse impact identified within the designated interest features and targets. This exercise will be recorded at the PDZ level, although within each of these all PUs will be assessed with regard to the possible impacts on the designated features. The

PDZs have been devised to provide discrete, spatial areas for policy application, however, if a policy may affect a neighbouring PDZ, this will be included in the assessment. The level of assessment has been provided at an 'appropriate' level for a policy based assessment and in recognition of the fact that further assessment would be provided when an actual scheme for the works is developed.

2.5.6 Paragraph 1.20 of Annex 6 to TAN 5 (WAG, 2009) states that:

2.5.7 *"It is recognised that a HRA of a plan is likely by its nature to be less specific and detailed than the assessment of an individual project would be. In most cases, it will not be possible to subject a development plan to the same level of assessment under regulation 85B as can be applied to a specific project under Regulation 48 of the Habitats Regulations. There will not normally be the same level of information about:*

- *The changes that may be predicted as a result of implementing a policy or proposal in a development plan;*
- *What the effects of the changes may be on the site(s) affected;*
- *How the effects may be mitigated; or*
- *If necessary, how the effects may be compensated for.*

2.5.8 *This issue was acknowledged in the Advocate General's opinion in Commission v UK(). What is expected is a rigorous an HRA as can be reasonably be undertaken in the context of the development plan in question, so as to enable the tests set out in Article 6(3) and 6(4) of the Habitats Directive to be answered."*

2.5.9 On the basis of this exercise, an assessment can then be provided in regard to the overall impacts of the SMP2 on the overall integrity of the International Sites. The Appropriate Assessment methodology described here will only be applied to preferred policy options. This does not preclude consideration of other policy options in terms of the Regulations and it is anticipated that preferred options will be developed with the likely acceptability of these in terms of the Regulations as a key consideration.

Assessment of Impacts over Different SMP Epochs

2.5.10 The complications of applying the 2010 Habitats and Species Regulations at the policy level are further enhanced by the different timescales or epochs over which they apply (20 years, 50 years and 100 years). The epochs extend from 2010 to 2025 (Epoch 1), then to 2055 (Epoch 2), then to 2105 (Epoch 3). The possibility exists that SMPs or their policies will result in short-term adverse impacts, but that in the longer term the SMP will enable Site integrity to be maintained. On the basis of the assessment provided here however, no issues have been identified relating to temporal adverse effects for longer term benefit.

Assumptions and Risk

2.5.11 Given the strategic nature of the SMP2 policy determination and therefore the assessment carried out to inform the Appropriate Assessment, a number of key assumptions and risks have to be acknowledged, insofar as more detailed strategy or scheme related developments would need themselves to carry out a further stage of detailed assessment supported by far more detailed baseline environment data and also coastal process and coastal process change information. The key assumptions and risks are:

- a) Given the assessment of policy the affects of construction related disturbances cannot be assessed, and would need to be taken into account in any scheme level application (and supporting Appropriate Assessment).
- b) Given the extremely varied nature of potential policy implementation, the assessment has been undertaken on a likely extreme case scenario. This may differ depending on the nature of the environmental features being assessed, and where complete confirmation of no adverse effect on integrity maintains a low level of risk monitoring has been identified.
- c) Coastal process changes are extremely dependent on and sensitive to likely site specific implementation. Too precautionary an approach would always result in an adverse effect having to be identified, and subsequently extremely unrealistic compensatory habitat requirements being indicated, where they are not required. Essentially, at strategy and scheme level development these processes would need to be examined in detail and supported with a detailed Appropriate Assessment. However, assessment of changes to sediment transport and coastal processes has been undertaken based on information extracted from the SMP documents and through discussion with the engineers and coastal geomorphologists who developed the SMP, and it is therefore considered that any significant impacts will have been identified. However, monitoring has also been identified for many areas for future recommendations.
- d) The sensitivity of policy options has been considered through the basis of examination of 3 different epochs. Given the extremely high uncertainty in predicting climate change and sea level rise, the differing extents of erosion and tidal elevations are considered appropriate in representing a 'sensitivity' check for the assessment. In addition, the future reviews of SMPs will enable confirmation and alteration of potential effects to occur as actual quantified data and understanding of the ever changing coastline develop. Again this also supported by the ongoing monitoring recommended within this HRA and the SMP itself.
- e) In the rare cases of a transition from the defended coastline (already HTL or HTL in Epochs 1 or 2) to No Active Intervention, the baseline assumption has been that defences would be left in situ to deteriorate over time. Given that the rate of deterioration cannot be known, as different sections of defences may fail or be removed and eroded very quickly whilst others may be inundated by sediments, the assessment has assumed that where these existing structures occur, the rate of removal of these structures and change to a natural coastal form would occur rapidly and within the first Epoch of NAI, such that limited inhibition of natural change would occur. There is a risk that this could affect intertidal habitat evolution, however, given the limited sections of coast where this may occur, the energetic nature of the coastal processes, the unpredictable nature of storms, and rapidity with which such defences can be removed, this risk is considered to be low. Coupled with the fact that in some cases there may be a health and safety requirement for users of the coast for such sections of decaying defences to be removed to prevent accidents, this is not seen as a material consideration in the assessment of the effects of the SMP.

2.6 Provision of an 'In Combination' and Cumulative Assessment

2.6.1 The 'in combination' assessment will build on the assessment of policy and the summary tables provided in the previous stage. It will then consider the impacts of SMP policy in combination with all other policies or approved projects yet to be implemented. The specific focus of this stage will relate to the consideration of those plans and projects that are likely to have the same effect as the policies of the SMP2. In the context of the SMP2, this is likely to relate to other plans or projects, which may have effects of coastal habitat or processes that support habitat or species. The plans and projects considered to be the most relevant to this study are discussed in **Section 4** of this report. An assessment for each SMP2 PDZ will be provided which accounts for the 'in combination' effects of other plans or projects (from the list provided in **Section 5**) that have similar impacts to that of the specific policy within a Management Area or Policy Unit. An accompanying rationale will be provided to support this.

2.6.2 The 'in combination' assessment will be summarised in regard to the overall conclusions which can be drawn to provide a clear summary for each SMP2 PDZ so that the impacts of the policies within the unit alone, and 'in combination' with other plans and projects is clearly expressed.

2.7 Levels of Assessment of Adverse Effect on the International Sites

2.7.1 The assessment provided will offer a simple breakdown of policy (at the PDZ level) as follows:

- PDZs containing policy which are not considered to have an adverse effect on International Sites;
- PDZs containing policy which are considered to have an adverse effect on the integrity of Sites.

2.7.2 This classification has been provided for effects that are either due to the policies within the PDZ alone, or in combination with other policy, plans or projects.

2.7.3 If it has been concluded that all of the SMP2 policies alone or 'in combination' with other plans or projects, would not have an adverse effect on the International Sites in question, then the assessment would be concluded at this stage, with a recommendation that the SMP2 be implemented in its current form. If at the conclusion of the above stages, policies remain where it cannot be shown that the impacts of policy would not have an adverse effect on the integrity of any of the International Sites, consideration will then need to be given to how such effects could be avoided in regard to preventative measures and mitigation (within the designated area).

2.7.4 Guidance, case studies and examples of best practice would form the basis of the assessment to suggest measures that would need to be taken, to enable policy adoption not to affect Site integrity. At this stage, the determination of feasible measures would be refined in consultation with the SMP2 Client Steering Group (CSG) to ensure that suggested measures are acceptable in the shoreline management context and in regard to the impacts of policy. Following this collaborative process, a series of measures would be specified which would clearly demonstrate how adverse impacts have been avoided or mitigated for each relevant policy. Where mitigation and preventative measures are identified as being necessary for determining no adverse effect on site integrity, these measures will need to be incorporated as part of the SMP2. If policies remain for which

preventative measures or mitigation cannot be established, then they will be taken forward for further consideration.

2.8 Stage 4: Approval or Refusal of the Plan

- 2.8.1 Only where the plan or project can be determined as not having an adverse effect on any International Site can it be approved by the Competent Authority. Where it is not possible to determine that a plan or project under consideration will not have an adverse effect on an International Site(s) following preventative measures and mitigation, then alternative solutions which avoid harming Site integrity must be sought. An investigation into alternative solutions will consider whether the objectives of the plan can be achieved in an alternative way to avoid adverse effects on the International Site. In order to comply with Article 6(4) of the Habitats Directive, if there are alternatives, the option put forward for approval must be the least damaging for habitats, for species and for the integrity of the Natura 2000 Site, regardless of economic considerations, and no other feasible alternative must exist that would not affect the integrity of the Site.
- 2.8.2 This consideration follows a two stage process. Firstly, the assessment of preferred policy option needs to be considered – “can the policy in question be replaced by a policy that will meet the requirements of the wider SMP2 and yet avoids any impacts on International Sites?” The consideration of policy alternatives will require the combined efforts of the HRA and SMP2 project teams and the SMP2 CSG. If the SMP2 is found to lack any viable alternative policy options, the matter of whether the policy is required in the ‘interests of overriding public interest’ (IROPI) will need to be considered.
- 2.8.3 This is the last stage in the HRA process and is only reached if the assessment of the SMP as a whole, results in negative impacts to the integrity of an International Site and no alternative solutions or preventative measures are available. It should be noted that IROPI is not a straightforward process. Claims for policy adoption on the grounds of IROPI need to be carefully considered with regard to Regulations 62 and 66 of The Conservation of Habitats and Species Regulations 2010. The procedure for pursuing policy on the grounds of IROPI is well defined in the 2010 Regulations and in guidance. The particulars will depend on the actual reasons for the IROPI claim (for example, is the policy required on the grounds of social or economic factors, or is it a public health and safety issue?) and the priority attached to the species or habitat in question.
- 2.8.4 Provision of compensatory measures under Regulation 66 is a necessary element in undertaking policies on the basis of IROPI (Regulation 62). The availability of acceptable compensatory measures under Regulation 66 will need to be provided alongside presentation of the case for IROPI, so that the case can be fully considered. Suitable compensatory measures must be in place prior to any damage resulting from the plan or project such that the overall coherence of the Natura 2000 network is maintained.
- 2.8.5 Identification of acceptable compensatory sites would enable ‘no adverse effect on integrity of the European Sites’ to be determined at the plan level. However, at the SMP2 implementation stage, the ultimate HRA would need to determine adverse effect on integrity, no alternative solutions, IROPI, and formally identify the offset land as compensatory habitat under Regulation 66. The National Habitat Creation / Remediation Programme for Wales (Environment Agency Wales) will potentially use information gathered from the West of Wales SMP2 HRAs to identify loss and potential areas for compensation. This will then enable ‘strategic land acquisition’ against a known future requirement to compensate for coastal squeeze on a regional scale, and provide

opportunities for compensatory habitat under The Conservation of Habitats and Species Regulations 2010.

- 2.8.6 The HRA including the examination of alternative options, case for IROPI, and compensatory habitat requirements and details will need to be submitted to the Welsh Assembly Government.

2.9 Roles of Organisations in the HRA Process

Competent Authority

- 2.9.1 One of the first steps in addressing SMPs under The Conservation of Habitats and Species Regulations 2010 is identification of the lead Competent Authority, since there are 6 local authorities within the West of Wales SMP2 study area. In this instance, Royal Haskoning is undertaking the technical analysis that forms the basis of the HRA, but the ultimate responsibility for signing off the Appropriate Assessment, if necessary, and ensuring compliance with the Regulations falls to the Competent Authority. In this instance, the Competent Authority is the Pembrokeshire County Council.
- 2.9.2 The Competent Authority is responsible for ensuring an AA is carried out before deciding to undertake, or give any consent, permission or other authorisation, for a plan or project likely to have a significant effect on an International Site, either alone or in combination with other plans and projects. They are also responsible for consulting the appropriate nature conservation body for the purposes of the assessment, and having regard to its representations.

Countryside Council for Wales

- 2.9.3 In Wales, the 'appropriate nature conservation body' under the Habitats and Species Regulations 2010 is the CCW. On behalf of the Government, CCW provides advice and guidance on implementing international conventions, EC Directives and national legislation on nature conservation; this includes The Conservation of Habitats and Species Regulations 2010, as follows:
- Provide advice on whether plans and programme are likely to have a significant effect [either alone or in combination with other plans and projects] when requested to do so;
 - Advise competent authorities whether a plan or programme is necessary for the management of the site;
 - Comment on Appropriate Assessment;
 - Provide advice on the ecological requirements of any compensatory measures; and
 - Provide advice on the suitability of any proposed compensatory measures.

Environment Agency Wales

- 2.9.4 The Environment Agency Wales is responsible, along with the Local Authorities and CCW for coastal risk management on the West of Wales. As such, they play a key role in the development of the SMP. The Agency also takes a strategic overview of all sea flooding and coastal erosion risk management and is an important consultee in the HRA process. Furthermore, the Agency regulates and consents a range of activities which have the potential to affect the integrity of internationally designated nature conservation sites.

Welsh Assembly Government

- 2.9.5 The Welsh Assembly Government is responsible for:
- Ensuring that if there is a negative assessment of a plan or project, agreement to that plan or project is only given if there are no alternative solutions, if it is for Imperative Reasons of Overriding Public Interest (IROPI), and where any compensatory measures that may be required are secured;
 - Directing the plan-making authority not to give effect to a plan that may have an adverse affect on Site integrity;
 - Securing any necessary compensatory measures to ensure that the overall coherence of Natura 2000 network is protected;
 - Confirming that any compensatory measures are sufficient to maintain the coherence of Natura 2000 network; and
 - Informing the Commission of the measures adopted.

2.10 Consultation

- 2.10.1 An HRA Scoping Report was sent out to a variety of consultees, who sit on the Client Steering Group (CSG). This included statutory consultees such as CCW and the Environment Agency Wales.
- 2.10.2 The consultation period ran for 3 weeks from 23rd July 2010. Comments received have informed the AA stage of the HRA (refer to **Annex H-III** for the stakeholder comments).

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3 BASELINE SUMMARY OF THE RELEVANT INTERNATIONAL SITES

3.1 Conservation Objectives

3.1.1 The favourable conservation status of the Site is defined through the Site's conservation objectives and it is against these objectives that the effects of the plan or project must be assessed. Conservation objectives set out the physical, chemical and biological thresholds, and the limits of anthropogenic activity and disturbance which are required to be met to maintain the integrity of the site. Conservation objectives serve both as criteria against which Site condition can be assessed and reported against, and also as a basis for assessing plans or projects that may affect the Site.

3.1.2 Conservation objectives for European Marine Sites are set out in the Relevant Regulation 33 documents (so called as their production is a requirement of Regulation 33 (2) of the 1994 Habitats Regulations) for each site; however, this is now superseded by Regulation 35 of the Conservation of Habitats and Species Regulations 2010. European Marine Sites within the SMP2 study area are the responsibility of CCW.

3.1.3 For qualifying species, the conservation objectives can be generalised, so as to avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the Site is maintained, and to ensure for the qualifying species that the following are maintained in the long term:

- populations of the species as a viable component of the site;
- distribution of the species within site;
- distribution and extent of habitats supporting the species;
- structure, function and supporting processes of habitats;
- supporting the species; and
- no significant disturbance of the species.

3.1.4 For qualifying habitats the conservation objectives can be generalised to ensure the following aspects of the qualifying habitats are maintained in the long term:

- extent of habitat on the site;
- distribution of habitat within site;
- structure and function of habitat;
- processes supporting the habitat;
- distribution of typical species of the habitat;
- viability of typical species as components of the habitat; and
- no significant disturbance of typical species of habitat.

3.2 Summary of the Relevant International Sites

3.2.1 **Table 3.1** below summarises the Sites and their relevant interest features that were considered with regards to the potential impacts from the SMP2 policy options in the Appropriate Assessment. Further details are presented in detailed boundary maps in **Annex H-I** and the Scoping Report in **Annex H-II** along with details of the Sites and features that have been scoped out.

Table 3.1 Qualifying Features of the Natura 2000 and Ramsar Sites included in this Assessment

Limestone Coast of South West Wales / Arfordir Calchfaen de Orllewin Cymru SAC
Vegetated sea cliffs of the Atlantic and Baltic coasts Fixed dunes with herbaceous vegetation (‘grey dunes’) European dry heaths Semi-natural dry grassland and scrubland facies: on calcareous substrate (festuco-Brometalia)/Dry grasslands and scrublands on chalk or limestone Caves not open to the public Submerged or partially submerged sea caves Petalwort <i>Petalophyllum ralfsii</i> Greater horseshoe bat <i>Rhinolophus ferrumequinum</i> Early gentian <i>Gentianella anglica</i>
Pembrokeshire Marine/ Sir Benfro Forol SAC
Estuaries Large shallow inlets and bays Reefs Sandbanks which are covered by seawater all the time Mudflats and sand flats not covered by seawater at low tide Coastal lagoons Atlantic saltmeadows (<i>Glaucio-Puccinellietalia maritima</i>) Submerged or partially submerged sea caves Sea lamprey <i>Petromyzon marinus</i> River lamprey <i>Lampetra fluviatilis</i> Allis shad <i>Alosa alosa</i> Twaite shad <i>Alosa fallax</i> Otter <i>Lutra lutra</i> Grey seal <i>Halichoerus grypus</i> Shore dock <i>Rumex rupestris</i>
Cleddau Rivers / Afonydd Cleddau SAC
Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche –Batrachion</i> vegetation Active raised bogs Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) Sea lamprey <i>Petromyzon marinus</i> Brook lamprey <i>Lampetra planeri</i> River lamprey <i>Lampetra fluviatilis</i> Bullhead <i>Cottus gobio</i> Otter <i>Lutra lutra</i>
Pembrokeshire Bat Sites and Bosherton Lakes / Safleoedd Ystlum Sir Benfro a Llynno SAC
Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. Greater horseshoe bat <i>Rhinolophus ferrumequinum</i> Lesser horseshoe bat <i>Rhinolophus hipposideros</i> Otter <i>Lutra lutra</i>

<p>St David`s / Ty Ddewi SAC</p> <p>Vegetated sea cliffs of the Atlantic and Baltic coasts European dry heaths Floating water-plantain <i>Luronium natans</i></p>
<p>North West Pembrokeshire Commons / Comins Gogledd Orllewin Sir Benfro SAC</p> <p>Northern Atlantic wet heaths with <i>Erica tetralix</i> <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) European dry heaths Transition mires and quaking bogs Floating water-plantain <i>Luronium natans</i></p>
<p>River Teifi / Afon Teifi SAC</p> <p>Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation Sea lamprey <i>Petromyzon marinus</i> Brook lamprey <i>Lampetra planeri</i> River lamprey <i>Lampetra fluviatilis</i> Atlantic salmon <i>Salmo salar</i> Bullhead <i>Cottus gobio</i> Otter <i>Lutra lutra</i> Floating water-plantain <i>Luronium natans</i></p>
<p>Cardigan Bay / Bae Ceredigion SAC</p> <p>Sandbanks which are slightly covered by seawater all the time <i>Salicornia</i> and other annuals colonising mud and sand Reefs Submerged or partially submerged sea caves Bottlenose dolphin <i>Tursiops truncatus</i> Sea lamprey <i>Petromyzon marinus</i> River lamprey <i>Lampetra fluviatilis</i> Otter <i>Lutra lutra</i> Grey seal <i>Halichoerus grypus</i></p>
<p>Llyn Peninsula and the Sarnau / Pen Llyn a`r Sarnau SAC</p> <p>Mudflats and sand flats not covered by seawater at low tide <i>Salicornia</i> and other annuals colonising mud and sand Atlantic saltmeadows (<i>Glauco-Puccinellietalia maritimae</i>) Submerged or partially submerged sea caves Sandbanks slightly covered by sea water Estuaries Coastal lagoons Large shallow inlets and bays Reefs Otter <i>Lutra lutra</i> Grey seal <i>Halichoerus grypus</i> Bottlenose dolphin <i>Tursiops truncatus</i></p>
<p>Cors Fochno SAC</p> <p>Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the <i>Rhynchosporion</i></p>
<p>Morfa Harlech a Morfa Dyffryn SAC</p> <p>Embryonic shifting dunes Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (`white dunes`) Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)</p>

Humid dune slacks Petalwort <i>Petalophyllum ralfsii</i>
Meirionnydd Oakwoods and Bat Sites / Coedydd Derw a Safleoedd Ystlumod Meirion SAC
Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation Northern Atlantic wet heaths with <i>Erica tetralix</i> European dry heaths <i>Tilio-Acerion</i> forests of slopes, screes and ravines Bog woodland Old sessile oak woods with Ilex and Blechnum in the British Isles Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) Lesser horseshoe bat <i>Rhinolophus hipposideros</i>
Lleyn Fens / Corsydd Llyn SAC
Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> Alkaline fens Desmoulin's whorl snail <i>Vertigo moulinsiana</i> Geyer's whorl snail <i>Vertigo geyeri</i>
Seacliffs of Lleyn / Clogwyni Pen Llyn SAC
Vegetated sea cliffs of the Atlantic and Baltic coasts
Afon Gwyrfai a Llyn Cwellyn SAC
Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation Atlantic salmon <i>Salmo salar</i> Otter <i>Lutra lutra</i> Floating water-plantain <i>Luronium natans</i>
Abermenai to Aberffraw Dunes / Y Twyni o Abermenai I Aberffraw SAC
Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> type vegetation Embryonic shifting dunes Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') Fixed dunes with herbaceous vegetation ('grey dunes') Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) Humid dune slacks Petalwort <i>Petalophyllum ralfsii</i> Shore dock <i>Rumex rupestris</i>
Anglesey Coast: Saltmarsh / Glannau Môn: Cors heli SAC
Salicornia and other annuals colonising mud and sand Atlantic salt meadow (ASM) Estuaries Mudflats and sand flats not covered by seawater at low tide
Holy Island Coast / Glannau Ynys Gybi SAC
Vegetated sea cliffs of the Atlantic and Baltic coasts European dry heaths Northern Atlantic wet heaths with <i>Erica tetralix</i>
Cemlyn Bay / Bae Cemlyn SAC
Coastal lagoons Perennial vegetation of stony banks
Menai Strait and Conwy Bay / Y Fenai a Bae Conwy SAC
Sandbanks slightly covered by sea water Mudflats and sandflats not covered by sea water at low tide

Reefs Large shallow inlets and bays Submerged or partially submerged sea caves
Great Orme`s Head / Pen y Gogarth SAC
European dry heaths Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) Vegetated sea cliffs of the Atlantic and Baltic coasts
Castlemartin Coast SPA
Internationally important Article 4.1 Species (breeding): Chough <i>Pyrrhocorax pyrrhocorax</i>
Skokholm and Skomer SPA
Internationally important Article 4.1 Species: Chough <i>Pyrrhocorax pyrrhocorax</i> Internationally important Article 4.1 Species: Short-eared Owl <i>Asio flammeus</i> Internationally important Article 4.1 Species (breeding): Storm petrel <i>Hydrobates pelagicus</i> . Article 4.2 Species: Lesser black-backed gull <i>Larus fuscus</i> Article 4.2 Species (breeding): Manx shearwater <i>Puffinus puffinus</i> Article 4.2 Species (breeding): Puffin <i>Fratercula arctica</i>
Ramsey and St David's Peninsula Coast SPA
Internationally important Article 4.1 Species (breeding): Chough <i>Pyrrhocorax pyrrhocorax</i>
Dyfi Estuary / Aber Dyfi SPA
Internationally important Article 4.1 Species (wintering): Greenland white-fronted geese <i>Anser albifrons flavirostris</i>
Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA
Internationally important Article 4.1 Species (wintering): Chough <i>Pyrrhocorax pyrrhocorax</i>
Aberdaron Coast and Bardsey Island / Glannau Aberdaron and Ynys Enlli SPA
Internationally important Article 4.1 Species (breeding): chough <i>Pyrrhocorax pyrrhocorax</i> .
Holy Island Coast / Glannau Ynys Gybi SPA
Internationally important Article 4.1 Species (breeding and wintering): Chough <i>Pyrrhocorax pyrrhocorax</i>
Ynys Feurig, Cemlyn Bay and The Skerries SPA
Internationally important Article 4.1 Species (breeding): Roseate tern <i>Sterna dougallii</i> , common tern <i>Sterna hirundo</i> , Arctic tern <i>Sterna paradisaea</i> , Sandwhich tern <i>Sterna sandvicensis</i>
Puffin Island / Ynys Seiriol SPA
Internationally important Article 4.2 Species (breeding): Cormorant <i>Phalacrocorax carbo</i> (North-western Europe)
Lavan Sands, Conwy Bay / Traeth Lafan SPA
Internationally important Article 4.2 Species (wintering): Oystercatcher <i>Haematopus ostralegus</i> , Curlew <i>Numenius arquata</i> Internationally important Article 4.2 Species (passage): Great-crested grebe <i>Podiceps cristatus</i>
Cors Fochno and Dyfi Ramsar
Active raised bogs Depressions on peat substrates of the <i>Rhynchosporion</i> Degraded raised bogs still capable of natural regeneration

4 CONSIDERATION OF OTHER PLANS AND PROJECTS

4.1 Introduction

4.1.1 The Habitats Regulations provide the requirement for an ‘in combination’ assessment to determine the likely significant effects of a plan or project, alone or in-combination with other plans or projects. Annex 6 in TAN 5 (WAG, 2009) and in Assessing Projects under the Habitats Directive – Guidance for Competent Authorities (CCW, 2008) have provided guidance in regard to the manner in which ‘in combination’ assessment should be provided and the scope to which other plans or projects should be considered within this. In regard to the plans and projects which will need to be considered ‘in combination’ with the SMP, there is a clear need to provide an appropriate scope to ensure that the overall assessment is manageable and effective and meets with the terms of the Habitats Regulations. In order to provide a focus to determine which plans and project, will be included within this assessment, the following criteria have been applied:

- Projects which have been given consent, but which have not yet been implemented (this could include unimplemented large scale housing developments or proposals for port developments);
- Ongoing projects subject to regulatory reviews (such as capital dredging, port or harbour development);
- Other plans which contain policies which may trigger development which may impacts on the sites identified as being relevant to this assessment; and
- Non-statutory plans which may influence development.

4.1.2 On the basis of the above criteria, a review of policy within the plan area has been evaluated to determine the policy which needs to be included within the ‘in combination’ assessment. Clearly, the policies which will be relevant in the context of the HRA are quite specific. Such policies will relate to the allocation of development (spatially defined) which will have an equivalent effect on sites when compared with SMP policy. For example, one of the key mechanisms relating to impacts on the International Sites has been identified as habitat loss as a result of coastal squeeze, and accordingly, policies which have the same effect have been included within the ‘in combination’ assessment. Key policy areas will therefore relate to development allocation within the coastal zone and coastal zone flood risk management. There is also the potential for SMP policy to have an effect which in-combination with an entirely different effect from another plan or project. The assessment of differing effects is considered to be extremely complex, given the uncertainties at the policy stage assessment. It is therefore considered to be more appropriate for differing effects to be considered at the proposal stage.

4.1.3 **Section 6** provides an account of how this in-combination assessment has been provided in the context of the plans identified below and the broader assessment of SMP policy.

4.2 Plans and Projects within the SMP Area

4.2.1 The following list of Regional plans have been considered as part of the in-combination assessment.

- The Isle of Anglesey Local Development Plan (LDP) 2006 -2021;
- Anglesey AONB Management Plan Review 2009;
- The Ynys Môn (Anglesey) Catchment Abstraction Management Strategy Consultation Document 2006;
- Ceredigion County Council Preferred Strategy Local Development Plan Consultation 2007 – 2022;
- Ceredigion Local Biodiversity Action Plan 2002;
- The North Ceredigion Catchment Abstraction Management Strategy 2008;
- Conwy Local Development Plan Preferred Strategy 2006;
- Conwy Catchment Abstraction Management Strategy 2004;
- Conwy Local Biodiversity Action Plan;
- Gwynedd Unitary Development Plan 2001 – 2016;
- Gwynedd Local Biodiversity Action Plan;
- Pembrokeshire Local Development Plan Preferred Strategy Consultation Document 2011-2021;
- Pembrokeshire Local Biodiversity Action Plan 2000; and
- Previous Shoreline Management Plans for West of Wales (SMP1) - Pembrokeshire, Central Cardigan Bay, North Cardigan and Ynys Enlli to Great Orme.

Local Development Framework and Local Development Plans

4.2.2 Local Development Plans (LDPs) are produced by local authorities to replace Unitary Development Plans (UDPs), and set out the broad framework for planning and development in the local authority area.

4.2.3 The main issue for LDPs (or UDP) in the context of shoreline management plans and their compatibility with The Conservation of Habitats and Species Regulations 2010 is where land is allocated for housing, employment or other uses, development of which may prejudice SMP2 policies. For example, housing allocations in areas currently prevented from flooding by flood defence structures or practices would make it more difficult to undertake managed retreat or abandon existing defences. Managed realignment or no active intervention options may be preferred, or necessary in response to coastal squeeze, which may be adversely affecting International Sites.

5 THE 'ALONE' ASSESSMENT OF SMP POLICY

5.1 Introduction

- 5.1.1 The assessment is based on a consideration of the SMP habitat groupings for each of the designations within or around the West of Wales, the sensitivity of these habitats, the effects of policy and the need for preventative measures. This transparent approach to the assessment ensures that the actual level of assessment remains appropriate and that the assessment is critically focussed on the effects of policy on the integrity of the Sites (and not on wider ecological considerations unrelated to designated features).
- 5.1.2 The level of assessment is intended to provide a level of detail commensurate with the nature of SMP policy. SMP policy is relatively abstract (relating to a simple statement of intent for areas) and the actual level of impact and effects will be largely determined by the particulars of subsequent strategies, schemes and projects. It is at this stage that extremely detailed levels of assessment are possible and required.
- 5.1.3 The assessment has used the findings of the SMP2 study of shoreline erosion for the three epochs, along with sea level rise change, to ascertain the likely extent and quantity of change to the physical character of each Site, and from that determine likely effects. In addition, as no specific modelling has been undertaken at this strategic level, qualitative information on the hydrodynamic and coastal processes has been drawn out from the SMP2 study and through discussions with the coastal engineers and geomorphologists has been used where appropriate.
- 5.1.4 The assessment has been provided in detailed assessment sheets in **Annex H-IV**. The first stage of the assessment provided an initial appraisal of SMP policy on the relevant SMP habitat groups, with a view to establish where shoreline policy would demonstrably not have a significant effect on International Sites. The assessment of effects on International Sites follows the 'reverse burden of proof paradigm', where if any doubt exists as to the effect of policy, then "no adverse effect on integrity" (NAEOI) cannot be concluded. As such, only those sites where NAEOI can definitely be proved, or where the basis of established expert opinion discounts any adverse effect, can be assessed as "passing" the appropriate assessment test.

5.2 Summary of West of Wales SMP Policy Under Assessment

- 5.2.1 For a detailed description of the policy for each PDZ, and the context for such management, the SMP should be referred to. A summary of SMP policies in each PDZ likely to affect the International designations is given in **Annex H-V**.

5.3 Information to Inform the Appropriate Assessment

- 5.3.1 In order to undertake the Appropriate Assessment of the preferred policy options, details of the physical changes to the environment are required. In the context of the Shoreline Management Plan this should include details of changes to the tidal range and average sea levels, as well as the likely physical effects of the preferred policies. At this strategic level it is rare for absolute data to be available, predominantly as the policies are there to provide a range of possible actions (that then are developed to ascertain which is the most appropriate). Consequently, it must be understood and accepted that the data and scenarios used in this assessment are themselves 'high level' in terms of the simplistic tools that are used, and based on many assumptions.

5.3.2 Where no previous detailed modelling studies, or other studies into the long-term physical processes and how they will change, are available for particular units, we have used information provided by GIS that measures the likely change in area of intertidal habitats between MLWS and MHWS with each relevant level of sea level rise (+0.12m by the end of Epoch 1, +0.36m by the end of Epoch 2, and +1m by the end of Epoch 3.. This work does not take into account likely accretion or erosion that could arise, though for the majority of the habitat lost, it is expected that accretion is likely to reduce the potential losses that have been derived from this assessment.

5.4 PDZs Considered to have No Adverse Effect on Integrity of International Sites

5.4.1 No Adverse Effect on Integrity (NAEOI) was considered for the following PDZs:

PDZs deemed to have No Adverse Effect on Integrity (NAEOI):

PDZs 1, 4, 5, 6, 7, 8, 9, 14, 15, 17, 18 and 19

5.4.2 For further information relating to the appraisal of these assessment units, please refer to **Annex H-IV of this document**. A summary of the factors leading to the assessment of these PDZs is, however, provided below.

PDZ 1

5.4.3 Within PDZ1, the entire coastline is currently undefended and the SMP policy in this PDZ provides for three NAI policies for all three epochs along the entire stretch of coastline to provide for natural development (through erosion) of the sea cliffs. PDZ 1 includes interest features of the South Pembrokeshire Marine SAC, Limestone Coast of South West Wales SAC, Castlemartin Coast SPA, Pembrokeshire Bat Sites and Bosherton Lakes SAC, Skokholm and Skomer SPA, and Grassholm SPA. **Any loss of habitat that occurs within PDZ1 occurs as a result of natural process and not the SMP2 policy.**

5.4.4 **Summary of the potential impacts of policy:** The policy of NAI will enable the vegetated sea cliffs, an interest feature of the South Pembrokeshire Marine SAC to develop in response to the wider coastal processes and will continue to provide a supply of sediment to intertidal and marine areas. The NAI will not affect the intertidal and subtidal rocky habitats (sea caves and reefs).

5.4.5 **Preventative/mitigation measures:** None.

5.4.6 **Implications for the integrity of the Site:** It can be concluded that adopting natural change along this area of coast will have **no adverse effect on the integrity** of the South Pembrokeshire Marine SAC, which is the only International site within this PDZ. Furthermore, it is concluded that **no adverse effect on the integrity** would occur as a result of the policy on Limestone Coast of South West Wales SAC, Castlemartin Coast SPA, Pembrokeshire Bat Sites and Bosherton Lakes SAC, Skokholm and Skomer SPA, and Grassholm SPA.

5.4.7 Habitat loss will occur to the SAC along the coast of PDZ 1 (PUs 1.1 and 1.2 only); however, as they are subject to NAI policies the habitat loss to erosion is considered to be in response to natural processes and not the SMP policies.

PDZ 4

- 5.4.8 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL, MR, and a potential one of ATL. PDZ 4 does not include any internationally important sites, the nearest of which being the Cleddau Rivers SAC.
- 5.4.9 **Summary of the potential impacts of policy:** The Cleddau Rivers SAC is located approximately 3 km from the nearest PU within PDZ 4. The flooding and erosion extent over the 3 epochs does not impact on this SAC or any of its interest features. No habitat loss occurs in this SAC as a result of the PDZ 4 policies.
- 5.4.10 **Preventative/mitigation measures:** None required.
- 5.4.11 **Implications for the integrity of the Site:** It can be concluded that given the distance to the SAC and that no habitat loss will occur there as a result of the policies for this PDZ there will be **no adverse effect on the integrity** of the Cleddau Rivers SAC, which is the only International site adjacent to this PDZ.

PDZ 5

- 5.4.12 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 5 includes interest features of the Afon Teifi / River Teifi SAC and the Cardigan Bay / Bae Ceredigion SAC.
- 5.4.13 **Summary of the potential impacts of policy:**
- Cardigan Bay SAC*
- 5.4.14 The preferred policy at the inner estuary west (PU 5.4), Bryn-y-mor (PU 5.6), Gwbert Cliffs (PU 5.9), and St Dogmaels and Castle Farm (PU 5.10) is NAI; which would allow the estuary and the associated sand/mudflats and cliffs to develop naturally and respond to sea level rise.
- 5.4.15 The HTL along the majority of the remaining estuary/river (PUs 5.5, 5.7, 5.8, 5.11 and 5.12) will result in coastal squeeze and a loss of mudflat and sandflat habitat due to a change in coastal processes.
- 5.4.16 The sand spit located at the mouth of the estuary (PU 5.3) will be managed through continued recharge with dredged materials. As the sea level rises and the spit is recharged, it is expected that the coastal processes in the area will change and may result in sediment deposition further into the estuary and/or erosion to adjacent sandflats. However, the dunes specifically should be unaffected given that they will continue to receive a supply of sand and maintain their developing and succession characteristics.
- 5.4.17 On the north side of the river at PUs 5.7 and 5.8, the policy of HTL would result in a loss of intertidal habitat of mudflat and sandflat. The sandflats located in PU 5.9 (Gwbert Cliffs) will be able to respond naturally to sea level rise in epochs 1 and 2 under the preferred policy option of NAI. In epoch 3, the habitat may be squeezed as landward movement of the sandflats, and the cliffs may be constrained by the defended road behind. MR planned for epoch 3 to the road (Coronation Drive, PU 5.7) may result in extension of the road defence.

5.4.18 The policies are not expected to result in the direct (footprint) loss or disturbance to reef, subtidal sandbank, or submerged or partially submerged sea cave habitat. Given the nature of the locations there are no expected changes to chemical parameters or hydrodynamic parameters that would affect nearshore or intertidal reefs.

5.4.19 No direct or indirect effects are expected on the Annex I species for which the site is designated.

River Teifi SAC

5.4.20 The majority of the coastline in PDZ 5 comprises cliffs, with the occasional sandflat, the majority of which are located within the Teifi Estuary, which is not listed by JNCC as a feature of this SAC, including the mudflats.

5.4.21 The preferred policy at the inner estuary west (PU 5.4), Bryn-y-mor (PU5.6), Gwbert Cliffs (PU 5.9), and St Dogmaels and Castle Farm (PU 5.10) is NAI which would allow the estuary and the associated sand/mudflats and cliffs to develop naturally and respond to sea level rise.

5.4.22 A change to the coastal processes and coastal squeeze may result in the extension of saline water into the River Teifi and potentially having an impact on the integrity of the SAC habitats (water course of plain to montane levels) and its typical species, in particular river and brook lamprey. MR is the preferred policy option within the area of sand dunes in PU 5.3 (north and south side of river), however, the SMP policy itself would not cause or result in an adverse effect as the extension of the saline limit within the river would occur as a result of sea level rise.

5.4.23 However, during construction works particularly for MR policy implementation, there is a potential for otters and their habitat to be disturbed by construction machinery and this could result in the under-achievement of the conservation objectives and could therefore affect site integrity. HTL for PUs 5.11 and 5.12 occur in areas of existing hard defences, and would not encroach on the river, and subsequently would not be expected to result in the loss or change of supporting habitat for otters.

5.4.24 **Preventative/mitigation measures:** During the design and application for any scheme, surveys of the area of proposed works should be undertaken to determine whether otter activity occurs, and works should be undertaken whereby construction disturbance would not occur on or immediately adjacent to otter habitat, or that disturbance would not affect sensitive times of the year for the otter population. Monitoring of the intertidal habitats and extents within the outer estuary should be undertaken to determine how the habitats are responding to sea level rise, and ensure that unforeseen constraints and impacts do not occur.

5.4.25 **Implications for the integrity of the Site:**

Afon Teifi/ River Teifi SAC: **conclude no adverse effect on the integrity of the SAC.**

Cardigan Bay/ Bae Ceredigion SAC: **conclude no adverse effect on the integrity of the SAC.**

PDZ 6

- 5.4.26 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 6 includes interest features of the Cardigan Bay / Bae Ceredigion SAC.
- 5.4.27 **Summary of the potential impacts of policy:** HTL is proposed for all epochs in PUs 6.2 (Aberporth) and 6.8 (Cwmtedu), and for epoch 1 only for PUs 6.4 (Tresaith) and 6.6 (Llangrannog). Although the HTL policies could result in constraint to the intertidal habitat, this is not a feature of the Cardigan Bay SAC, and no adverse effect is expected on the SAC features.
- 5.4.28 The submerged or partially submerged sea caves are located on the coast where NAI is the preferred policy option; therefore the cliffs can erode naturally in response to sea level rise. If the caves are lost due to the eroding cliffs, this would be as a result of natural processes and not the SMP policies – however, new caves will be created as part of the natural process.
- 5.4.29 NAI along the majority of the coastline will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease. No significant impact will occur to the biogenic reefs (see **Annex H-IV** and **Annex H-VI**) as any management occurs to local areas behind beaches and will not have an impact on a large scale of the coastal processes or changes to chemical parameters or hydrodynamic parameters that would affect nearshore or intertidal reefs.
- 5.4.30 The SMP policies would not be expected to have an impact on the integrity of the SAC or the bottlenose dolphin's resident there.
- 5.4.31 Grey seals may occur along discreet areas of coastline within PDZ 6. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites.
- 5.4.32 **Preventative/mitigation measures:** None required.
- 5.4.33 **Implications for the integrity of the Site:**

*Cardigan Bay/ Bae Ceredigion SAC: HTL at PUs 6.2, 6.4, 6.6, and 6.8 could result in constraint to the intertidal habitats, however, as these are not a qualifying feature of the Cardigan Bay SAC it can be concluded that there will **no adverse effect on the integrity of the SAC.***

PDZ 7

- 5.4.34 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 7 includes interest features of the Cardigan Bay / Bae Ceredigion SAC.
- 5.4.35 **Summary of the potential impacts of policy:** The HTL policies within PDZ 7 are located along existing hardcliff or set back behind the beach, therefore it is unlikely that coastal processes or direct disturbance to subtidal sandbanks or reefs would occur, or that changes to chemical parameters or hydrodynamic parameters would occur that would affect nearshore or intertidal reefs.

- 5.4.36 NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease.
- 5.4.37 A HTL policy will cause habitat loss of the rocky intertidal in the long term as sea levels rise and the shore is squeezed, under such conditions the area of subtidal reefs would decrease in extent. However, the only place where this is likely is within the harbour PU 7.2 (Traeth y Dolau, New Quay Harbour to Penpolian) where the walls will not affect the biogenic reefs as they themselves form artificial reefs. In addition, there will be no impact to the beach fronts as a result of a change in coastal processes as the defences are located on land or the upper intertidal zone (see **Annex H-VI**). MR in the long term would ensure that coastal squeeze would not be an issue. HTL for the defences at PU 7.5 (Ceï Bach) would not extend into the intertidal zone and would not constrain the subtidal or biogenic reef habitats (see **Annex H-VI**), or result in significant or determinable changes to local hydrodynamics to the extent that they would exert pressure on the intertidal reef habitats.
- 5.4.38 During the implementation of the HTL policies at New Quay and Ceï Bach, there is a potential for direct disturbance to intertidal reef habitat during construction works, which could result in the destruction of reef habitat, which could undermine the conservation objectives of the SAC.
- 5.4.39 Grey seals may occur along discreet areas of coastline within PDZ 7. However, loss of habitat as a result of SMP policy is not expected, though natural loss may occur as a result of coastal squeeze as the coast naturally erodes, therefore no impact is expected on the seal haul out sites.
- 5.4.40 **Preventative/mitigation measures:** During the design and application for any scheme surveys of the intertidal and shallow subtidal should be undertaken to determine whether reef communities or habitat are present, and if present the works should be undertaken whereby construction disturbance would not occur on or immediately adjacent to these reef habitats and communities. To pre-empt this need, a programme of monitoring of the reef communities within PUs 7.2 and 7.5 should be undertaken. Monitoring should also be carried out to ensure sediment supply is being maintained and that the hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the reef features.
- 5.4.41 **Implications for the integrity of the Site:** The various policies do not result in a constraint to the development of Cardigan Bay SAC habitats as a result of sea level rise, and there is no risk that the mitigation or avoidance measures would not prevent disturbance to reef features, and as such it can be concluded that there will be **no adverse effect on the integrity of the SAC**.

PDZ 8

- 5.4.42 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 8 includes interest features of the Cardigan Bay/ Bae Ceredigion SAC.
- 5.4.43 **Summary of the potential impacts of policy:** The coastline with the most potential for sea caves is located within PUs 8.1 and 8.5, where the preferred policy is NAI. However, this loss will occur naturally and not as a result of the SMP.

- 5.4.44 The geogenic reefs within the Cardigan Bay SAC are predominantly located in the west and south of the area, though reef habitat is present in PUs 8.2, 8.4, and 8.6 (see **Annex H-VI**). However, the overall mix of HTL and MR policies (occurring in epochs 2 and 3) are not expected to result in a loss of geogenic or biogenic reef habitat, and would be expected to see an increase in the subtidal geogenic reef habitat. No impact will occur to the biogenic reef habitat within the intertidal and shallow subtidal as any management occurs to local areas behind beaches and will not alter the water movements of intertidal areas except in the immediate upper shore fronting HTL and/or MR locations, where reef habitats are not found (see **Annex H-VI**). In addition, they will not have an impact on a large scale on the coastal processes or wider extents of reef habitat in the wider site.
- 5.4.45 No constraints would occur as a result of SMP policies that would obstruct or inhibit fish migration or alter any possible spawning sites for sea lamprey or river lamprey.
- 5.4.46 Grey seals may occur along discreet areas of coastline within PDZ 8. However, loss of habitat will be minimal in the long term as a result of coastal squeeze due to defence of built settlement and transport infrastructure, and due to the extensive human activity no seal haul out sites are located in the frontages where potential reduction in beach width could occur.
- 5.4.47 **Preventative/mitigation measures:** During the design and application for any scheme surveys of the intertidal and shallow subtidal should be undertaken to determine whether reef communities or habitat are present, and if present the works should be undertaken whereby construction disturbance would not occur on or immediately adjacent to these reef habitats and communities. To pre-empt this need, a programme of monitoring of the reef communities within PUs 8.2, 8.4, and 8.6 should be undertaken. If this is not feasible, monitoring should be carried out to ensure sediment supply is being maintained and that the hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the reef features.
- 5.4.48 **Implications for the integrity of the Site:**

Cardigan Bay/ Bae Ceredigion SAC: The various policies do not result in a constraint to the development of Cardigan Bay SAC habitats as a result of sea level rise, and as such it can be concluded that there will be **no adverse effect on the integrity of the SAC**.

PDZ 9

- 5.4.49 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 9 includes interest features of the Pen Llyn a'r Sarnau / Llyn Peninsula and the Sarnau SAC.
- 5.4.50 **Summary of the potential impacts of policy:** No potential impacts have been identified for this PDZ. The preferred policy of MR at Clarach Bay (PU 9.11) will involve retreating the central part of the bay over the 3 epochs. MR of the current breakwater would allow for the beach area to widen and would increase the extent of intertidal habitat in the short to medium term. In addition, this would result in an overall increase in the extent of potential intertidal and subtidal reef habitat, and would not constrain the existing biogenic reefs (see **Annex H-VI**).

- 5.4.51 The NAI policy in PU 9.12 and PU 9.13 will allow the intertidal habitats to respond naturally to sea level rise and any loss of habitat will occur in response to natural processes and not the SMP.
- 5.4.52 NAI policies on the open coastline where cliffs are present (PUs 9.1, 9.10, 9.12 and 9.13, will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease.
- 5.4.53 Nearly 40% (about 125,000) of the world population of grey seals is found in the British Isles, with a relatively stable population of about 6,000 in Wales. Coastal squeeze may result in a general loss of haul out sites within the Llyn Peninsula and the Sarnau SAC over all 3 epochs. Haul out sites for grey seals are located within this SAC and in particular are located to the south of the Dyfi Estuary on the open coast of PDZ 10, although the coastline to the north end of PDZ may support grey seal populations. However, the policies along the coast north of Glarach are NAI and hence natural processes of erosion and accretion would occur in response to sea level rise. Seal haul out sites are therefore expected to remain, whilst there would be no change in the supporting habitats in terms of reduction of food resource due to habitat loss.
- 5.4.54 The MR policy within the Site boundary will not reduce the supporting habitats of these qualifying species.
- 5.4.55 PUs 9.1 to 9.10 are located outside the SAC, and other than the provision of sediment due to continued erosion identified above, no direct or indirect impacts are identified on the SAC features as a result of the policies within these PUs.
- 5.4.56 **Preventative/mitigation measures:** None required.
- 5.4.57 **Implications for the integrity of the Site:** The various policies do not result in a constraint to the development of the Pen Llyn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC habitats in response to sea level rise, and as such it can be concluded that there will be **no adverse effect on the integrity of the SAC.**

PDZ 14

- 5.4.58 With the exception of PU 14.8, the entire coastline within PDZ14 is currently undefended and the the SMP policy in this PDZ provides for ten NAI policies for all three epochs along the majority of the coastline to provide for natural development (through erosion) of the sea cliffs, with HTL and MR identified as the preferred policies at one PU location (PU 14.8). PDZ 14 includes interest features of the South Llyn Peninsula and the Sarnau SAC, the Llyn Fens SAC, the Seacliffs of Llyn SAC, the Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA, and the Aberdaron Coast and Bardsey Island SPA.
- 5.4.59 **Summary of the potential impacts of policy:** The policy of NAI will enable the vegetated sea cliffs and sandflats features of the SACs and SPAs to develop in response to the wider coastal processes and will continue to provide a supply of sediment to intertidal and marine areas. The NAI will not affect the intertidal and subtidal rocky habitats (sea caves and reefs).
- 5.4.60 The defended section of Aberdaron Village (PU 14.8) has a HTL policy in epochs 1 and 3 and MR in epoch 2 (MR will involve the improvement of the existing defence). The South Llyn Peninsula and the Sarnau SAC only encompasses a small area of sandflat within PU

14.8. The data extraction has shown that no intertidal mudflat or sandflat will be lost from within the SAC in PU 14.8.

- 5.4.61 The area of coast nearest the Lleyn Fens SAC has a preferred policy of NAI, therefore the natural erosion of the coast and alteration of hydrology would develop naturally and not as a direct result of the SMP. There do not appear to be any obvious land constraints which would alter the integrity of this SAC. No habitat within this SAC within PDZ14 will be lost due to erosion.
- 5.4.62 The Seacliffs of Lleyn SAC covers over half of the coastline within PDZ 14. No HTL or MR policies are identified, with NAI being the preferred policy for the majority of this unit, therefore no direct or indirect effects as a result of coastal management policy is expected. No significant effect long term as the cliffs would be allowed to erode naturally and allow vegetated succession.
- 5.4.63 **Preventative/mitigation measures:** None required.
- 5.4.64 **Implications for the integrity of the Site:** Habitat loss will occur to the SACs and SPAs along the coast of PDZ 14, however, as they are subject to NAI policies the habitat loss to erosion is considered to be in response to natural processes and not the SMP policies it can be concluded that there will be **no adverse effect on the integrity** of the South Lleyn Peninsula and the Sarnau SAC, the Lleyn Fens SAC, the Seacliffs of Lleyn SAC, the Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA, and the Aberdaron Coast and Bardsey Island SPA.

PDZ 15

- 5.4.65 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 15 includes interest features of the Pen Llyn a'r Sarnau/ Lleyn Peninsula and the Sarnau SAC, the Corsydd Llyn/ Lleyn Fens SAC, and the Clogwyni Pen Llyn/ Seacliffs of Lleyn SAC.
- 5.4.66 **Summary of the potential impacts of policy:** Loss of intertidal sandflats within the Lleyn Peninsula and the Sarnau SAC will occur as a result of coastal squeeze and a change in the coastal processes resulting from the preferred HTL and MR policies at Porth Dinllaen (PU 15.2), Porth Nefyn West (PU 15.3), Trefor (PU 15.5) and Aberdesach (PU 15.6). However, the MR policy in epochs 2 and 3 would allow response to this coastal squeeze, with no evident extent occurring in epoch 1. As the SAC boundary only encompasses intertidal habitat within PU 15.2 (Porth Dinllaen), there is limited scope for landward movement of the intertidal habitat in epochs 2 and 3, and the policy of MR would allow this to occur (with local intent only to realign the access road at Morfa Nefyn). Consequently, no loss of intertidal habitat features due to constraint is identified.
- 5.4.67 The Seacliffs of Lleyn SAC is only present in part of PDZ 15 (PUs 15.1, 15.2 and 15.3) where the overarching policy is NAI. Localised policies within PDZ 15 include the managed retreat of the access road at Morfa Nefyn and only adaptation of properties at Porth Dinllaen. Consequently, there would be no interference of cliff response to sea level rise. Effectively the localised nature of intent in PU 15.2 and the NAI policy for PU 15.1 results in only natural loss to cliff habitat through erosion, however, the cliffs will be able to respond naturally to this, and no impact to the cliff habitat feature is expected.

5.4.68 The area of coast nearest the Llyn Fens SAC has a preferred policy of NAI, therefore the natural erosion of the coast and alteration of hydrology would develop naturally and not as a direct result of the SMP. There do not appear to be any obvious land constraints which would alter the integrity of this SAC or habitat of the Desmoulin's whorl snail *Vertigo moulinsiana* and the Geyer's whorl snail *Vertigo geyeri*. This feature will not be lost or adversely affected due to the SMP2 policies in PDZ 15.

5.4.69 **Preventative/mitigation measures:** HTL within the zone is local with the intent of maintaining a slower rate of erosion of the naturally functioning cliffs.

5.4.70 Policy (PU 15.2) would change from HTL to MR in response to potential coastal squeeze, with MR actions solely linked to the realignment of the access road inland.

5.4.71 **Implications for the integrity of the Site:**

Pen Llyn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC: **conclude no adverse effect on the integrity of the SAC.**

Corsydd Llyn/ Llyn Fens SAC: **conclude no adverse effect on the integrity of the SAC.**

Clogwyni Pen Llyn/ Seacliffs of Llyn SAC: **conclude no adverse effect on the integrity of the SAC.**

PDZ 17

5.4.72 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 17 includes interest features of the Abermenai to Aberffraw Dunes SAC, Anglesey Coast: Saltmarsh SAC, Holy Island Coast SAC, Ynys Feurig, Cemlyn Bay and The Skerries SPA, and Holy Island Coast SPA.

5.4.73 **Summary of the potential impacts of policy:** The policy of NAI within the majority of the PUs will enable the sand dunes of the Abermenai to Aberffraw Dunes SAC to respond naturally to sea level rise. HTL in epoch 1 could potentially constrain dune development, however policy intent for HTL in epoch 1 is only along the existing quay wall which does not constrain or influence sediment movement and it is unlikely to affect the various dune features within the Site.

5.4.74 Within PDZ 17, only PUs 17.2, 17.3 and 17.4 are adjacent to the Anglesey Coast: Saltmarsh SAC; of which PU 17.2 and 17.4 have a preferred policy option of NAI. Therefore it is expected that the sand dunes will be able to respond naturally to sea level rise – and any loss will be a result of natural processes and not the SMP. On the whole, it is likely that the saltmarsh fronting the dunes will develop with sea level rise; however, furthermore the policy intent of HTL in epoch 1 at Aberffraw itself is not likely to constrain the saltmarsh and intertidal habitat fronting the defences as the quay wall is tied in to rising topography already resulting in a natural constraint to intertidal habitat development. The MR planned in epoch 2 and 3 will alleviate the constraints on the natural development of the system and therefore allowing natural development of the intertidal habitats in the long term providing an improved extent of space for landward migration.

5.4.75 The sandflats are located within PU 17.2 where there is a preferred policy of NAI over all 3 epochs; therefore any loss of habitat will occur as a result of natural processes and not the SMP2 policies.

- 5.4.76 The cliff feature of the Holy Island Coast SAC and the Holy Island Coast SPA are located within PU 17.14 where NAI is the preferred policy for this whole unit, therefore no direct or indirect effects are expected as a result of coastal management policy.
- 5.4.77 No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation, and response of intertidal mudflat and sandflat and dune habitats to sea level rise. No habitat loss occurs to this SAC or SPA due to erosion as a result of the preferred SMP policies.
- 5.4.78 No HTL or MR policies are identified within the Ynys Feurig, Cemlyn Bay and The Skerries SPA, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.
- 5.4.79 No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation, and response of intertidal mudflat and sandflat and dune habitats to sea level rise. No habitat loss occurs to this SAC due to erosion as a result of the preferred SMP policies.
- 5.4.80 **Preventative/mitigation measures:** Monitoring of the dune system in PU 17.3 should be undertaken to confirm no impact is occurring, and to allow for preventative measures to be implemented if required.
- 5.4.81 **Implications for the integrity of the Site:** It can be concluded that adopting natural change along this area of coast (within the PUs that encompass the SACs and SPAs) will result in **no adverse effect on the integrity** of the Abermenai to Aberffraw Dunes SAC, Anglesey Coast: Saltmarsh SAC, Holy Island Coast SAC, Ynys Feurig, Cemlyn Bay and The Skerries SPA, and Holy Island Coast SPA.

PDZ 18

- 5.4.82 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 18 includes interest features of the Bae Cemlyn / Cemlyn Bay SAC, and the Ynys Feurig, Cemlyn Bay and The Skerries SPA.
- 5.4.83 **Summary of the potential impacts of policy:** Within the Cemlyn Bay SAC the preferred policy option is for MR in epoch 1 with NAI the preferred policy option in epochs 2 and 3. The MR strategy would be to manage the natural change over epoch 1 and that the overall intent of NAI of epochs 2 and 3 would allow for natural development of the whole area, with the initial management there to ensure that this occurs gradually and allows for a gradual transition of conditions. However, the intent is only to manage the weir structure to manage the hydrological function of the lagoon progressively toward a naturally functioning system during epoch 1 whilst the shingle bank rolls back naturally. Consequently, the natural roll back of the shingle ridge in response to sea level rise will maintain the habitats and function for epoch 1. When policy changes to NAI and natural processes are left to develop unhindered, the long term changes though hard to predict will be the result of natural development within the Site and its surroundings that have developed during the progressive management of the hydrological function of the weir to the natural functioning system. However, uncertainty remains, as losses or extinctions could occur to lagoon communities if too rapid or uncontrolled alteration of lagoon hydrology occurred due to inappropriate management of the weir.

5.4.84 The cliffs within the SPA are subject to a preferred policy of NAI which will allow them to respond naturally to sea level rise and any loss of habitat will be as a result of natural processes and not the Ynys Feurig, Cemlyn Bay and The Skerries SPA.

5.4.85 **Preventative/mitigation measures:** In order to appropriately manage the change in lagoon communities, a strategy identifying the appropriate weir management of water levels and incursion over epoch 1 in order to achieve the natural lagoon system in epoch 2 should be carried out and implemented. The strategy should be undertaken with CCW in order to ensure that succession of communities and development toward the natural community structure occurs within appropriate timescales.

5.4.86 **Implications for the integrity of the Site:**

Bae Cemlyn/ Cemlyn Bay SAC: **conclude no adverse effect on the integrity of the SAC.**

Ynys Feurig, Cemlyn Bay and The Skerries SPA: **conclude no adverse effect on the integrity of the SPA.**

PDZ 19

5.4.87 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 19 includes interest features of the Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC, and the Ynys Seiriol / Puffin Island SPA.

5.4.88 **Summary of the potential impacts of policy:** The preferred management options within PDZ 19 range from NAI, HTL and MR, with the majority of the open coastline being subject to NAI. In the PUs where NAI will be the policy option in the long term and will allow the bay to continue to erode more naturally, therefore making an improvement on its current erosion behaviour.

5.4.89 Sea level rise may result in changes to the coastal processes within the Bay. However, HTL policies and locations occur where there are no man-made defences, and policy intent is to manage the natural defences and ensure that erosion is managed.

5.4.90 In relation to reefs and subtidal sandbanks; the subtidal sandbanks within PDZ 19 will be able to adapt naturally and the continued feed of material will maintain the sandbanks. The HTL policies within PU 19.5, 19.10 and 19.12 will not directly or indirectly affect the subtidal sandbanks, which are situated in excess of 1km offshore, and even greater distances from the HTL frontages.

5.4.91 NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the foreshore so that sea level rise will not cause the extent of the intertidal habitats to decrease. HTL policies occur in locations that are set back on the upper shore and outside the SAC boundary, and there would be no constraint to the movement of shallow subtidal or low intertidal habitat landward in-line with sea level rise. Furthermore, no changes to the sediment movement or coastal processes and water movements would be expected given the upper shore location of the HTL frontages. Consequently, it is concluded that there is no adverse impact to the reef habitat or the intertidal mudflat and sandflat habitat within the SAC. MR in the long term would ensure that coastal squeeze would not be an issue and could result in additional intertidal habitat outside the SAC site boundary that could support intertidal reef and mudflat and sandflat habitats. Consequently, as there is no constraint or loss of extent of the various habitats offshore, no alteration or underachievement of the conservation objectives for the shallow inlets and bays feature is expected.

5.4.92 The preferred policy option for Puffin Island SPA is NAI. The cliffs are undefended and will be able to respond naturally to sea level rise.

5.4.93 **Preventative/mitigation measures:** Monitoring of the intertidal habitats in PUs 19.5, 19.10, and 19.12 should be undertaken to confirm that adaptation is proceeding at the appropriate rate to prevent impacts occurring, and to allow for preventative measures to be implemented if required.

5.4.94 **Implications for the integrity of the Site:**

Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC: **conclude no adverse effect on the integrity of the SAC.**

Ynys Seiriol / Puffin Island SPA: **conclude no adverse effect on the integrity of the SPA.**

5.5 PDZs where AEIOI of International Sites can be concluded

5.5.1 Adverse Effect on Integrity (AEIOI) Of the PDZs appraised within this appropriate assessment, it has been considered that an Adverse Effect on Integrity (AEIOI) could occur, or it is deemed not possible to conclude NAEIOI of International sites, even when mitigation measures are implemented for SMP policy in the following PDZs:

PDZs deemed to have an Adverse Effect on Integrity (AEIOI):

PDZ 2, 3, 10, 11, 12, 13, 16, and 20

PDZ 2

5.5.2 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 2 includes interest features of the Pembrokeshire Marine / Sir Benfro Forol SAC, the Afonydd Cleddau/ Cleddau Rivers SAC, the Ramsey and St David's Peninsula Coast SPA, and the St David's / Ty Ddewi SAC.

5.5.3 **Summary of the potential impacts of policy:** HTL policy is only planned for epochs 1 and 2 (PUs 2.2, 2.4, and 2.6) with MR planned for the 3rd epoch. Coastal squeeze may be observed during epochs 1 and 2. HTL is planned for epoch 1 only for PU 2.5 and 2.8, with followed by MR/NAI and MR/MR respectively. HTL is selected primarily to protect connecting roads until they can be appropriately relocated or alternative provisions can be implemented.

5.5.4 MR policy options may change the coastal processes within the Bay as a whole as a result of the realigned defences particularly at Newgale Sands South (PU 2.10) over all 3 epochs. MR is also the preferred option at PU 2.2 (epoch 3), PU 2.4 (epoch 3), PU 2.5 (Epoch 2 – with NAI planned for epoch 3), PU 2.6 (epoch 3), PU 2.8 (epochs 2 and 3), PU 2.11 (epochs 1 and 2, followed by NAI), and PU 2.12 (epochs 2 and 3). However, the extent of the shallow inlet and bay features (i.e. intertidal sand and shingle) are unlikely to be affected given the locality of the policy locations, and would not reduce the total area of shallow inlet and bays features. Furthermore, MR in the epochs 2 and 3 would ensure that development of constrained intertidal habitat would occur.

- 5.5.5 HTL policy at a number of smaller sections of the coast within PDZ 2 in epochs 1 and 2 may result in the loss of intertidal mud and sand flats in front of the defences as a result of coastal squeeze. However, HTL at Newgale Sands South (PU 2.10) and Newgale Sands North (PU 2.11) are not located within the SAC boundary, therefore no adverse effect is concluded for these units.
- 5.5.6 The HTL policy is only intended along frontages where there are beaches or within embayments comprising only intertidal habitats, and as such would not directly impact on reef or subtidal sandbanks. The subtidal line would move up the existing intertidal sandflats but would not be expected to reach defences, and therefore the extent of subtidal sandbank would not reduce as a result of the HTL policy at specific locations. In addition, any changes to coastal processes of the HTL policies would be localised to the immediate area of the defences and would not extent beyond the intertidal areas or embayments.
- 5.5.7 MR policy within PDZ PU 2.10 and PU 2.11 adjacent to the Cleddau Rivers SAC will not result in an impact to the watercourses. NAI policy along the remaining coast adjacent to the SAC will result in natural erosion of the coast. The flooding extent over the 3 epochs will not encroach on the freshwater courses of this SAC. In the long term the water course habitat will not change or be obstructed by the planned policies. No habitat within the Cleddau Rivers SAC within PDZ2 will be lost due to erosion.
- 5.5.8 The Ramsey and St David's Peninsula Coast SAC and SPA are located in the Northern most part of the PDZ 2 within the PU 2.13. The preferred policy within the PU is NAI for all epochs, which will allow for rocky ledges to develop naturally due to erosion in the long term. Within PU 2.13 a total of 2ha of cliff habitat will be lost to erosion over the 3 epochs.
- 5.5.9 The HTL policy for Little Haven (PU 2.2), Southern and central Broad Haven (PU 2.4), Broad Haven North (PU 2.5), Haroldston Hill (PU 2.6), and Nolton Haven (PU 2.8) could result in constraint to the natural development of intertidal sandflat as a result of sea level rise, which could restrict beach width and result in a reduction in the extent of the intertidal sandflat feature. **Table 5.1** presents the indicative habitat loss for each epoch.

Table 5.1 Anticipated Habitat Loss in PDZ 2 as a result of SMP Policy

Designated Site	PU	Habitat Type	Extent of Loss of Habitat (ha)			
			Epoch 1	Epoch 2	Epoch 3	Total
Pembrokeshire Marine SAC	2.2	Intertidal sandflat	0.23	0.02		0.26
	2.4	Intertidal sandflat	0.01	0.60		0.61
	2.5	Intertidal sandflat	0.12			0.12
	2.6	Intertidal sandflat	0.08	0.37		0.45
	2.8	Intertidal sandflat	0.32			0.32

- 5.5.10 **Preventative/mitigation measures:** Exploring adaptive defences may be an option once the lives of the hard defences fail within the first epoch (at PUs 2.2, 2.4 and 2.5). For example, shingle replenishment which would slow the erosion rather than halt it completely, this would ensure that the integrity of the interest features would be maintained.

- 5.5.11 Potentially move the defences landward where feasible, to allow mudflats and sandflats to roll back in time with sea level rise, and investigate possibilities of realigning small areas of the banks to mitigate for coastal squeeze of mudflats.
- 5.5.12 Monitoring should be carried out in PUs 2.2, 2.5, and 2.8 to ensure that hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and subtidal reef features.
- 5.5.13 **Risks/Assumptions:** The habitat loss is considered precautionary, and where any works are to be undertaken detailed studies including monitoring, would provide an accurate identification of whether habitat would be lost and the extent. Potentially, given the worst case assumptions, further detail of the likely actions and site specific study may conclude no habitat loss, given the worst case scenario used in this assessment. The areas of potential habitat loss are very small in extent, and could be avoided through site-specific development of the coastal management measures.

5.5.14 **Implications for the integrity of the Site:**

Pembrokeshire Marine/ Sir Benfro Forol SAC: It is concluded that there is likely to be a significant **adverse effect on the integrity on the intertidal sandflat habitat feature of the SAC as a result of the SMP2 policies.** There will however, be no adverse effect on the integrity of the other SAC features.

Afonydd Cleddau/ Cleddau Rivers SAC: **conclude no adverse effect on the integrity.**

Ramsey and St David's Peninsula Coast SPA: **conclude no adverse effect on the integrity.**

St David's / Ty Ddewi SAC: **conclude no adverse effect on the integrity.**

PDZ 3

- 5.5.15 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 3 includes interest features of the Pembrokeshire Marine / Sir Benfro Forol SAC, the Afonydd Cleddau / Cleddau Rivers SAC, the Ramsey and St David's Peninsula Coast SPA, the Pembrokeshire Commons SAC and the St David's / Ty Ddewi SAC.
- 5.5.16 **Summary of the potential impacts of policy:** HTL is proposed for all epochs in PUs 3.3 (Solva Harbour) and 3.5 (Porth Clais inner), for epochs 1 and 2 in PU 3.2 (Lower Solva), and for epoch 1 only in PUs 3.4 (Porth Clais outer) and 3.8 (Whitesands Bay). These PUs are all located within the Pembrokeshire Marine SAC boundary. HTL is proposed at most of these locations in order to protect transport infrastructure in order to provide appropriate time for adaptation and response. Although HTL is stated for Whitesand Bay, it is not intended to result in physical actions; however, as more detail would be required in order to confirm no adverse effect, it is currently assumed that some loss of habitat would occur. Overall, the HTL policies at these units could result in constraint to the natural development of intertidal sandflat as a result of sea level rise, which could restrict beach width and result in a reduction in the extent of intertidal sandflat feature. **Table 5.2** presents the indicative habitat loss for each epoch within this PDZ.

Table 5.2 Anticipated Habitat Loss in PDZ 3 as a result of SMP Policy

Designated Site	PU	Habitat Type	Extent of Loss of Habitat (ha)			
			Epoch 1	Epoch 2	Epoch 3	Total
Pembrokeshire Marine SAC	3.2	Intertidal sandflat	0.17	0.03		0.19
	3.3	Intertidal sandflat	0.08	0.38	0.08	0.53
	3.4	Intertidal sandflat	0.01			0.01
	3.5	Intertidal sandflat	0.01	0.04	0.03	0.08
	3.8	Intertidal sandflat	0.02			0.02

- 5.5.17 PUs 3.10 and 3.11 also contain HTL policy for some or all epochs, however, these are located outside the SAC boundary and no adverse effect would occur.
- 5.5.18 The outer estuary (at Solva) and the undefended coastline within PU 3.1, 3.6, 3.7 and 3.12 are subject to NAI, and the habitats will be able to erode naturally and respond to sea level rise, in particular, vegetated cliffs would continue to erode naturally in the long term, allowing natural succession. Where area of HTL and MR occur within the St David's Peninsula Coast SPA, no loss of SPA supporting habitat is expected, and therefore no adverse effect is expected.
- 5.5.19 The majority of the coastline of the St David's SAC has a preferred policy of NAI. In the long term as the vegetated cliffs would naturally erode this would allow for natural succession of vegetation, consequently, no adverse effect is expected.
- 5.5.20 MR policy within PDZ 3 (PU 3.11; epochs 2 and 3) adjacent to the Cleddau Rivers SAC will not result in an impact to the watercourses. NAI policy along the remaining coast adjacent to the SAC will result in natural erosion of the coast. The flooding extent over the 3 epochs will not encroach on the freshwater courses of this SAC. In the long term the water course habitat will not change or be obstructed by the planned policies. No habitat within this SAC within PDZ3 will be lost due to erosion.
- 5.5.21 The North Pembrokeshire Commons SAC is located approximately 0.73km for the nearest coastal point (PU 3.6). From the GIS data, the present day, 50 year and 100 year flood extents or erosion, will not impact on the features of this SAC.
- 5.5.22 **Preventative/mitigation measures:** Potentially move the defences landward where feasible, to allow sandflats to roll back in time with sea level rise, and investigate possibilities for Whitesands Bay.
- 5.5.23 Monitoring should be carried out in PUs 3.3, 3.4, and 3.8 to ensure that hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and subtidal reef features.
- 5.5.24 **Risks/Assumptions:** The habitat loss is considered precautionary, and where any works are to be undertaken detailed studies including monitoring, would provide an accurate identification of whether habitat would be lost and the extent. Potentially, given the worst case assumptions, further detail of the likely actions and site specific study may conclude no habitat loss, given the worst case scenario used in this assessment. The areas of

potential habitat loss are very small in extent, and could be avoided through site-specific development of the coastal management measures.

5.5.25 **Implications for the integrity of the Site:**

Pembrokeshire Marine/ Sir Benfro Forol SAC: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the intertidal sandflat habitat feature of the SAC as a result of the SMP2 policies. There will however, be no adverse effect on the integrity of the other SAC features.

Afonydd Cleddau / Cleddau Rivers SAC: **conclude no adverse effect on the integrity.**

Ramsey and St David's Peninsula Coast SPA: **conclude no adverse effect on the integrity.**

St David's / Ty Ddewi SAC: **conclude no adverse effect on the integrity.**

Pembrokeshire Commons SAC: **conclude no adverse effect on the integrity.**

PDZ 10

5.5.26 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 10 includes interest features of the Pen Llyn a'r Sarnau/ Lleyen Peninsula and the Sarnau SAC, the Cors Fochno SAC, the Dyfi Estuary / Aber Dyfi SPA, and the Cors Fochno and Dyfi Ramsar site.

5.5.27 **Summary of the potential impacts of policy:** Within the inner and outer Dyfi Estuary within the Lleyen Peninsula and the Sarnau SAC, the preferred policies are for HTL and MR. It is likely that there will be a loss of sandflat and saltmarsh habitat within the estuary as the defences are maintained. Under this scenario, the defences would be maintained for PUs 10.5 (Afon Leri), 10.6 (Cors Fochno), 10.7 (Dyfi Junction), 10.8 (Morben Hall), 10.9, Machynlleth), 10.11 (Gogarth), 10.12 (Dyfi North), and 10.13 (Aberdyfi), though PUs 10.5, 10.6, and 10.7 would move into a policy of MR in epoch 3, whilst PU 10.9 would change to a policy of MR in epoch 2. The policy for the southern and eastern estuary is aimed at the protection of the railway line until adaptation and realignment of the railway can be undertaken. The HTL policy for the northern estuary is to maintain the large settlements or other transport infrastructure. These policies could result in a constraint to the natural development of intertidal sandflat and saltmarsh as a result of sea level rise, which could restrict beach width and result in a reduction in the extent of intertidal sandflat and saltmarsh features. **Table 5.3** presents the indicative habitat loss for each epoch within this PDZ. Potentially intertidal habitats (an SAC qualifying feature) could be significantly reduced particularly in epochs 2 and 3. The overall constraints and subsequent losses of intertidal and saltmarsh habitat within epochs 1, 2 and 3 identified for the SAC intertidal habitat features would also result in the loss of this supporting habitat for the Dyfi Estuary SPA and Ramsar. MR as a policy for PU 10.6 would result in the alteration of grassland habitat to saltmarsh and coastal grazing marsh, and this is not expected to affect the qualifying interest species (Greenland white-fronted geese), as it would provide valuable feeding and roosting habitat, with transitional freshwater areas around and adjacent to it.

5.5.28 HTL constraints in Epochs 1 and 2 for PUs 10.5, 10.6, and 10.7, and for all epochs in PU 10.8, 10.11, 10.12, 10.13, and epoch 1 for PU 10.9, would reduce the likely extent of intertidal estuarine habitat and hence result in a reduction in the estuary structure, and result in the underachievement of the conservation objectives in these epochs.

Table 5.3 Predicted Habitat Loss in PDZ 10 as a result of SMP Policy

Designated Site	PU	Habitat Type	Extent of Loss of Habitat (ha)			
			Epoch 1	Epoch 2	Epoch 3	Total
Lleyn Peninsula and the Sarnau SAC / Dyfi Estuary SPA	10.3	Intertidal sandflat	0.47			0.47
	10.6	Intertidal sandflat of which	2.30	150.20		152.51
	10.6	Saltmarsh	1.84	120.16		122.00
	10.7	Intertidal sandflat	0.87	13.09		13.96
	10.8	Intertidal sandflat	0.00	0.35	0.00	0.35
	10.9	Intertidal sandflat	1.65			1.65
	10.11	Intertidal sandflat	1.13	8.23	25.27	34.63
	10.12	Intertidal sandflat	0.00	3.19	1.92	5.11
	10.13	Intertidal sandflat	0.00	0.72	0.51	1.23
	10.17	Intertidal sandflat	0.29	6.39	1.59	8.27
	10.18	Intertidal sandflat	0.00			0.00

- 5.5.29 The mouth of the Afon Dysynni is located within the constraints of PU 10.18, where the preferred policy option is HTL in epoch 1 and MR in epochs 2 and 3. With sea level rise, the plateau would flood, significantly increasing the potential tidal prism. If the shoreline barrier were allowed to breach then it is possible that a new active estuary mouth would develop. If the entrance channel remains fixed to the north, the increased flow will attempt to widen and deepen the channel. It is probable that recharge would be required to maintain both the railway defence and the northern bay. In taking this approach still further, consideration could be given to creating a new cut through to the Dysynni, developing a more functional estuary mouth. The potential benefits of this are in using the Dysynni and its ebb shingle banks as part of the defence system. However, in taking this approach there is potential to incorporate better defence to the lagoon.
- 5.5.30 Within PU 10.17, the plan intent would be for HTL to protect and maintain the railway. The overall potential impact to the lagoon is that there is a potential for loss of extent of the lagoon depending on the methods used to implement the policy. Consequently, there is a likely significant effect on the integrity of the lagoon feature.
- 5.5.31 The subtidal reefs within PDZ 10 comprise bedrock reef (biogenic reefs located in PDZ 13 to the North West). The HTL policies are located along the soft shoreline within PDZ 10 therefore continued movement of materials will occur and there will no impact on the reefs in terms of a reduction in their extent. HTL and MR policies in PUs 10.1, 10.2, 10.16, 10.17, and 10.19 would not affect the biogenic reefs present (see **Annex H-VI**).

- 5.5.32 The majority of the open coastline within PDZ 10; and much of the Dyfi estuary consists of sandflats from PU 10.2 to PU 10.19. Of these sandflats – those present in PUs 10.2, 10.16 and part of 10.15 and 10.17 are not part of the SAC. HTL is proposed at PUs 10.2, 10.3, 10.16, 10.17, and 10.19, which are intended to protect transport infrastructure and large settlements, could result in a constraint to the natural development of intertidal sandflat as a result of sea level rise, which could restrict beach width and result in a reduction in the extent of intertidal sandflat feature. **Table 5.3** presents the indicative habitat loss of for each epoch within this PDZ due to the constraint, and the subsequent result of sea level rise.
- 5.5.33 The main threat to the active raised bog feature within the Cors Fochno SAC in the short to medium term would be sudden, uncontrolled inundation generating high flow rates and leading to deeply incised erosion channels. The issue of damage to Cors Fochno and the associated designated areas are taken forward as part of developing the management of the area; recognising that to attempt to maintain defence to the feature would in itself damage the feature or make in increasingly vulnerable to more significant damage. Consequently, the HTL policy in epochs 1 and 2 could raise the risk of catastrophic inundation, but is considered to provide appropriate time for other assets to adapt and respond to the changes that will need to be made prior to the final epoch MR. The MR policy could result in the potential for sudden saline inundation in the initial stages which could affect the bog structure. Consequently, the policy intent is to reduce drainage within Cors Fochno in epochs 1 and 2 prior to MR and controlling inundation would ensure that the periphery of the bog is not affected. However, until the method and means of implementing this transitional hydrological policy and implementation are determined a risk remains that could result in the underachievement of the conservation objectives in relation to the bog habitat features.
- 5.5.34 The main adverse effect within the Ramsar site occurs to the intertidal habitat located within the estuary, and the risk to the Cors Fochno bog habitat, as described above.
- 5.5.35 **Preventative/mitigation measures:** The issue of damage to the Cors Fochno Ramsar site (bogs) and the associated designated areas are taken forward as part of developing the management of the area; recognising that to attempt to maintain defence to the feature would in itself damage the feature or make in increasingly vulnerable to more significant damage, therefore the preferred policy would be to HTL in epochs 1 and 2 and allow the defences to be realigned or removed in epoch 3. A Strategy needs to be developed that determines the process and methods by which the transition to saline influence are managed and implemented in order to ensure that bog habitats are not lost or affected within the Cors Fochno SAC (and part of the Ramsar). The Strategy will need to be developed by the Coastal Group, EA Wales, and CCW. The Strategy will consider the implications of the on-going Water Level Management Plan.
- 5.5.36 Potentially move defences landward were feasible where there is constraint on the intertidal habitats to allow mudflats to roll back in time with sea level rise; and potentially investigate providing additional support to the dune system under MR in epochs 2 and 3 to reduce the speed to erosion.
- 5.5.37 Monitoring should be carried out of the intertidal habitats and extents within the Dyfi Estuary in order to ensure that mitigation is achieving the intended quantities, and to help inform the timeliness of appropriate measures.

- 5.5.38 Monitoring should be carried out in PU 10.18 to ensure that hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and subtidal reef features.
- 5.5.39 A study is required to ascertain the ecological function and influences on the lagoon, and a Strategy examining the potential methods of implementing the HTL policy must ensure (and should be able to ensure) that the lagoon extent is not adversely effected by direct loss. The Strategy would also need to determine whether any long term coastal process issues would affect the lagoon extent and ensure that appropriate management and maintenance measures are in place to prevent loss of lagoon extent.
- 5.5.40 **Risks/Assumptions:** The habitat loss is considered precautionary, and where any works are to be undertaken detailed studies including monitoring would provide an accurate identification of whether habitat would be lost and the extent. Potentially, given the worst case assumptions, further detail of the likely actions and site specific study may conclude no habitat loss, given the worst case scenario used in this assessment. The areas of potential habitat loss are very large, and this is exacerbated by the fact that such low lying areas would show a large scale change, but this does not take into account accretion of sediments within the estuary, nor can it take into account at this strategic level the likely relocation and movement of saltmarsh communities given the very large scale mapping and extraction. Consequently, the assumptions used to determine loss are expected to have resulted in much greater extents of habitat loss than would occur.
- 5.5.41 The ability to engineer and avoid loss of extent of the lagoon at the Strategy and Scheme level is considered low risk, given the available space around the lagoon and range of possible methods that can be implemented, and the relative ease with which avoidance measures can be implemented to prevent disturbance to the lagoon extent.
- 5.5.42 The suitability and feasibility of managing the transition of the bog habitats from freshwater to saline influence for Cors Fochno SAC is considered to have a high certainty and low risk.
- 5.5.43 **Implications for the integrity of the Site:**

Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the intertidal habitat (sandflats and saltmarsh) and estuary features of the SAC as a result of the SMP2 policies. There will however, be **no adverse effect on the integrity** of the other SAC features.

Cors Fochno SAC: **conclude no adverse effect on the integrity.**

Dyfi Estuary / Aber Dyfi SPA: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the supporting intertidal habitat (sandflats, saltmarsh) features of the SPA as a result of the SMP2 policies. There will however, be **no adverse effect on the integrity** of the other SPA features.

Cors Fochno and Dyfi Ramsar: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the intertidal habitat (sandflats and saltmarsh) features of the Ramsar site as a result of the SMP2 policies. There will however, be **no adverse effect on the integrity** of the terrestrial/bog habitats.

PDZ 11

5.5.44 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 11 includes interest features of the Pen Llyn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC, Morfa Harlech a Morfa Dyffryn SAC and the Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC.

5.5.45 **Summary of the potential impacts of policy:**

Open Coastline

5.5.46 The underlying intent along the coast (PUs 11.16 to 11.20; although the sandflats within PUs 11.16 to 11.19 are outside the SAC boundary, therefore only PU 11.20 will be considered within this assessment) is to allow its natural development and not to be in a situation where there is commitment to larger and larger defences to protect assets indefinitely. The underlying intent is, therefore, to create space in terms of land use. There are no existing defences within PU 11.20 and a policy of NAI will allow the sand dunes to continue to develop naturally.

5.5.47 HTL is proposed for all epochs in PUs 11.1 (Rola) and 11.3 (Friog Cliffs), and for epoch 1 for PU 11.4 (Ro Wen coast), intended to protect transport infrastructure (rail and road) and large settlements, could result in a constraint to the natural development of intertidal sandflat as a result of sea level rise, which could restrict beach width and result in a reduction in the extent of intertidal sandflat feature. **Table 5.4** presents the indicative habitat loss for each epoch within this PDZ.

Table 5.4 Predicted Habitat Loss in PDZ 11 as a result of SMP Policy

Designated Site	PU	Habitat Type	Extent of Loss of Habitat (ha)			
			Epoch 1	Epoch 2	Epoch 3	Total
Llyn Peninsula and the Sarnau SAC	11.1	Intertidal sandflat	0.43	6.82	1.46	8.71
	11.3	Intertidal sandflat	0.24	0.90	0.11	1.25
	11.4	Intertidal sandflat	0.15			0.15
	11.6	Saltmarsh	1.16			1.16
	11.7	Saltmarsh	0.00	2.42	2.51	4.92
	11.8	Saltmarsh	1.20	7.77	12.93	21.90
	11.9	Intertidal sandflat	1.90			1.90
	11.11	Intertidal sandflat	0.00	0.00	0.02	0.02

5.5.48 Areas of subtidal reefs are located at either end of PDZ 11 (11.1 and 11.20); and intertidal reefs are located along the coast to the south of the estuary (11.1 to 11.3). NAI policy (11.20) will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease. The subtidal reefs within PDZ 11 comprise bedrock reef (biogenic reefs located in PDZ 13 to the north-west). The HTL policies are located along the rocky foreshore of 11.1 and 11.3. The current defence of high ground will be maintained in order to protect

the railway. As the rocky foreshore is constrained by the high ground, the loss of intertidal reef will occur naturally and not as a result of the SMP2 policy (see **Annex H-VI**). HTL implementation could potentially affect biogenic reef present in PUs 11.1 and 11.3, and could result in the underachievement of the conservation objectives for reef features, however, strategic assessment of the locations of the reef and likely HTL actions indicates that no adverse effect is likely (see **Annex H-VI**). MR (PU 11.2) in the long term would ensure that coastal squeeze would not be an issue, as reef habitat will be able to respond naturally to sea level rise.

- 5.5.49 The policy of HTL for all epochs in PUs 11.1 and 11.3 could potentially put at risk the sea caves that are present within these units. Given the strategic nature of the assessment it is not possible to ascertain whether an effect would occur to the sea caves as a result of future actions, consequently, precautionarily a potential adverse effect could arise. However, it is expected that mitigation during the scheme design process should avoid closure or obstruction to these features.
- 5.5.50 The sand dunes of Morfa Harlech a Morfa Dyffryn SAC are located in PU 11.20 where with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of SMP2 policy is expected. However, the policy of MR for all epochs in PUs 11.18 and 11.19 south of the site retain a potential risk of reduced sediment feed to the Site that cannot be removed at this strategic level, and therefore the avoidance of any impact should be devolved down to the next coastal planning level (i.e. strategy or scheme level), due to the potential for reduction in dune structure and extent induced by a decrease in sediment moving into the Site.

Mawddach Estuary

- 5.5.51 Sandflats within the Mawddach Estuary are generally subject to a preferred option of HTL in epoch 1, with MR in epochs 2 and 3 for PUs 11.6 (Fairbourne Embankment), and 11.9 (Fegla), whilst MR is proposed for all epochs in PU 11.12 (Upper Estuary). HTL is proposed for all epochs at PUs 11.7 (Friog) and 11.8 (Morfa Mawddach), and 11.11 (Penmaenpool). Under the HTL policies for these units, the defences to the south and north side of the estuary would be continued for those PUs listed above. It is likely that there will be a loss of intertidal sandflat habitat within the estuary as the defences are maintained over epoch 1 for PU 11.9 and for all epochs in PUs 11.3 and 11.4.,. No measurable decrease in habitat extent is identified for epoch 1 or 2 for PUs 11.7 and 11.11 (see **Table 5.4**), consequently, only PUs 11.7, 11.8, and 11.11 would result in an adverse effect, due to the intent of protecting transport infrastructure (rail and road).
- 5.5.52 Although the area of estuary habitat would not be reduced, the structure and range of intertidal and subtidal habitats within the estuary would be altered in Epochs 1, 2, and 3, and would therefore result in the underachievement of the conservation objectives, which is related to the overall loss of intertidal mudflat, sandflat and saltmarsh described above. The estuary feature associated with Arthog Bog is not expected to be affected by the policies or HTL or MR in epochs 1 and 2, and would be able to respond naturally to any hydrological changes resulting from sea level rise through the NAI policy in epoch 3. However, the implementation of a management plan for the bog would enable the feature to be managed to a resilient status if unforeseen rises in water levels or drainage issues arise.
- 5.5.53 HTL in epoch 1 for PUs 11.6, 11.9, and 11.13 is not expected to extend any influence on the physical or chemical processes that would affect the intertidal reefs within the estuary. MR (PUs 11.2, 11.5, 11.6, 11.9, 11.10, 11.12, 11.13, and 11.14) in the long term would

ensure that coastal squeeze would not be an issue, as no alteration to the physical or chemical processes would be expected other than that resulting from natural variation in response to sea level rise. HTL for all epochs for PUs 11.7, 11.8, and 11.11 is not expected to result in changes to the sediment movement or coastal processes of areas of existing intertidal reef habitat that are predominantly located away from these units, or where there is no expected direct erosion or accretion link, and where the wider estuary processes dominate.

- 5.5.54 A number of areas which make up Meirionnydd Oakwoods and Bat Sites SAC are adjacent to the Mawddach Estuary with particular close proximity in the upper estuary (PU 11.13). The preferred policy option within PU 11.13 is HTL in epoch 1 and MR in epochs 2 and 3. The MR policy could potentially result in the loss of heathland or woodland habitat (less than 0.008ha) if not sensitively and appropriately designed and implemented.
- 5.5.55 **Preventative/mitigation measures:** Potentially move defences landward were feasible to allow saltmarshes to roll back in time with sea level rise; and investigate possibilities of realigning small areas of the banks to mitigate for coastal squeeze of saltmarshes within the estuary for all epochs in PU 11.11.
- 5.5.56 During any scheme level design in PUs 11.1 and 11.3, survey should be undertaken to ascertain the location of sea caves and where present in the frontage of a design, measures should be implemented to avoid obstruction or disturbance to the sea caves features.
- 5.5.57 During the design and application for any scheme for PUs 11.1 and 11.3, surveys of the intertidal should be undertaken to determine whether reef communities or habitat are present and to confirm that no impact is expected, and if present the works should be undertaken to ensure that construction disturbance would not occur on or immediately adjacent to these reef habitats and communities. In addition, monitoring should be carried out in PUs 11.1, 11.3, and 11.4 to ensure that hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and subtidal reef features. Should this not be possible, a monitoring programme should be implemented for these policy units to ensure sediment supply is being maintained and that the hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the reef features.
- 5.5.58 Monitoring should be carried out of the intertidal habitats and extents within the Mawddach Estuary in order to ensure that mitigation is achieving the intended quantities, and to help inform the timeliness of appropriate measures.
- 5.5.59 A strategy should be developed and monitoring undertaken to provide survey data for the sediment movement for from the policy units to the south of Morfa Dyffryn (PUs 11.18 to 11.20) to identify what the sediment feed requirement currently is, and identify the rate by which MR should be undertaken to ensure that this is maintained naturally by translation of the shore in parallel with sea level rise. The strategy should be developed between the Local Planning Authority and CCW in order to ensure that MR develops landward an appropriate rate in PUs 11.18 and 11.19 for the maintenance of the dune system.
- 5.5.60 The MR policy within PU 11.13 must be designed, at the scheme level, to avoid the loss of or construction disturbance to the woodland/heathland habitat features of the Site, and that it results in sensitive and natural flooding to any habitat rather than the presence or construction of structures.

5.5.61 **Risks/Assumptions:** The habitat loss is considered precautionary, and where any works are to be undertaken detailed study would provide an accurate identification of whether habitat would be lost and the extent. Potentially, given the worst case assumptions, further detail of the likely actions and site specific study may conclude no habitat loss, given the worst case scenario used in this assessment. The areas of potential habitat loss are large, and this is exacerbated by the fact that such low lying areas would show a large scale change, but this does not take into account accretion of sediments within the estuary. Consequently, the assumptions used to determine loss are expected to have resulted in much greater extents of habitat loss than would occur.

5.5.62 The avoidance of disturbance or loss to the heathland or woodland habitat within the Meirionnydd Oakwoods and Bat Sites SAC can be easily implemented at the scheme design phase at low risk. This mitigation can be successfully implemented and therefore avoid the conclusion of an adverse effect.

5.5.63 **Implications for the integrity of the Site:**

Pen Llyn a`r Sarnau/ Lleyr Peninsula and the Sarnau SAC: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the intertidal habitat (sandflat) and estuary features of the SAC as a result of the SMP2 policies. There will however, be **no adverse effect on the integrity** of the other SAC features.

Morfa Harlech a Morfa Dyffryn SAC: **conclude no adverse effect on the integrity of the SAC.**

Coedydd Derw a Safleoedd Ystumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC: **conclude no adverse effect on the integrity of the SAC.**

PDZ 12

5.5.64 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 12 includes interest features of the Pen Llyn a`r Sarnau / Lleyr Peninsula and the Sarnau SAC, the Morfa Harlech a Morfa Dyffryn SAC, and the Coedydd Derw a Safleoedd Ystumod Meirion / Meirionnydd Oakwoods and Bat Sites SAC.

5.5.65 **Summary of the potential impacts of policy:** The Glaslyn / Dwyryd and Artro Estuaries within the Lleyr Peninsula and the Sarnau SAC have a variety of policy options within the PUs with the majority being NAI over all epochs which will allow the estuary to respond naturally to sea level rise. HTL for all epochs at PU 12.8 (Harlech Valley), 12.13 (The Cob and Porthmadog), and 12.14 (Borth y Gest), and epoch 1 at PU 12.9 Talsarnau within the Glaslyn / Dwyryd Estuary, and epoch 1 at PUs 12.2 (Arthro Southern Spit), 12.3 (Arthro Estuary south) and all epochs at PU 12.4 (Arthro Estuary East) within the Arthro Estuary are likely to result in coastal squeeze. No noticeable decrease in habitat extent would occur at PUs 12.2 and 12.3, however the HTL at the other PUs could therefore result in a constraint to the natural development of intertidal sandflat and saltmarsh, and consequently a reduction in the extent of intertidal sandflat and saltmarsh features within the Lleyr Peninsula and the Sarnau SAC. **Table 5.5** presents the indicative habitat loss for each epoch within this PDZ.

Table 5.5 Predicted Habitat Loss in PDZ 12 as a result of SMP Policy

Designated Site	PU	Habitat Type	Extent of Loss of Habitat (ha)			
			Epoch 1	Epoch 2	Epoch 3	Total
Lleyn Peninsula and the Sarnau SAC	12.2	Intertidal sandflat	0.00			0.00
	12.3	Intertidal sandflat	0.00			0.00
	12.4	Intertidal sandflat	0.00	4.38	2.93	7.31
	12.6	Intertidal sandflat	0.00	2.11	1.83	3.94
	12.8	Intertidal sandflat of which	0.03	2.82	3.71	6.56
	12.8	Saltmarsh	0.03	2.54	3.34	5.90
	12.9	Intertidal sandflat of which	0.20			0.20
	12.9	Saltmarsh	0.18			0.18
	12.13	Intertidal sandflat of which	0.00	6.01	18.00	24.01
	12.13	Saltmarsh	0.00	3.00	9.00	12.00
	12.14	Intertidal sandflat of which	0.00	0.30	1.56	1.85
	12.14	Saltmarsh	0.00	0.01	0.08	0.09
	12.17	Intertidal sandflat (with shingle / pebbles)	0.00			0.00
	12.18	Intertidal sandflat (with shingle / pebbles)	0.00	0.30		0.30
	12.20	Intertidal pebble and shingle beach	0.00	0.82	0.12	0.94
12.24	Intertidal sandflat	0.00			0.00	

5.5.66 Although the area of estuary habitat or shallow inlets and bays habitat are not likely to be reduced in extent, the structure and range of intertidal habitats (particularly saltmarsh) within the estuary habitat and intertidal sandflat within the shallow inlets and bays habitat would be altered in Epochs 1, 2, and 3, and would therefore result in the underachievement of the conservation objectives for these two features, which is related to the overall loss of intertidal mudflat, sandflat and saltmarsh described above.

5.5.67 At PU 12.16 the essential need for management (MR) in this area is allowing the natural development of the dunes. This is important from a nature conservation perspective but also in providing a robust natural defence against flooding. Therefore the MR policy planned over all 3 epochs will enable the sand dunes to respond naturally to sea level rise and ensure that the mouth of the estuary is maintained.

- 5.5.68 The majority of the coastline within PDZ 12 comprises large stretches of sandflats, with the remaining coastline comprising shingle beaches. MR in epochs 2 and 3 for PU 12.2 and 12.3, and all epochs for PU 12.5, as well as in the estuary at PUs 12.9 and 12.11, specifically aim to avoid further extension of hard defence along this frontage with the aim to allow some control but also roll back of the dune system.
- 5.5.69 Biogenic reef is present in PUs 12.1, 12.2, 12.5, 12.6, 12.16, 12.18, 12.20, 12.21, 12.22, 12.23, and 12.25 (see **Annex H-VI**). NAI policies for PUs 12.1, 12.21, 12.23, and 12.25 would not result in disturbance activities resulting from projects and would also allow unconstrained movement of the reefs. MR policies (followed by NAI) in PUs 12.5, 12.16, and 12.22 would not constrain the movement of the biogenic reef or its development. HTL followed by MR at PUs 12.2 and 12.18 would also not constraint movement of the biogenic reef, and sufficient space is considered available that HTL policies for all epochs in PUs 12.6 and 12.20 as well as the limited presence of reef indicate that no constraint would occur. Overall, therefore no impact is expected on the reefs feature (see **Annex H-VI**).
- 5.5.70 The sand dunes of the Morfa Harlech a Morfa Dyffryn SAC in PDZ 12 are located in PU 12.7 and partially PU 12.1. PUs 12.7 and 12.1 have a preferred policy of NAI which would allow the dunes to respond naturally to sea level rise – and any loss as a result of erosion, would not be a result of SMP2 policies.
- 5.5.71 The policy of HTL for all epochs in PU 12.8 could potentially put at risk any sea caves that may be present. Given the strategic nature of the assessment it is not possible to ascertain whether an effect would occur to the sea caves as a result of future actions, consequently, precautionarily a potential adverse effect could arise. However, it is expected that mitigation during the scheme design process should avoid closure or obstruction to these features.
- 5.5.72 The nearest PU to the Meirionnydd Oakwoods and Bat Sites SAC is PU 12.11 where the preferred policy is MR in epoch 1 and NAI in epochs 2 and 3. The 100 year flooding or erosion extent modelling have determined that there will be no impact on the integrity of this SAC, and GIS extraction indicates no habitat loss is likely to this SAC within PDZ 12 as a result of SMP policy. However, there is a risk albeit low, that disturbance during implementation of the MR policy at PU 12.11 could affect the SAC features (either habitats or species) which could result in a short-term underachievement of the Site's conservation objectives.
- 5.5.73 The north-west coastline of this PDZ comprises several units where HTL is proposed including PUs 12.17 (Criccieth Shingle Banks), 12.18 (Criccieth Harbour), 12.20 (Criccieth West), and 12.24 (Afon Wen). HTL at these units could result in constraint to the natural development of intertidal sandflat as a result of sea level rise, which could restrict beach width and result in a reduction in the extent of intertidal sandflat feature, though the Site boundary only extends partially within some of these units. **Table 5.5** presents the indicative habitat loss for each epoch within this PDZ.
- 5.5.74 **Preventative/mitigation measures:** Potentially move defences landward where possible (in particular within PU 12.9) were feasible to allow mudflats to roll back in time with sea level rise.

- 5.5.75 A monitoring programme should be implemented (covering PUs 12.2, 12.5, 12.6, 12.16, 12.18, 12.20, 12.22, and 12.24) to ensure that sediment supply is being maintained and that the hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and subtidal reef features.
- 5.5.76 Monitoring should be carried out of the intertidal habitats and extents within the Afon Glasylyn / Traeth Bach Estuary in order to ensure that mitigation is achieving the intended quantities, and to help inform the timeliness of appropriate measures.
- 5.5.77 During any MR scheme level design in PU 12.16, survey should be undertaken to ascertain the location of sea caves and where present in the frontage of a design, measures should be implemented to avoid obstruction or disturbance to the sea caves features.
- 5.5.78 The avoidance of disturbance or loss to the heathland or woodland habitat or species within the Meirionnydd Oakwoods and Bat Sites SAC can be easily implemented at the scheme design phase at low risk. This mitigation can be successfully implemented and therefore avoid the conclusion of an adverse effect.
- 5.5.79 **Risks/Assumptions:** The habitat loss is considered precautionary, and where any works are to be undertaken detailed study would provide an accurate identification of whether habitat would be lost and the extent. Potentially, given the worst case assumptions, further detail of the likely actions and site specific study may conclude no habitat loss, given the worst case scenario used in this assessment. The areas of potential habitat loss are relatively large, and this is exacerbated by the fact that such low lying areas would show a large scale change, but this does not take into account accretion of sediments within the estuary or how inundation of areas north of the Cob would influence the development of intertidal sandflat and saltmarsh. Consequently, the assumptions used to determine loss are expected to have resulted in much greater extents of habitat loss than would occur.
- 5.5.80 **Implications for the integrity of the Site:**

Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the intertidal habitat (sandflat and saltmarsh) and estuary features of the SAC as a result of the SMP2 policies. There will however, be **no adverse effect on the integrity** of the other SAC features.

Morfa Harlech a Morfa Dyffryn SAC: **conclude no adverse effect on the integrity of the SAC.**

Coedydd Derw a Saffleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC: **conclude no adverse effect on the integrity of the SAC.**

PDZ 13

- 5.5.81 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 13 includes interest features of the Pen Llyn a`r Sarnau / Lleyn Peninsula and the Sarnau SAC, the Clogwyni Pen Llyn / Seacliffs of Lleyn SAC, and the Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA.
- 5.5.82 **Summary of the potential impacts of policy.** The Tremadog Bay encompasses all of PDZ 13. The preferred management options within Tremadog Bay range from NAI, HTL and MR.

5.5.83 NAI at Porth Ceiriad Headland and St Tudwal's Island (PU 13.16 to 13.19) will allow the coast to respond naturally to sea level rise and result in natural erosion and a natural source of material to the coast.

5.5.84 HTL at PUs 13.2 (epoch 1); 13.3, 13.4, 13.5, 13.6 (all 3 epochs); 13.7, 13.8, 13.11, 13.12 (epoch 1); 13.13 (all 3 epochs); and 13.14 and 13.15 (epoch 1) will constrain the intertidal habitat. However, the intertidal habitat within PUs 13.2, 13.3, 13.4, 13.5, 13.11, 13.12, 13.13, 13.14, and 13.15 are outside of the SAC boundary. Consequently, only HTL at PUs 13.6, 13.7, and 13.8 could result in constraint to the natural development of intertidal sandflat as a result of sea level rise, which could restrict beach width and result in a reduction in the extent of intertidal sandflat feature, though the Site boundary only extends partially within some of these units. **Table 5.6** presents the indicative habitat loss for each epoch within this PDZ. No discernible decrease in intertidal habitat extent is identified in epoch 1, consequently, only at PU 13.6 (South Beach) is a reduction in extent of SAC qualifying habitat anticipated, due to the protection afforded to Pwllheli Harbour and town.

Table 5.6 Predicted Habitat Loss in PDZ 13 as a result of SMP Policy

Designated Site	PU	Habitat Type	Extent of Loss of Habitat (ha)			
			Epoch 1	Epoch 2	Epoch 3	Total
Llyn Peninsula and the Sarnau SAC	13.6	Intertidal sandflat	0.00	1.19	0.80	1.99
	13.7	Intertidal sandflat	0.00			0.00
	13.8	Intertidal sandflat	0.00			0.00

5.5.85 Areas of subtidal reefs are present nearshore in PUs 13.6, 13.7, 13.8, 13.9, 13.10, 13.16, and 13.19. Intertidal reefs are located within PUs 13.3, 13.8, 13.9, 13.16, 13.18, and 13.19. NAI policy (13.1; 13.9, 13.10, 13.16 to 13.19) will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease. The sediment supply will also increase the extent of the subtidal reefs in the long term. The subtidal reefs within PDZ 13 comprise bedrock reef and biogenic reefs. The HTL policies are located along the rocky foreshore of 13.6, 13.7, 13.8, 13.13, 13.14 and 13.15. As the rocky foreshore is constrained by high ground within PUs 13.13, 13.14 and 13.15 the loss of intertidal foreshore will occur naturally and not as a result of the SMP2 policy and the sediment supply to the subtidal reefs will be altered naturally. HTL in epoch 1 for PUs 13.7 and 13.8, no noticeable loss of intertidal habitat is evident in the GIS extractions given the limited rise in sea level and available movement of the lower and mid intertidal. HTL for all epochs at PU 13.3 occurs in the upper shore, and given that the intertidal reef is located in the lower shore, given that upper shore constraint is not expected to result in lower shore constraint, therefore the reef will be able to respond to sea level rise by migrating landward within the intertidal, consequently no constraint is expected. No reefs are located within PUs 13.2, 13.4, 13.5, 13.11, 13.12, 13.13, 13.14, and 13.15 and therefore policies are not expected to result in loss of intertidal or subtidal reef habitat or change of sediment supply to subtidal reefs. In the long term where MR is the preferred policy within PUs 13.7, 13.8, 13.11, 13.12, 13.14, and 13.15 would ensure that coastal squeeze would not be an issue, as reef habitat (whether present or not) will be able to respond naturally to sea level rise and in the short to long term, and the extent of the subtidal reef habitat will not decrease.

- 5.5.86 The majority of the coastline within PDZ 13 consists of large stretches of beaches (sandflats), with the overall favoured management policy being HTL or MR. NAI has been planned for areas of cliffs typically at the headland (PU 13.10) and areas of sandflats (PU 13.9 and 13.1) which will be able to respond naturally to sea level rise.
- 5.5.87 The entire section of the Seacliffs of Llyn SAC and the Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA within PDZ 13 have a preferred policy of NAI – therefore the cliffs will be able to respond naturally to sea level rise and any loss of habitat as a result of erosion will be the result of natural processes and not the SMP.
- 5.5.88 **Preventative/mitigation measures:** A monitoring programme should be implemented to ensure sediment supply is being maintained and that the hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and reef features.
- 5.5.89 In addition, monitoring should be carried out of the intertidal habitats and extents within the PUs 13.6 to 13.8 in order to ensure that mitigation is achieving the intended quantities, and to help inform the timeliness of appropriate measures, as well as to confirm predicted changes and thereby allow for any preventative measures in response to unforeseen sea level rise.
- 5.5.90 **Risks/Assumptions:** The habitat loss is considered precautionary, and where any works are to be undertaken detailed study would provide an accurate identification of whether habitat would be lost and the extent. Potentially, given the worst case assumptions, further detail of the likely actions and site specific study may conclude no or reduced habitat loss, given the worst case scenario used in this assessment.
- 5.5.91 **Implications for the integrity of the Site:**

Pen Llyn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the intertidal habitat (sandflat) features of the SAC as a result of the SMP2 policies. There will however, be **no adverse effect on the integrity** of the other SAC features.

Clogwyni Pen Llyn/ Seacliffs of Llyn SAC: **conclude no adverse effect on the integrity of the SAC.**

Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA: **conclude no adverse effect on the integrity of the SPA.**

PDZ 16

- 5.5.92 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 16 includes interest features of the Afon Gwyrfa i Llyn Cwellyn SAC, the Y Twyni o Abermenai i Aberffraw/ Abermenai to Aberffraw Dunes SAC, the Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC, the Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC, and the Traeth Lafan / Lavan Sands, Conwy Bay SPA.
- 5.5.93 **Summary of the potential impacts of policy:** The Llyn Cwellyn lies approximately 11km upstream of Foryd Bay within PDZ 16. Given the topography in the area, saline intrusion or obstruction of any of the SAC features is extremely unlikely. It is therefore considered that there will be no impact on the features of the Afon Gwyrfa i Llyn Cwellyn SAC as a result of the preferred management options.

5.5.94 Areas of sand dune of the Abermenai to Aberffraw Dunes SAC with particular contact with the coastal processes are located within Llanddwyn Bay (PU 16.7), Morfa Dinlle (PU 16.4), Foryd Bay (16.5) and marginally in the Cefni Estuary (PU 16.10). The bordering saltmarsh community will reduce the loss of sand dunes and all areas are subject to a NAI policy, with the exception of PUs 16.4 (MR/MR/NAI) and 16.5 (HTL/MR/NAI), which will allow the sand dunes to respond naturally to sea level rise, as the dunes are able to adapt allowing natural succession in parallel with a reduction of management. The management of dunes in PU 16.4 would need to be undertaken appropriately, and as this is a strategic level plan no detail is available which could result in a risk to some dune habitats. No physical constraint to dunes or sediment is expected from the HTL policy in epoch 1 in PU 16.5 given its location to the east of the dune system (and effectively inland of the dune system) outside the Site boundary. MR in epoch 2 for PU 16.5 would entail removal of constraints to intertidal habitat development in Fforyd Bay, which are not expected to extend up to the Dunes SAC in epoch 2, and NAI in epoch 3 would see natural development of the dunes and other intertidal habitats in parallel with sea level rise.

5.5.95 The Cefni Estuary within the Anglesey Coast: Saltmarsh SAC is located within PUs 16.8 (Newborough Forest), 16.9 (Embankment and village) and 16.10 (Bodowen Cliffs) and comprises sandflats and saltmarshes. The NAI policy at the mouth of the estuary (PUs 16.8 and 16.10) and outer estuary will allow the estuary to respond naturally to sea level rise and any habitat lost will be a result of natural processes. The HTL policy in the inner estuary (PU 16.9; embankment and village) will potentially result in loss of intertidal habitat through coastal squeeze. However, at this location it is expected that saltmarsh habitat will be able to respond to sea level rise within the site, at the expense of areas of intertidal mudflat. The extent of habitat lost as a result of the protection to the transport infrastructure (road) within this unit is presented in **Table 5.7**. The existing defence in PU 16.9 comprises a stone pitched embankment on the east bank of the river. The undefended bank on the west bank will allow the estuary to function more naturally; however, there will be an alteration in the extent of estuary habitats, and therefore an underachievement of the conservation objectives for this feature of the Site.

Table 5.7 Predicted Habitat Loss in PDZ 16 as a result of SMP Policy

Designated Site	PU	Habitat Type	Extent of Loss of Habitat (ha)			
			Epoch 1	Epoch 2	Epoch 3	Total
Menai Strait and Conwy Bay SAC	16.5	Intertidal sandflat	0.65			0.65
Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC	16.9	Intertidal mudflat	0.17	3.30	3.65	7.12
Menai Strait and Conwy Bay SAC	16.11	Intertidal sandflat	0.53	3.47		4.00
	16.33	Intertidal sandflat	0.03	0.40		0.43

5.5.96 The Braint Estuary is located within PU 16.6 (Traeth Abermenai) and is subject to a preferred policy of NAI which would allow the estuary to naturally respond to sea level rise. Over time, regular tidal flooding will occur and may see the extent of the estuary move inland, though inundation confined by coastal topography, the estuary feature is maintained. Within PU 16.6 any habitat lost will be as a result of natural processes and not as a result of the SMP policy.

- 5.5.97 The mudflats/sandflat feature of the Anglesey Coast: Saltmarsh SAC is part of a complex of saltmarsh and dune habitats lying either side of the dune systems at Newborough Warren. It is therefore important in terms of the structural integrity of the site, which has been selected primarily for a range of sand dune Annex I types. The most significant stands of *Salicornia* spp. saltmarsh occur on Malltraeth Sands in the Cefni Estuary. These SAC features, occur within PUs 16.6 (NAI), 16.7 (NAI), 16.8 (NAI), 16.9 (HTL) and 16.10 (NAI). NAI is the preferred policy at the mouth of the estuary (PU 16.8 and 16.10) and at PUs 16.6 and 16.7. The NAI policy will allow the intertidal habitats to function naturally, and will allow the saltmarsh to migrate backwards as the sandflats/mudflats continue to move landwards in response to sea level rise. As both the sandflat/mudflat and saltmarsh habitat are able to migrate landward, there will be no loss of habitat as a result of the SMP2 policy. Any habitat loss within these PUs will be a result of natural processes, with the exception of that identified for PU 16.9, as described in **paragraph 5.5.82** above, consequently there would be a loss to the intertidal mudflat feature within the Anglesey Coast: Saltmarsh SAC.
- 5.5.98 NAI policies within PUs 16.6, 16.13, 16.15, 16.16, 16.18, 16.20, 16.23, 16.25, 16.26, 16.30 and 16.31 within the Menai Strait and Conwy Bay SAC will allow the actively eroding foreshore to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease, however the condition of the sandbanks may change if eroding material is continually deposited in the area – either changing the sediment type, or raising/lowering the sandbanks; however, this will be a result of the natural processes and not a result of the SMP policies. HTL policies in the PUs 16.5 (epoch 1 only), 16.11 (epochs 1 and 2 only), 16.12 (all epochs), 16.14 (all epochs), 16.17 (epoch 1 only), 16.19 (all epochs), 16.21 (epochs 1 and 2 only), 16.22 (epochs 1 and 2 only), 16.24 (all epochs), 16.27 (all epochs), 16.28 (epochs 1 and 2 only), 16.29 (all epochs), and 16.33 (epochs 1 and 2 only) will not prevent the subtidal sandbanks from responding to sea level rise, but this could come at the expense of the intertidal habitats which could decrease in extent. However, the SAC boundary does not cover the entire intertidal habitat area within this PDZ, with only the following units containing designated intertidal habitat along their frontages where HTL is a policy: 16.5 = HTL/MR/NAI (sandflat and saltmarsh); 16.11 = HTL/HTL/MR (sandflat), and 16.33 = HTL/HTL/MR (sandflat). As the intertidal habitats are squeezed as a result of sea level rise and the constraint due to HTL policy, this could restrict beach width and result in a reduction in the extent of intertidal sandflat feature and also intertidal reef extent or structure, though the Site boundary only extends partially within PU 16.11. The predicted extent of habitat loss is presented in **Table 5.7**. MR in the 2nd or 3rd epochs would ensure that coastal squeeze would not be an issue in relation to the intertidal habitat. HTL has been selected at these units in order to protect transport infrastructure (road) or national defence infrastructure, though only in the medium term, with the intent to realign these assets away from the coast. Given that only three of the long term HTL policy units is within the intertidal site boundary out of thirteen policy units, and given the nature of the sediment patterns and movement within the Menai Strait and the Lavan Sands (as well as the limited frontages), no hindrance to sediment movement and subtidal sandbank development is expected. Furthermore, no loss of extent or distribution of the shallow inlets and bays habitat features are expected.

- 5.5.99 Along the Lavan Sands, Conwy Bay SPA coastline, the preferred management option is for NAI, therefore allowing for the sand banks to respond to sea level rise. Within PU 16.33, there is a planned option to HTL in epochs 1 and 2 with a policy of MR in epoch 3. The HTL policy could lead to coastal squeeze and a resulting decrease in the extent of intertidal sandflat habitat. The reduction in extent of intertidal habitat whilst small in relation to the total area could still result in the favourable condition of the oystercatcher and curlew not being achieved.
- 5.5.100 **Preventative/mitigation measures:** Potentially move defences landward were feasible to allow mudflats and sandflats to roll back in time with sea level rise.
- 5.5.101 Preparation of management plan and strategy in relation to Morfa Dinlle dune system and surroundings in order to ensure that MR proposals and actions appropriately enhance and allow the development of the dune habitats.
- 5.5.102 Though not an intended mitigation or prevention, monitoring should be undertaken to ensure that the extent of saltmarsh feature and distribution of saltmarsh types are not lost instead of the intertidal mudflat loss predicted.
- 5.5.103 Though not an intended mitigation or prevention, monitoring of the subtidal sandbanks to ensure that overall extent of the subtidal sandbanks has not changed as a result of sea level rise.
- 5.5.104 Though not an intended mitigation or prevention, monitoring of the reef habitats to ensure that no loss of extent or distribution occurs as a result of sea level rise.
- 5.5.105 **Risks/Assumptions:** The habitat loss is considered precautionary, and where any works are to be undertaken detailed study would provide an accurate identification of whether habitat would be lost and the extent. Potentially, given the worst case assumptions, further detail of the likely actions and site specific study may conclude no habitat loss, given the worst case scenario used in this assessment. The areas of potential habitat loss are relatively large, and this is exacerbated by the fact that such low lying areas would show a large scale change, but this does not take into account accretion of sediments within the area would influence the development of intertidal sandflat and saltmarsh. Consequently, the assumptions used to determine loss are expected to have resulted in much greater extents of habitat loss than would occur.
- 5.5.106 **Implications for the integrity of the Site:**

Afon Gwyrfaï a Llyn Cwellyn SAC: **conclude no adverse effect on the integrity of the SAC.**

Y Twyni o Abermenai I Aberffraw/ Abermenai to Aberffraw Dunes SAC: **conclude no adverse effect on the integrity of the SAC.**

Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC: **It is concluded that there is likely to be a significant adverse effect on the integrity on the intertidal habitat (mudflat) and estuary features of the SAC as a result of the SMP2 policies. There will however, be no adverse effect on the integrity of the other SAC features.**

Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the intertidal habitat (sandflat) and reef features of the SAC as a result of the SMP2 policies. There will however, be **no adverse effect on the integrity** of the other SAC features.

Traeth Lafan / Lavan Sands, Conwy Bay SPA: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the populations of the qualifying interests (due to the reduction in the extent of supporting habitat that is predicted) of the SPA as a result of the SMP2 policies.

PDZ 20

- 5.5.107 The SMP policy in this PDZ provides a range of policies along the coastline including NAI, HTL and MR. PDZ 20 includes interest features of the Great Orme's Head/ Pen y Gogarth SAC, the Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC, and the Traeth Lafan / Lavan Sands, Conwy Bay SPA.
- 5.5.108 **Summary of the potential impacts of policy:** NAI is the preferred policy for PUs 20.12 and 20.13 which encompass the majority of the Great Orme's Head cliff habitat, therefore no direct or indirect effects as a result of coastal management policy is expected.
- 5.5.109 The vegetated cliff habitat are located within PUs 20.12, 20.13 and 20.14 where the preferred policy in NAI. Therefore any loss of habitat as a result of erosion will occur due to natural processes and not as a result of the SMP2 policy.
- 5.5.110 Only PU 20.1 contains designated intertidal habitat that could be affected by the proposed HTL policy for all epochs, in order to protect transport infrastructure (the A55). As the intertidal habitat is squeezed as a result of sea level rise and the constraint due to HTL policy, this could restrict beach width and result in a reduction in the extent of intertidal sandflat feature. The predicted extent of habitat loss is presented in **Table 5.8**. In addition, these constraints could also affect reef habitat features and the distribution of shallow inlets and bays habitat features in this local area (PU 20.1). Though HTL is proposed in other PUs (namely 20.2, 20.3 and 20.11) which contain intertidal habitat, these are not within the designated site.

Table 5.8 Predicted Habitat Loss in PDZ 20 as a result of SMP Policy

Designated Site	PU	Habitat Type	Extent of Loss of Habitat (ha)			
			Epoch 1	Epoch 2	Epoch 3	Total
Menai Strait and Conwy Bay SAC	20.1	Intertidal sandflat	0.00	0.03	0.01	0.04

- 5.5.111 The subtidal sandbanks will be able to respond to the changing conditions and will not be adversely impact by the SMP2 policies, as movement can occur inshore into intertidal areas that are located within the SAC or in undesignated areas of intertidal habitat, though monitoring is recommended to confirm this in the long term.
- 5.5.112 The Lavan Sands, Conwy Bay SPA The SPA only encompasses a small area of PU 20.1 where the preferred policy is HTL over all 3 epochs. This area could be impacted by coastal squeeze and a total loss of 0.04ha of intertidal sandflat (see Table 5.8) over the 3 epochs (**epoch 2 = 0.03ha, epoch 3 = 0.01ha**) will occur in front of the defence. The HTL policy could lead to coastal squeeze and a resulting decrease in the extent of intertidal

sandflat habitat. The reduction in extent of intertidal habitat whilst small in relation to the total area could still result in the favourable condition of the oystercatcher and curlew not being achieved.

- 5.5.113 **Preventative/mitigation measures:** None identified.
- 5.5.114 Though not an intended mitigation or prevention, monitoring of the subtidal sandbanks to ensure that overall extent of the subtidal sandbanks has not changed as a result of sea level rise.
- 5.5.115 Though not an intended mitigation or prevention, monitoring of the reef habitats to ensure that no loss of extent or distribution occurs as a result of sea level rise.
- 5.5.116 **Risks/Assumptions:** The habitat loss is considered precautionary, and where any works are to be undertaken detailed study would provide an accurate identification of whether habitat would be lost and the extent. The areas of potential habitat loss are small, but do not take into account accretion of sediments within the area and how this would influence the development of intertidal sandflat.
- 5.5.117 **Implications for the integrity of the Site:**

Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the intertidal habitat (sandflat), reef, and shallow inlets and bays features of the SAC as a result of the SMP2 policies. There will however, be **no adverse effect on the integrity** of the other SAC features.

Great Orme`s Head/ Pen y Gogarth SAC: **conclude no adverse effect on the integrity.**

Traeth Lafan / Lavan Sands, Conwy Bay SPA: It is concluded that there is likely to be a significant **adverse effect on the integrity** on the populations of the qualifying interests (due to the reduction in the extent of supporting habitat that is predicted) of the SPA as a result of the SMP2 policies.

6 IN-COMBINATION AND CUMULATIVE ASSESSMENT

6.1 Introduction

6.1.1 As discussed previously, two aspects of in-combination effects need consideration: the effects of SMP policy in each assessment unit in combination with other plans and projects as outline in Section 4, and the cumulative effects of SMP policy in adjacent assessment units to affect the International designations as a whole. The intent is simply to establish if the effects of SMP policy in combination with the effects of other plans and projects would have an adverse effect on the integrity of international sites. Only where the 'Alone' assessment concluded there would be no adverse effect on the integrity of the International sites would an in-combination assessment be conducted.

6.2 The In-Combination and Cumulative Assessment with other Plans and Projects

6.2.1 All PDZs have been included in the in-combination and cumulative impact assessment.

6.2.2 The National Transport Plan (Welsh Assembly Government, 2010) was reviewed and identified through its HRA that there would be no adverse effect on European Sites, and as such no in-combination effect would occur.

PDZ 1, PDZ 2, PDZ 3, PDZ 4 and PDZ5

6.2.3 ***Relevant plan/policies considered for inclusion:***

- Pembrokeshire Coast National Park Local Development Plan 2011-2021 (Adopted September 2010).
- Pembrokeshire Local Biodiversity Action Plan 2000.
- Pembrokeshire and Ceredigion Rivers Catchment Flood Management Plan (Environment Agency Wales, 2010).
- South West Wales Integrated Transport Consortium - Regional Transport Plan (2009).

6.2.4 ***Potential impact of policy:*** A commitment to meet the LDP and Wales Government key targets for affordable housing; transport routes, minerals and waste, and improvement and sustainable tourism could result in new development adjacent to the coast. However, in addition, the LDP provides for the protection of European Sites. The LDP has been developed to ensure that there will not be any likely significant effects on European sites. The LDP and its HRA determine that there will be no adverse effect on the integrity of European Sites. Consequently, **it can be concluded that the SMP2 policies will not have an adverse in-combination impact with the LDP policies or the maritime cliff objectives of the LBAP.**

6.2.5 Objectives to manage the biodiversity of key habitats and species within the Pembrokeshire County and along the coastline could result in the SMP2 policies of PDZ 1, 2, 3 and 4 having an adverse impact on the LBAP objectives. Within the LBAP maritime cliffs and sand dunes have been identified as being potentially influenced by the SMP2 policies. The main objective of the LBAP for maritime cliffs is to achieve favourable condition for maritime cliff and slope, where the following targets are met:

- The extent of maritime cliff and slope communities is maintained on 80% of the hard Pembrokeshire coast.

- 200 ha of maritime grassland is restored or recreated.
- A suite of plant species typical of each component of this habitat is present in 70% of sites sampled.
- Scrub (e.g. gorse), bracken and bramble should not dominate more than 20% of sites sampled.
- Invasive alien species should be absent.

6.2.6 The NAI along the coastline where this habitat occurs will ensure that the cliffs are able to respond naturally and will not be constrained by coastal defences. **Therefore it is concluded that the SMP2 policies will not have an adverse in-combination impact on the maritime cliff objectives of the LBAP.**

6.2.7 The main objective of the LBAP for sand dunes is to achieve favourable condition for coastal sand dunes and their habitats in Pembrokeshire, where the following targets are met:

- On each system, the natural development of the geomorphological processes continue unhindered from human influences;
- The following range of sand dune habitats should be in favourable condition on the systems where they occur:
 - Shingle at the base of dunes
 - Strandline
 - Foredune
 - Mobile dune
 - Semi-fixed dune
 - Dune grasslands
 - Dune slack
 - Other dune wetland
 - Scrub
 - Woodland
- Invasive alien species should be absent on all sites.

6.2.8 Pembrokeshire sites have been identified as being affected by sea defence or dune stabilisation works. While carefully applied dune management measures can help to counteract severe erosion which may threaten the existence of a dune, engineered defence systems usually reduce the biodiversity inherent in the natural dynamism of dune systems. Such engineering works should be resisted at all sites. Stabilisation works, however, must be used where non-natural processes have led to unacceptable levels of erosion. Over-stabilisation of dune systems, however, must be avoided in order to maintain their biodiversity. Disruption of coastal processes by sea defence works can have an impact upon shorelines elsewhere along the coast.

6.2.9 Within PDZ 1, 2, 3, 4 and 5 the principal coastline comprises hard and soft cliffs and mudflats/sandflats within large sandy bays. Areas of sand dunes within these PDZs are small with one area of dune habitat located at the back of the beach within PU 4.3. The policy for HTL in epoch 1 and then managed retreat in epochs 2 and 3 will not involve

engineering to restrict the dune retreat, but will instead support the dune system. Therefore it is concluded that the SMP2 policies will not have an adverse in-combination impact on the sand dune objectives of the LBAP.

- 6.2.10 Given the limited interactions, and identifying that only the intertidal mudflats and sandflats in PDZ 2 and PDZ 3 in Pembrokeshire Marine SAC may be affected by the SMP, it is concluded that no in-combination effects are expected with the CFMP.
- 6.2.11 The Regional Transport Plan (SWWITCH) indicated that there were no predicted affects for European Sites within these PDZs, and therefore it is concluded that there is no in-combination effect.

PDZ 5, PDZ 6, PDZ 7, PDZ 8, PDZ 9 and PDZ 10 (partial)

6.2.12 **Relevant plan/policies considered for inclusion:**

- Ceredigion County Council Preferred Strategy Local Development Plan Consultation 2007 – 2022.Ceredigion County Council – Waste Strategy for Ceredigion.
- Pembrokeshire and Ceredigion Rivers Catchment Flood Management Plan (Environment Agency Wales, 2010).
- Ceredigion Local Biodiversity Action Plan 2002.
- The North Ceredigion Catchment Abstraction Management Strategy 2008.South West Wales Regional Transport Plan (SWWITCH, 2009).
- West Wales Regional Transport Plan (TRACC, 2009).

6.2.13 **Potential impact of policy:** A commitment to develop within Ceredigion to meet the LDP targets for housing, leisure and tourism and transport could result in new development adjacent to the coast. However, Policy 19 of the LDP states that development within the coastal zone will only be permitted is it can be demonstrated that a coastal location is required; that is would not rely on extensive engineering works to protect the proposed development site; and that applications for new coastal defences should consider all potential environmental effects. As such, no adverse in-combination impact is anticipated from this commitment.

6.2.14 The Ceredigion Waste Strategy identifies no specific actions that would take place in the coastal zone or shore, being centred on the collection and deposition of waste at appropriately licensed locations (outside the county). Therefore, it can be concluded that no in-combination impact is expected to arise.

6.2.15 Given the limited interactions, and identifying that no adverse effects have been identified as a result of the SMP policies, it is concluded that no in-combination effects with the CFMP are expected.

6.2.16 Within the Ceredigion LBAP no habitats listed in the LBAP were identified during the HRA assessment of PDZ 5, 6, 7, 8 or 9. However, the SPA associated species Chough has been designated within the action plan. The objectives are to, in the short tem maintain the current population and range; and to increase the Ceredigion population to 30 pairs by 2010, with at least 2 pairs inland. During the stand alone assessment of PDZs 5 to 9, the SPAs which supports the chough community within Ceredigion are not located within the policy units of PDZ 5, 6, 7, 8 or 9, therefore it is concluded that the SMP2 policies will not have an adverse in-combination impact on the Chough objectives of the LBAP.

6.2.17 The SMP2 policies of PDZ 5, 6, 7, 8 or 9 are not located within or immediately adjacent to any of the Water Resource Management units within the North Ceredigion Catchment Abstraction Management Strategy. There would be no obstruction to water discharge as a result of the SMPs, and the increase in water levels in the lower limit of rivers due to sea level rise is not influenced by any SMP policies, **therefore it is concluded that the SMP2 policies will not have an adverse in-combination impact with the CAMS.**

6.2.18 The South West Wales Regional Transport Plan (SWWITCH, 2009) indicated that there is a potential impact on the Afon Teifi SAC from the North Cams to Ceredigion Link Road in relation to freshwater discharge/volumes/quality. These features do not act in-combination with the SMP policies, and therefore **it is concluded that there is no in-combination effect.**

6.2.19 The West Wales Regional Transport Plan (TRACC, 2009) indicated that there is a potential impact on the Lleyn Peninsula and the Sarnau SAC in the Dysynni Estuary as a result of construction works. It may be possible that these short-term impact would effect the same habitats as those identified for the PDZ 10. Therefore, **it is concluded that there is a likely in-combination effect until mitigation is provided.**

PDZ 11, PDZ 12, PDZ 13, PDZ 14, PDZ 15 and PDZ 16

6.2.20 **Relevant plan/policies considered for inclusion:**

- Snowdonia National Park Authority Eryri Local Development Plan 2007 – 2022 Written Statement (Deposit Version Spring 2009).
- Gwynedd Unitary Development Plan 2001 – 2016.
- Gwynedd Local Biodiversity Action Plan.
- North West Wales Catchment Flood Management Plan (Environment Agency Wales, 2009).
- West Wales Regional Transport Plan (TRACC, 2009).
- North West Wales Regional Transport Plan (Taith, 2009).

6.2.21 **Potential impact of policy:** A commitment within the Gwynedd Unitary Development Plan (UDP) will see proposals to build houses on suitable unallocated sites within the development boundaries of the sub-regional centres (Bangor; PDZ 16) and the urban centres (Caernarfon, PDZ 16; Pwllheli, PDZ 13; Porthmadog, PDZ 12; and Blaenau Ffestiniog, inland of PDZ 12), may see development of houses within the coastal zone. However, as stated within the UDP proposals which are likely to cause direct or indirect significant harm (either individually or in combination with other plans or projects) to the integrity of Special Protection Areas (potential or classified), Special Areas of Conservation (candidate or designated), RAMSAR sites (proposed or listed) will be refused unless certain criteria can be met (see Policy B14 of the LDP). As such, **no adverse in-combination impact is anticipated from this commitment.**

6.2.22 The Snowdonia National Park Authority Local Development Plan undertook an HRA and identified that there are no adverse affects associated with the LDP, consequently, there is no in-combination impacts associated with the SMP and LDP.

6.2.23 Objectives to manage the biodiversity of key habitats and species within the Gwynedd County and along the coastline could result in the SMP2 policies of PDZ 11 to 16 having an adverse impact on the LBAP objectives. Within the LBAP maritime cliffs and wet woodlands have been identified as being potentially influenced by the SMP2 policies.

- Particular concerns outlined in the LBAP include: Some wet woodland has disappeared because of felling. Other examples are suffering damage from drainage, from water pollution and from colonisation of invasive plants such as Japanese Knotweed. Much of Gwynedd is surrounded by the sea.
- The cliffs and slopes so common in parts of the county such as on the Llyn Peninsula have a wide range of vegetation types.
- Maritime cliffs and slopes are often under threat from urban and industrial development, inappropriate coastal defences, from holiday accommodation and from changes in agricultural practices. Sometimes the breeding seabirds they nurture are under threat too, from predation by cats and rats.
- Some cloddiau (characteristic of the Llyn Peninsula) have been removed to create larger fields. Others are suffering damage. Traditional maintenance skills have been lost. Severe mechanical trimming of vegetation, or cutting it at the wrong time of year, is one of several problems.

- 6.2.24 Within the stand alone assessment of the PDZs, no adverse effects were concluded for any of the habitats identified within the LBAP; **therefore no adverse effect is anticipated within the SMP2 in-combination with the LBAP.**
- 6.2.25 Given the limited interactions, and the lack of fluvial flood management in the Dyfi, the effects of the SMP in PDZs 10, 11, 12, 13, and 16 are related to estuarine or coastal habitats that will not result in an in-combination impact with the CFMP policies. No impacts are expected as a result of the SMP policies in PDZ 14 and 15 and hence no interaction can occur. Consequently, it is concluded that **no in-combination effects would arise.**
- 6.2.26 The West Wales Regional Transport Plan (TRACC, 2009) indicated that there are is a potential impact on the Llyn Peninsula and the Sarnau SAC in the Dysynni Estuary as a result of construction works. It may be possible that these short-term impact would effect the same habitats as those identified for PDZs 11, 12, and 13. Therefore, **it is concluded that there is a likely in-combination effect until mitigation is provided.**
- 6.2.27 The North West Wales Regional Transport Plan (Taith, 2009) indicated that there is a potential impact on the Llyn Peninsula and the Sarnau SAC and the Menai Strait and Conwy Bay SAC are related to surface water run-off and are not likely to interact with the SMP policies and impacts. Therefore, it is concluded **that there is no in-combination effect.**

PDZ 16, PDZ 17, PDZ 18 and PDZ 19

6.2.28 **Relevant plan/policies considered for inclusion:**

- The Isle of Anglesey Local Development Plan (LDP) 2006 -2021.
- Anglesey AONB Management Plan Review 2009.
- Gwynedd Unitary Development Plan 2001 – 2016.
- Gwynedd Local Biodiversity Action Plan.
- The Ynys Môn (Anglesey) Catchment Abstraction Management Strategy Consultation Document 2006.
- North West Wales Catchment Flood Management Plan (Environment Agency Wales, 2009).
- West Wales Regional Transport Plan (TRACC, 2009).
- North West Wales Regional Transport Plan (Taith, 2009).

6.2.29 **Potential impact of policy:** A commitment to develop within Anglesey to meet the LDP expanding the range of new dwellings and dwellings within existing hubs could result in new development adjacent to the coast. New coastal developments would require new coastal defences potentially leading to an adverse impact on the SAC sites.

6.2.30 Within PDZ 17, new coastal developments for residential, retail and employment purposes have been identified in Holyhead, on undefended land to the east of Holyhead Harbour. However, as these planned developments are not located within an internationally designated environmental site it can be concluded that there will **no adverse in-combination impact** anticipated from this commitment.

6.2.31 Within PDZ 18, new residential developments have been identified for Porth Amlwch, however as these plans are not located within an internationally designated environmental site it can be concluded that there will **no adverse in-combination impact** anticipated from this commitment.

6.2.32 No developments have been identified within PDZ 19.

6.2.33 The Anglesey AONB incorporates the majority of the coastline adjacent to PDZ 17, 18 and 19, which also incorporates the Aberffraw Bay Heritage Coas, the Ynys Laws Stack Heritage Coast, the Trwyn Carmel Head Heritage Coast, the Bae Cemaes Bay Heritage Coast and the Porth Eilian Heritage Coast. On the whole the SMP policies limit policy that would result in visual alteration due to human structures to existing locations of human activity and infrastructure, and encourage natural processes wherever possible. Consequently, **it is concluded that the SMP2 policies will not have an adverse in-combination impact with the policies of the Anglesey AONB.**

6.2.34 The Anglesey LBAP provides targets for and actions to protect and enhance habitats and species, with particularly relevant habitats such as coastal and floodplain grazing marshes, coastal saline lagoons, lowland fens, lowland heathland, maritime cliff and slope, sandy beaches, rivers and streams, and seagrass beds. However, the SMP is expected to result in no effects on designated habitats other than sandy beaches and potentially rivers and streams (through estuaries), whilst the LBAP is intended to improve these habitats. Consequently as no adverse effects are identified as arising from the BAP, **it is concluded that no in-combination effect is expected.**

- 6.2.35 Other than the sandy beaches, the A commitment within the Gwynedd Unitary Development Plan (UDP) will see proposals to build houses on suitable unallocated sites within the development boundaries of the sub-regional centres (Bangor; PDZ 16) and the urban centres (Caernarfon, PDZ 16), may see development of houses within the coastal zone. However, as stated within the UDP proposals which are likely to cause direct or indirect significant harm (either individually or in combination with other plans or projects) to the integrity of Special Protection Areas (potential or classified), Special Areas of Conservation (candidate or designated), RAMSAR sites (proposed or listed) will be refused unless certain criteria can be met (see Policy B14 of the LDP). As such, no adverse in-combination impact is anticipated from this commitment.
- 6.2.36 Objectives to manage the biodiversity of key habitats and species within the Gwynedd County and along the coastline could result in the SMP2 policies of PDZ 16 to 20 having an adverse impact on the LBAP objectives. Within the LBAP maritime cliffs and wet woodlands have been identified as being potentially influenced by the SMP2 policies. The majority of these relate to the Llyn Peninsula and are not affected by the policies of the SMP. Within the stand alone assessment of the PDZs, no adverse effects were concluded for any of the habitats identified within the LBAP; **therefore no adverse effect is anticipated within the SMP2 in-combination with the LBAP.**
- 6.2.37 The SMP2 policies of PDZ 16, 17, 18 or 19 are not located within any of the Water Resource Management units within the Anglesey Catchment Abstraction Management Strategy. However, there may be issues of decrease in ground water or surface water recharge for designated sites or impact upon the structural geology of coastal cliffs. The unit with boundaries closest to the shoreline is WMRU 1 which extends towards Holyhead and Rhosneigr. No internationally designated sites are located within WMRU 1 and **therefore it is concluded that the SMP2 policies will not have an adverse in-combination impact on Anglesey CAMS.**
- 6.2.38 Given the limited interactions and noting that the effects of the SMP in PDZs 16, 17, 18, 19, and 20 are related to estuarine or coastal habitats, it is concluded that **no in-combination effects would arise with CFMP.**
- 6.2.39 The West Wales Regional Transport Plan (TRACC, 2009) indicated that there are no impacts within the sites in these PDZs, therefore, it is concluded **that there is no in-combination effect.**
- 6.2.40 The North West Wales Regional Transport Plan (Taith, 2009) indicated that there is a potential impact on the Llyn Peninsula and the Sarnau SAC and the Menai Strait and Conwy Bay SAC are related to surface water run-off and are not likely to interact with the SMP policies and impacts. Therefore, it is concluded **that there is no in-combination effect.**

PDZ 20

6.2.41 **Relevant plan/policies considered for inclusion:**

- Conwy Local Development Plan Preferred Strategy 2006.
- Conwy Catchment Abstraction Management Strategy 2004.
- Conwy Local Biodiversity Action Plan.
- Conwy and Clywd Catchment Flood Management Plan (Environment Agency Wales, 2009).
- North West Wales Regional Transport Plan (Taith, 2009).

6.2.42 **Potential impact of policy:** A commitment to develop within Conwy to meet the LDP targets for housing, leisure and tourism and transport could result in new development adjacent to the coast. However, the plan will safeguard landscapes, habitats and sites of other features of local importance; and will guide development away from areas at risk of flooding and support the provision of suitable, economically, technically and environmentally sound and sustainable coastal defence systems. As such, **no adverse in-combination impact is anticipated from this commitment.**

6.2.43 The SMP2 policies of PDZ 20 are not located within any of the Water Resource Management units within the Conwy Catchment Abstraction Management Strategy. Issues of decrease in ground water or surface water recharge for designated sites are not expected to arise as a result of SMP policy, as there are no cliff locations where SMP policy intends to disrupt the natural processes, and no obstruction to surface water discharge into the sea, and the increase in water levels in the lower limit of rivers due to sea level rise is not influenced by any SMP policies, **therefore it is concluded that the SMP2 policies will not have an adverse in-combination impact with the CAMS.**

6.2.44 Objectives to manage the biodiversity of key habitats and species within the Conwy County and along the coastline could result in the SMP2 policies of PDZ 20 having an adverse impact on the LBAP objectives. Within the LBAP following habitats have been identified as being potentially influenced by the SMP2 policies:

- Coastal and floodplain grazing marsh.
- Coastal sand dune.
- Coastal vegetated shingle.
- Maritime cliff and slope.
- Rivers and streams.
- Coastal saltmarsh and mudflat.
- Sublittoral sands and gravels.

6.2.45 As the policies within PDZ 20 were concluded as having no adverse impact on the integrity of the Natura 2000 sites within the SMP2 site, including the habitats listed above, it can be concluded that the SMP2 policies will not have an adverse effect on the objectives of the Conwy LBAP.

6.2.46 Given the limited interactions and noting that the effects of the SMP in PDZ 20 are related to estuarine or coastal habitats, it is concluded that **no in-combination effects would arise with CFMP.**

- 6.2.47 The North West Wales Regional Transport Plan (Taith, 2009) indicated that there is a potential impact on the Menai Strait and Conwy Bay SAC related to surface water run-off, though these are not likely to interact with the SMP policies and impacts. Therefore, it is concluded **that there is no in-combination effect.**

6.3 The Cumulative Assessment

Table 6.1 Cumulative Assessment: Summary of Impacts on the International Sites

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
SAC		
Limestone Coast of South West Wales / Arfordir Calchfaen de Orllewin Cymru (Total Area = 1,595 hectares)		
Overall: Yes Yes (PDZ 1)	None	This site lies outside the SMP2 area (ca. 8.5km east of St. Ann's Head - PDZ 1 boundary) and as the coast within PDZ1 (i.e. the only stretch of coast that could effect this designation) will be able to function naturally there will be no changes in the coastal processes that could affect the integrity of the site.
Pembrokeshire Marine / Sir Benfro Forol (Total Area = 138,069 hectares)		
Overall: No Yes (PDZ 1) No (PDZ 2 and 3)	Intertidal sandflat	This large marine SAC is 138,069ha and stretches from east of St. Ann's Head (start of PDZ 1 boundary) to Yns Barry in PDZ 3. Though much of the coast in NAI, there are areas of the coast where the policy is to HTL in the short term, however, in the medium to long term the intent of the coastal management is realign and mostly allow the coast to naturally evolve. <ul style="list-style-type: none"> • Where the coast comprises rocky shores and cliffs this is where the policy is to allow the coast to evolve and so there will be no habitat losses of these habitats. • There are some small estuaries within this designation, including Solva, as well as large shallow bays and inlets. Since there is no intention to increase the defences but instead to increasingly allow these to function more naturally it has been deemed that these features would not be adversely affected. • There are only a few areas of intertidal mudflat and sandflat with HTL policies; these include PUs 2.2, 2.4, 2.5, 2.6, 2.8, 3.2, 3.3, 3.4, 3.5, and 3.8. However, only PUs 2.5, 3.2, 3.3, 3.4, 3.5, and 3.8 are expected to result in any loss as the remaining PUs are on steep shores with existing natural constraint to intertidal migration. The total loss of intertidal sandflat habitat in the Site is xxha in epoch 1, xxha in epoch 2, and xxha in epoch 3.

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Cleddau Rivers / Afonydd Cleddau (Total Area = 750 hectares)		
Overall: Yes Yes (PDZ 2, 3, and 4)	None	Cleddau Rivers SAC covers a vast area of West Wales (750 hectares) with some areas falling close (i.e. within ca. 3km) to the coastline within the SMP2 study area. Where the SMP2 policies are MR or NAI there is a possibility of the SAC experiencing saline intrusion and thus affecting the integrity of the designated features. These locations include PU 2.10 and 2.11 in PDZ 2, PU3.11 (and the adjacent PU3.1 to PU3.12) in PDZ 3 and ca. 2.5km from PU 4.6 in PDZ 4. It has been concluded that there will be no encroachment of the coast or saline water over the 3 epochs and therefore there will be no adverse effect on the SAC watercourses, associated habitats (e.g. bogs and forests) and species (e.g. lamprey and otter).
Pembrokeshire Bat Sites and Bosherton Lake / Safleoedd Ystlum Sir Benfro a Llynno		
Overall: Yes Yes (PDZ 1)	None	This site is ca. 17.5km to the east of St Ann's Head (PDZ 1 boundary) landward of Broad Haven and which is outside the SMP2 study area. The policy for the coastline within PDZ1 is to allow the natural function of the coastal habitats with no human intervention. Therefore, it is unlikely that there will be any indirect effects on the habitat or species features of this SAC and it has been concluded no adverse effect on the integrity of the site.
St David's / Ty Ddewi (Total Area = 935 hectares)		
Overall: Yes Yes (PDZ 2 and 3)	None	This is a coastal SAC (935ha) that is located along the Northern most coastline of PDZ 2 (PU 2.13) and around the rocky peninsular of St David's in PDZ 3. The majority of the policies along this stretch of coast are NAI for all epochs, which will allow the rocky ledges and vegetated cliffs to develop naturally due to erosion in the long term, as will the European dry heaths found on top of the cliffs. Floating water-plantain, which is found in rain fed low-land pools, will not be adversely affected, since they are not within the vicinity of any coastline that has a policy of anything other than NAI on an already undeveloped coastline.
North West Pembrokeshire Commons (Total Area = 249 hectares)		
Overall: Yes Yes (PDZ 3)	None	This small SAC (249ha) is located inland on St. David's peninsular, ca. 0.73 km from the nearest coastal point (PU 3.6). No saline intrusion impacts have been predicted for this SAC since the site and its features are all inland and the coastline will be allowed to continue to develop natural under policies of NAI.

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
River Teifi / Afon Teifi (Total Area = 715 hectares)		
Overall: Yes Yes (PDZ 5)	None	This SAC covers the Teifi Estuary (though the sandflats and mudflats are not a designated feature) and a large proportion of the riverine extent of the River Teifi, and covers an area of 715 hectares. It has been concluded that there will be no adverse effect on the integrity of the features (habitats and species) of this SAC. In particular, the policies within the estuary will not affect the freshwater features since they are beyond the extent of any increases in the tidal prism as a result of sea level rise. Furthermore, the SMP2 policies will not result in interrupting the migratory pathways of the fish features of this SAC (e.g. river lamprey and Atlantic salmon), or affecting the feeding and breeding habitats of the otter.
Cardigan Bay / Bae Ceredigion (Total Area = 95,860 hectares)		
Overall: Yes Yes (PDZ 5, 6, 7 and 8)	None	This is a large marine SAC covering 95,860 ha; stretching from Moylgrove (halfway along PU 5.1) in PDZ 5 to Aberarth (PU 8.6) in PDZ 8, with relevant features including sandbanks slightly submerged by seawater, reefs, sea caves, migratory fish, grey seals, and bottlenose dolphins. The stretch of coastline that encompasses this SAC has an assortment of policy suites. It has been concluded that the integrity of the site will not be adversely affected, since this PDZ comprises of large stretches (e.g. PU 5.1, 5.15, 6.7, 7.6, 8.1 and 8.5) of undeveloped coastline that will continue to adapt naturally. Where there are policies to HTL in for example, small bay areas landward of sandy beaches (and bordered by undeveloped natural rocky coastline with NAI policies), as well as small estuaries, in all four PDZs it is predicted that there will be localised changes in hydrodynamics but that it is unlikely that these will affect the larger coastal processes along the coast. Furthermore, many of policies change to MR in the medium and/or long term, and so ensuring that the localised and larger scale coastal processes do not change and therefore the integrity of habitats such as sandbanks, caves and reefs are maintained. The policies are also not predicted to restrict migratory fish pathways (e.g. lamprey species), cause the loss of haul out sites for grey seals because of coastal squeeze (particularly since where there are HTL policies these are populated areas, which are not considered important haul out sites) or affect Bottlenose Dolphins. The loss of intertidal mudflat and sandflats within the Teifi Estuary (PUs 5.5, 5.7, 5.8, 5.11 and 5.12) because of coastal squeeze will however not affect the integrity of the site since it is not a designated feature of the Site.

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Lleyn Peninsula and the Sarnau / Pen Llyn a'r Sarnau (Total Area = 140,023 hectares)		
<p>Overall: No</p> <p>Yes (PDZ 9, 14, and 15)</p> <p>No (PDZ 10, 11, 12, and 13)</p>	<ul style="list-style-type: none"> • Estuaries (10, 11, and 12). • Large shallow inlets and bays (13). • Mudflats and sandflats not covered by sea water at low tide (10, 11, 12, and 13). • Salicornia and other annuals colonising mud and sand (10, 11, 12, and 13). • Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) (10, 11, and 12). 	<p>This is a very large marine SAC that covers 140,023 ha; stretching from Clarach Bay (halfway along PU 9.11) in PDZ 9 to Penrhyn Nefyn (partway within PU 15.1) in PDZ 15, with relevant features including:</p> <ul style="list-style-type: none"> • sandbanks slightly submerged by seawater - • estuaries, • coastal lagoons, • large shallow bays and inlets, • reefs • mudflats and sandflats not covered by sea water at low tide • <i>Salicornia</i> and other annuals colonising mud and sand • Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) • Submerged or partially submerged sea caves • grey seals, • otter and • bottlenose dolphins <p>In summary, from the assessment the individual PDZs the of loss of intertidal habitat within the estuaries and on the open coast will result in an adverse effect to the integrity of the sandflat/mudflat and saltmarsh SAC features and the communities they support within PDZs 10, 11, 12 and 13. Furthermore, the intertidal losses are likely to result in an alteration to the structure of the estuary features within these PDZs. [Please refer to the Assessment Tables in Annex IV as the assessment is too extensive to summarise fully in this table]</p> <p>Within PDZ 12 defences currently built to the immediate south of the site boundary along the coast (for a caravan park) could be reducing the feed of shingle alongshore and into the dune system. If this feed stops it could reduce the amount of natural protection to the dune system, and result in erosion in the medium to long term. However, the SMP intent is to ensure that agreed MR timings and locations are identified that prevent any constraint to intertidal habitat and sediment feed to the dune system in the north.</p>

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Cors Fochno (Total Area = 653 hectares)		
Overall: Yes Yes (PDZ 10)	None	The Cors Fochno SAC (a total area of 653 ha) is located within PUs 10.5 and 10.6. The issue of damage to Cors Fochno and the associated designated areas are taken forward as part of developing the management of the area; recognising that to attempt to maintain defence to the feature would in itself damage the feature or make it increasingly vulnerable to more significant damage. The MR policy would result in the potential for sudden saline inundation in the initial stages which could affect the bog structure. A potential MR of reducing drainage in epochs 1 and 2 prior to MR and controlling inundation would ensure that the periphery of the bog is not affected. The flooding extent over 50 years does not significantly alter from the present day. The flooding extent over 100 years (epoch 3) will see extensive flooding of the entire SAC. If the MR policy ensures a controlled and gradual inundation in association with CCW, this will ensure that the bog features are not affected and that there will be no adverse effect. A Strategy is noted in the SMP intent and Action Plan in order to manage the transition of the wetland.
Morfa Harlech a Morfa Dyffryn (Total Area = 1,063 hectares)		
Overall: Yes Yes (PDZ 11 and 12)	None	<p>The sand dunes of this SAC in PDZ 11 are located in PU 11.20 where no HTL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of SMP2 policy is expected.</p> <p>The sand dunes of this SAC in PDZ 12 are located in PU 12.7 and partially PU 12.1 and PU 12.8. PU 12.7 and 12.1 have a preferred policy of NAI which would allow the dunes to respond naturally to sea level rise – and any loss as a result of erosion, would not be as a result of SMP2 policy.</p> <p>The HTL policy at 12.8 (part of PU 12.8) is required to maintain the rollover embankment at the back of the dunes. This defence only encompasses less than half of PU 12.8 and is principally backing the saltmarsh and heath habitat rather than the sand dunes. The small area of dune located within PU 12.8 is not constrained by the existing defence. Therefore it is anticipated that the HTL policy within PU 12.8 will not have an adverse impact on the sand dunes. Exploring integrated management of the dunes as a whole would allow the body of the sand to migrate landward to maintain the dune system and their relevant position to the tidal frame.</p>

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Meirionnydd Oakwoods and Bat Sites (Total Area = 2,813 hectares)		
<p>Overall: Yes</p> <p>Yes (PDZ 11 and 12)</p>	<p>None</p>	<p>The nearest PU to this SAC is PU 12.11 where the preferred policy is MR in epoch 1 and NAI in epochs 2 and 3. However, the 100 year flooding or erosion extent modelling have determined that there will be no impact on the integrity of this SAC and calculations have derived that no habitat loss occurs to this SAC within PDZ 12.</p> <p>A number of areas which make up this SAC are adjacent to the Mawddach Estuary with particular close proximity in the upper estuary (PU 11.13). The preferred policy option within PU 11.13 is HTL in epoch 1 and MR in epochs 2 and 3. The MR policy could result in the loss of heathland or woodland habitat approximately 0.004ha from PU 11.13 over all 3 epochs. The MR policy would ensure that there is no loss of woodland/heathland, and that it results in sensitive and natural flooding to any habitat rather than structures.</p>
Lleyn Fens (Total Area = 284 hectares)		
<p>Overall: Yes</p> <p>Yes (PDZ 14 and 15)</p>	<p>None</p>	<p>The area of coast nearest the Lleyn Fens SAC has a preferred policy of NAI, therefore the natural erosion of the coast and alteration of hydrology would develop naturally and not as a direct result of the SMP. There do not appear to be any obvious land constraints which would alter the integrity of this SAC.</p>

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Seacliffs of Lleyn (Total Area = 1,048 hectares)		
<p>Overall: Yes</p> <p>Yes (PDZ 13, 14, and 15)</p>	<p>None</p>	<p>The entire section of the Seacliffs of Lleyn SAC within PDZ 13 have a preferred policy of NAI – therefore the cliffs will be able to respond naturally to sea level rise and any loss of habitat as a result of erosion will be the result of natural processes and not the SMP. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 13.</p> <p>The Seacliffs of Lleyn SAC covers over half of the coastline within PDZ 14. No HTL or MR policies are identified immediately within or adjacent to the site boundary, with NAI being the preferred policy for the majority of this PDZ, therefore no direct or indirect effects as a result of coastal management policy is expected. No significant effect long term, as the cliffs would be allowed to erode naturally and allow vegetated succession. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.</p> <p>Localised policies within PDZ 15 include the managed retreat of the cliffs at Porth Dinllaen, therefore allowing for the cliffs to respond more naturally (under management) to sea level rise.</p> <p>The preferred policy options only result in a loss of cliff habitat within PUs 15.1 and 15.2. As the policy for 15.1 in NAI over the 3 epochs, the loss of cliff habitat will not be included in this assessment as it is a result of natural processes rather than the SMP2 policy. Within PU 15.2 as a result of HTL and MR there could be a reduction in natural succession of vegetated cliff habitat depending on the extent and location of in particular MR policy. HTL for epoch 1 would not noticeably affect natural succession given the existing management, however, MR could. Erosion of vegetated cliff will take place away from the small, localised area of MR policy (only adjacent to the properties) and occurs as a result of natural processes.</p>

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Afon Gwyrfai a Llyn Cwellyn (Total Area = 114hectares)		
<p>Overall: Yes</p> <p>Yes (PDZ 16)</p>	<p>None</p>	<p>The Llyn Cwellyn lies approximately 11km upstream of Foryd Bay. Given the topography in the area, saline intrusion on this feature of the SAC is extremely unlikely.</p> <p>It is considered that there will be no significant impact on the features of this SAC as a result of the preferred management options.</p> <p>Saline intrusion of the lower reaches of River Gwyrfai will be likely over the 3 epochs. Within PU 16.5 as a whole (Foryd Bay) it is planned to HTL in epoch 1 with MR and NAI planned for epoch 2 and 3 respectively. The MR in epoch 2 would be aimed at alleviating the coastal squeeze within Foryd Bay and with NAI in epoch 3 potentially returning the Bay to a naturally functioning system.</p> <p>Saline intrusion of the lower reaches of the river is possible as a result of sea level rise and in response to the coastal squeeze, and not as a result of the SMP intentions or policies.</p>
Abermenai to Aberffraw Dunes (Total Area = 1,871 hectares)		
<p>Overall: Yes</p> <p>Yes (PDZ 16 and 17)</p>	<p>None</p>	<p>Areas of sand dune with particular contact with the coastal processes within PDZ 16 are located within Llanddwyn Bay (PU 16.7), Morfa Dinlle (PU 16.4), Fforyd Bay (16.5) and marginally in the Cefni Estuary (PU 16.10). The bordering saltmarsh community will reduce the loss of sand dunes and all areas are subject to a NAI policy, with the exception of PUs 16.4 (MR/MR/NAI) and 16.5 (HTL/MR/NAI), which will allow the sand dunes and saltmarshes to respond naturally to sea level rise. The MR policy enables the dunes to develop naturally. In the Long term the MR and NAI policies in epochs 2 and 3 (PUs 16.4 and 16.5) will not have an adverse effect on the integrity of this SAC feature as the dunes are able to adapt and the allowance of natural succession and a reduction of management intent.</p> <p>Within PDZ 17, only PUs 17.2, 17.3 and 17.4 are adjacent to this SAC; and of which PU 17.2 and 17.4 have a preferred policy option of NAI. Therefore it is expected that the sand dunes will be able to respond naturally to see level rise. HTL in epoch 1 may constrain the dune development; however it is unlikely to affect embryotic dunes, but may impact the dune habitat located inland.</p> <p>No regulation 33 map was available to identify the specific location of these habitats. It can be assumed that the front dune habitat will be able to continue to develop, but the rear dunes may become constrained, however overall this dune feature will not be impacted.</p>

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Anglesey Coast: Saltmarsh (Total Area = 1,058 hectares)		
<p>Overall: No</p> <p>Yes (PDZ 16 and 17)</p>	<ul style="list-style-type: none"> • Estuary (16) • Intertidal mudflat (16) 	<p>Within PDZ 17 it is likely that the saltmarsh fronting the dunes will develop with sea level rise; however, HTL in epoch 1 at Aberffraw itself will constrain the saltmarsh and intertidal habitat development fronting the defences. The MR planned in epoch 2 and 3 will alleviate the constraints on the natural development of the system and therefore allowing natural development of the coast in the long term. The sandflats are located within PU 17.2 where there is a preferred policy of NAI over all 3 epochs, therefore any loss of habitat will occur as a result of natural processes and not the SMP2 policies. It is concluded that PDZ 17 does not have an adverse effect on the integrity of this SAC.</p> <p>Within PDZ 16, the SAC features, occurs within PUs 16.6 (NAI), 16.7 (NAI), 16.8 (NAI), 16.9 (HTL) and 16.10 (NAI). The NAI policy will allow the intertidal habitats to function naturally, and will allow the saltmarsh to migrate backwards as the sandflats continue to move landwards in response to sea level rise, As both the sandflat and saltmarsh habitat are able to migrate landward, there will be no loss of habitat as a result of the SMP2 policy. Any habitat loss within these PUs will be a result of natural processes. The HTL policy in the inner estuary (16.9; embankment and village) where defences are already in place could result in the development of lower margins of saltmarsh habitat into mudflat, however the presence of defences would cause coastal squeeze resulting in intertidal habitat loss through the inability to migrate landwards subject to coastal squeeze. The main area of saltmarsh seems to be to the southern flank of the estuary (NAI), however, despite no habitat loss recorded there could be potential minor loss to fringe habitat along the northern section of the estuary.</p> <p>Habitat loss calculations have concluded that there will be loss of intertidal mudflat in PU 16.9 as a result of the SMP2 HTL policy, totalling 7.12ha in all epochs (0.17ha in epoch 1, 3.3ha in epoch 2, and 3.65ha in epoch 3).</p>
Holy Island Coast (Total Area = 464 hectares)		
<p>Overall: Yes</p> <p>Yes (PDZ 17)</p>	<p>None</p>	<p>The cliff feature of this SAC is located within PU 17.14 where NAI is the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected. No likely significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation, and response of intertidal mudflat and sandflat and dune habitats to sea level rise.</p>

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Cemlyn Bay (Total Area = 43 hectares)		
<p>Overall: Yes</p> <p>Yes (PDZ 18)</p>	<p>None</p>	<p>Within the Cemlyn Bay SAC the preferred policy option is for MR in epoch 1 with NAI the preferred policy option in epochs 2 and 3. The MR strategy would be to manage the natural change over epoch 1 and that the overall intent of NAI of epochs 2 and 3 would allow for natural development of the whole area, with the initial management there to ensure that this occurs gradually and allows for a gradual transition of conditions. However, MR will result in a potential loss of extent of the lagoon area, albeit small in scale in Epoch 1. NAI in Epochs 2 and 3 is likely to result in a greater reduction in area of the lagoon habitat. Furthermore, potential breaches could occur which would alter the physical and chemical characteristics of the lagoon, and could result in significant changes to the lagoon plant and animal communities. This long term change would arise due to the natural erosion and breach processes (which may not necessarily occur) and would not be as a result of the SMP.</p> <p>MR will not disturb the shingle banks or the species present on them during epoch 1. However, until details of the activities are determined, potential disturbance could arise; however, the extent of disturbance cannot be identified at this stage. Consequently, an adverse effect could occur in the short-term.</p> <p>NAI during epoch 2 and 3 will result in the natural movement and succession of the shingle banks and the vegetation communities. The requirement for a Strategy to ensure that the habitats within the Site can be managed toward a natural system in epoch 1 is identified in the SMP and the Action Plan.</p>

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Menai Strait and Conwy Bay (Total Area = 26,483 hectares)		
<p>Overall: No</p> <p>No (PDZ 16 and 20)</p> <p>Yes (PDZ 19)</p>	<ul style="list-style-type: none"> • Large shallow inlets and bays (20). • Mudflats and sandflats not covered by sea water at low tide (16, 20). • Reefs (16). 	<p>The loss of habitat within PUs 16.6, 16.13, 16.18, 16.25, 16.30 and 16.31 where NAI is the preferred policy option will be a result of natural processes and not as a result of the SMP2 policies. HTL policy in PUs 16.5, 16.9, part of 16.11, and 16.33 will result in a loss of intertidal habitat as the sandflats/mudflats are constrained as sea levels rise. HTL in PUs 16.12, 16.14, 16.17, 16.19, 16.21, 16.22, 16.24, 16.27, 16.28, and 16.29 though resulting in constraint to intertidal habitat will not adversely affect the site feature as they would affect intertidal habitat outside the Site boundary. The NAI policy in epoch 3 for PUs 16.5 and 16.17 will enable the intertidal habitat to respond naturally to the sea level rise – therefore any of loss of habitat in epoch 3 from these PUs will be a result of natural processes and not the SMP2 policy.</p> <p>Within PDZ 19, the majority of the SAC features are not located within the PDZ PUs, or within area of NAI therefore it was concluded that PDZ had not adverse impact on this SAC.</p> <p>All of the intertidal sandflats within PDZ 20 with the exception of PU 20.1 are outside the SAC boundary; however, small patches of sandflats that are not covered by low tide are included in PUs 20.2, 20.3 and 20.11. HTL policy in epoch 1 within PUs 20.1, 20.2, 20.3 and 20.11 will result in a loss of intertidal habitat as the sandflats/mudflats respond to sea level rise. However, given the limited if any extent of intertidal habitat within the boundary of the SAC these extents will not be prevented from developing naturally as a result of the HTL policies for PUs 20.2, 20.3, and 20.11. These intertidal affects are also likely to reduce or affect the structure of the shallow inlets and bays feature.</p> <p>HTL is proposed for all epochs in PU 20.1. This will result in a loss of intertidal habitat as the sandflats respond to sea level rise. This would affect the achievement of favourable condition in relation to the intertidal sandflat extent.</p> <p>Policies in units 16.11 are likely to affect the extent of reef habitat.</p>
Great Orme`s Head (Total Area = 303 hectares)		
<p>Overall: Yes</p> <p>Yes (PDZ 20)</p>	None	<p>The SAC features of this SAC are located on the cliffs within PDZ 20 which are located within PUs 20.12, 20.13 and 20.14 where the preferred policy is NAI. Therefore any loss of habitat as a result of erosion will occur due to natural processes and not as a result of the SMP2 policy.</p>

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
SPA		
Castlemartin Coast (Total Area = 1,119 hectares)		
Overall: Yes Yes (PDZ 1)	None	This site lies outside the SMP2 area (ca. 8.5km east of St. Ann's Head - PDZ 1 boundary) and as the coast within PDZ1 (i.e. the only stretch of coast that could effect this designation) will be able to function naturally, there will be no changes in coastal processes that could affect the integrity of the bird habitat within this site.
Skokholm and Skomer (Total Area = 423 hectares)		
Overall: Yes Yes (PDZ 1)	None	This site lies off the mainland coast of PDZ 1 (Skomer is ca. 0.6km and Skokholm is ca. 2.8km), however, since these islands and the coast within PDZ 1 have a policy of NAI for all three epochs, and are therefore able to function naturally, there will be no impact to the integrity of the habitats that support the birds (i.e. chough, short-eared owl, storm petrel, lesser black-backed gull, Manx shearwater and puffin) for which this area is designated.
Grassholm Island		
Overall: Yes Yes (PDZ 1)	None	This site lies off the mainland coast of PDZ 1 (is ca. 13km) and lies outside of the SMP2 study area. Since the coast within PDZ 1 has a policy of NAI for all three epochs, and are therefore able to function naturally, there will be no impact to the integrity of the habitats that support the bird (i.e. the 3 rd largest gannet colony in the world) for which this area is designated.
Ramsey and St David's Peninsula Coast (Total Area = 847 hectares)		
Overall: Yes Yes (PDZ 2, 3)	None	Much of the coastline within PDZ 3 (and what little of this SPA is in PDZ 2: PU 2.13 which is NAI for 3 epochs) has a preferred policy of NAI which will allow the vegetated cliffs to erode naturally and sand dunes to migrate landward in the long term, thus allowing natural succession. The NAI policy will allow the continued natural landward movement in response to sea level rise, and therefore the SPA feature (i.e. chough) which uses these cliffs to feed on adjacent short-grazed grassland or machair will be not be adversely effected.

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Dyfi Estuary (Total Area = 2,057 hectares)		
<p>Overall: No</p> <p>No (PDZ 10)</p>	<ul style="list-style-type: none"> • Internationally important Article 4.1 Species (wintering): Greenland white-fronted geese <i>Anser albifrons flavirostris</i> <p>Supporting habitat effected include:</p> <ul style="list-style-type: none"> • Tidal rivers • Estuaries • Mud flats, sand flats • Lagoons (including saltwork basins) • Salt marshes, salt pastures, salt steppes 	<p>Coastal squeeze within the estuary and along the open coast would result in a loss of sandflat/sand dune/saltmarsh habitats used by the overwintering birds and used as intertidal feeding grounds (particularly) within the estuary. However, with it is likely that there will be an adverse impact of the loss of feeding habitat within the intertidal zone.</p> <p>Within the inner and outer estuary, the preferred policies are for HTL and MR. It is likely that there will be a loss of sandflat habitat within the estuary as the defences are maintained over Epochs 1 and 2 for PUs 10.5, 10.6, and 10.7, and for all epochs in PUs 10.8, 10.11, 10.12, 10.13. Under the HTL policies for these units, the defence to the south and north side of the estuary would be continued for those PUs listed above. The reduced area of intertidal habitat would also result in a reduction in the area of appropriate habitat for saltmarsh as the mudflats/sandflats roll back into the saltmarsh habitat, particularly within PUs 10.6 and 10.11.</p> <p>The risk to the grassland habitats is generally low within epoch 1 and 2 with the majority of the policy options within the estuary being for HTL in the first 2 epochs; however as the MR policy is introduced with epoch 3, within PUs 10.6 and 10.7, the intertidal habitat will roll back, potentially reducing the availability of the grassland habitat, but maintaining and increasing the available extent for feeding geese.</p>

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal (Total Area = 373 hectares)		
Overall: Yes Yes (PDZ 13, 14)	None	The entire section of the Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA within PDZ 13 have a preferred policy of NAI (13.16, 13.17, 13.18 and 13.19) – therefore the cliffs and other associated coastal habitat will be able to respond naturally to sea level rise and any loss of habitat as a result of erosion will be the result of natural processes and not the SMP. The area within PDZ 14 which covers the SPA has a preferred policy of NAI, therefore, natural erosion of these supporting habitats would occur, but not as a direct result of the active SMP2 policy. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.
Aberdaron Coast and Bardsey Island (Total Area = 505 hectares)		
Overall: Yes Yes (PDZ 14)	None	The area within PDZ 14 which covers the SPA has a preferred policy of NAI, therefore, natural erosion of these supporting habitats would occur, but not as a direct result of the active SMP2 policy. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.
Holy Island Coast / Glannau Ynys Gybi (Total Area = 609 hectares)		
Overall: Yes Yes (PDZ 17)	None	The cliff feature of this SAC is located within PU 17.14 where NAI is the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected. No significant effect in the long term as the supporting habitats would be allowed to erode naturally and develop through natural succession.
Ynys Feurig, Cemlyn Bay and The Skerries (Total Area = 86 hectares)		
Overall: Yes Yes (PDZ 17, 18)	None	Policies for PUs 17.6 (HTL/HTL/MR) and 17.7 (HTL/HTL/HTL) are located adjacent to the SPA, however, they will affect the habitat features present on or around Ynys Feurig SPA within is within the NAI policy of PU 17.8. Within the Cemlyn Bay SPA area of PDZ 18the preferred policy option is for MR in epoch 1 with NAI the preferred policy option in epochs 2 and 3 (PU18.6). The MR strategy would be to manage the natural change over epoch 1 and that the overall intent of NAI of epochs 2 and 3 would allow for natural development of the whole area, with the initial management there to ensure that this occurs gradually and allows for a gradual transition of conditions. MR is not expected to result in a loss of the cumulative supporting habitat extents, but may result in minor change in the balance of intertidal, marsh, heath, and lagoon habitats, though not expected to result in a change to essential features (e.g. nesting area or food resource) for the species for which the site is designated. In the long term there will be a considerable change to the habitat due to the set back of the shingle ridge; reducing the area of lagoon and increased over-topping of the ridge. However, this would be as a result of natural processes within the area and not as a result of the SMP.

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Puffin Island (Total Area = 31 hectares)		
Overall: Yes Yes (PDZ 19)	None	The preferred policy option for Puffin Island is NAI. The cliffs are undefended and will be able to respond naturally to sea level rise. No significant impact as a result of the SMP policy will occur. No Habitat loss will occur as a result of the SMP2 policy within the Puffin Island SPA.
Lavan Sands, Conwy Bay (Total Area = 2,703 hectares)		
Overall: No No (PDZ 16 and 20)	Internationally important Article 4.2 Species (wintering): Oystercatcher <i>Haematopus ostralegus</i> , curlew <i>Numenius arquata</i> Supporting habitat effected include: <ul style="list-style-type: none"> • Tidal rivers • Estuaries • Mud flats • Sand flats • Lagoons (including saltwork basins) 	Along the SPA coastline, the preferred management option is for NAI, therefore allowing for the sand banks to respond to sea level rise. Within PU 16.33, there is a planned option to HTL in epochs 1 and 2 with a policy of MR in epoch 3. The HTL policy will lead to some coastal squeeze and loss of some of the sandflat habitat and will increase sediment drift in the area. Beach loss and increased wave exposure will also occur under this management option at the western end of this PU. This loss of intertidal habitat would also occur within PU 20.1 and would result in a reduction in the supporting habitat (sandflat) for SPA species. Although this area represents less than 0.5% of the supporting habitat this could affect the population and therefore the achievement of favourable condition could be compromised.

Conclude <u>No Adverse Effect</u> on Integrity of the Natura 2000 SMP2 policies?	Features of Site with adverse impact or inconclusive impacts	Summary of impacts
Ramsar		
Cors Fochno and Dyfi (Total Area = 2,508 hectares)		
<p>Overall: No</p> <p>No (PDZ 10)</p>	<ul style="list-style-type: none"> • Tidal rivers • Estuaries • Mud flats • Sand flats • Lagoons (including saltwork basins) • Salt marshes • Salt pastures • Salt steppes 	<p>Coastal squeeze within the estuary and along the open coast would result in a loss of sandflat/sand dune/saltmarsh habitats used by the overwintering birds and used as intertidal feeding grounds (particularly) within the estuary. However, given the extent of this habitat within the estuary, and the planned MR in long term which will allow the estuary to respond more naturally to sea level rise, it is unlikely that any loss of habitat will have an significant impact on the integrity SPA features and the overwintering population. However, with it is likely that there will be an adverse impact of the loss of feeding habitat within the intertidal zone.</p> <p>Within the inner and outer estuary, the preferred policies are for HTL and MR. It is likely that there will be a loss of sandflat habitat within the estuary as the defences are maintained over Epochs 1 and 2 for PUs 10.5, 10.6, and 10.7, and for all epochs in PUs 10.8, 10.11, 10.12, 10.13. Under the HTL policies for these units, the defence to the south and north side of the estuary would be continued for those PUs listed above. The reduced area of intertidal habitat would also result in a reduction in the area of appropriate habitat for saltmarsh as the mudflats/sandflats roll back into the saltmarsh habitat, particularly within PUs 10.6 and 10.11.</p>

Table 6.2 Summary of Cumulative Effect on Integrity of International Sites

Designated Site	Habitat Type	Habitat area reduction (ha)			Total
		Epoch 1	Epoch 2	Epoch 3	
Pembrokeshire Marine SAC	Intertidal sandflat	1.05	1.43	0.11	2.58
Lleyn Peninsula and the Sarnau SAC	Estuary	na	na	na	na
	Intertidal sandflat	7.61	82.11	47.41	137.13
	Saltmarsh	4.93	135.90	27.86	168.69
Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC	Estuary	na	na	na	na
	Intertidal mudflat	0.17	3.30	3.65	7.12
Menai Strait and Conwy Bay SAC	Reef	na	na	na	na
	Intertidal sandflat	1.21	3.90	0.01	5.12
Traeth Lafan / Lavan Sands, Conwy SPA	Supporting habitat*	1.21	3.90	0.01	5.12

na = actual extent unknown but is related to the loss of intertidal habitat identified within the Site for the PDZ.

*** supporting habitat is related to the intertidal habitat loss in the same unit for the relevant SAC.**

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7 CONSIDERATION OF MITIGATION MEASURES, ALTERNATIVE SOLUTIONS, IROPI, AND COMPENSATORY HABITAT REQUIREMENTS

7.1 Introduction

7.1.1 The consideration of the effects of SMP policy on the features and conservation objectives of the International Sites has been central to policy production throughout this process. However, due to the conflicting and mutually exclusive requirements of the SMP in both a socio-economic and environmental context it has not been possible for the appropriate assessment of the West of Wales SMP to conclude no adverse effect on the integrity of a number of the International Sites, based on this high level strategic assessment. It should be noted, that CCW have been consulted in development of the SMP through being part of the CSG clarifying aspects related to the policy selection/decision making process and the HRA, as well as specifically in relation to the development and assessment of the HRA.

7.2 Consideration of Preventative and Mitigation Measures

7.2.1 The consideration of preventative and mitigation measures was undertaken during policy production. Many site specific measures (such as avoiding works during the wintering season to prevent disturbance to birds) would arise and be identified during any scheme specific application, however, a number of specific measures have been identified which are included in the Action Plan solely with the intent to prevent an adverse effect occurring. These are:

1. PDZs 2, 5, 6, 7, 8, 9, 10, 11, and 12 – HTL implementation at the scheme level will be designed to ensure no alteration to coastal processes outside the immediate vicinity of the existing defence line in order to ensure no indirect disturbance arises on biogenic (*Sabellaria alveolate*) reef habitat.
2. PDZ 2 (PUs 2.2, 2.4, and 2.5) – Once the existing defences begin to fail in Epoch 1, the scheme level development should consider an adaptive approach which uses softer defence measures such as shingle replenishment to ‘manage’ rather than halt erosion, and this would serve to maintain the intertidal interest feature.
3. PDZ 2 – There is scope for some realignment of existing defences where they begin to fail, and this should be explored during scheme level development, and thereby reduce the extent of coastal squeeze on intertidal interests.
4. PDZ 2 - Monitoring should be carried out in PUs 2.2, 2.5, and 2.8 to ensure that hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and subtidal reef features.
5. PDZ 3 – Although HTL is stated for Whitesands Bay, the intention during scheme level development would be to provide an adaptive approach using softer defence options with the intention of minimising (and potentially) avoiding an adverse effect resulting from coastal squeeze.
6. PDZ 3 - There is scope for some realignment of existing defences where they begin to fail (even though HTL is stated policy), and this should be explored during scheme level development, and thereby reduce the extent of coastal squeeze on intertidal interests.

7. PDZ 3 - Monitoring should be carried out in PUs 3.3, 3.4, and 3.8 to ensure that hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and subtidal reef features.
8. PDZ 10 – There is scope for some realignment of existing defences where they begin to fail (even though HTL is stated policy) and where there is possible room to realign inland, and this should be explored during scheme level development, thereby reducing the potential extent of coastal squeeze on intertidal interests.
9. PDZ 10 – During the MR policies in Epochs 2 and 3 for the dune system, scheme level development should ensure that support is given to the dune system.
10. PDZ 10 Borth Bog – Development of a management and maintenance strategy for the water levels associated with the bog, as well as methods and programme for changing the water level regime to enable the bog to respond in line with sea level rise prior to and during the MR policy introduction.
11. PDZ 10 - Monitoring should be carried out of the intertidal habitats and extents within the Dyfi Estuary in order to ensure that mitigation is achieving the intended quantities, and to help inform the timeliness of appropriate measures.
12. PDZ 10 - Monitoring should be carried out in PU 10.18 to ensure that hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and subtidal reef features.
13. PDZ 10 – Scheme level development for the Dysynni Estuary should ensure that the lagoon remains protected, and that the water level regime is managed appropriately.
14. PDZ 11 - There is scope for some realignment of existing defences where they begin to fail (even though HTL is stated policy) and where there is possible room to realign inland, and this should be explored during scheme level development, thereby reducing the potential extent of coastal squeeze on intertidal interests.
15. PDZ 11 – During scheme level development, survey of the biogenic reef should be undertaken to ensure that any changes to extent and location have not occurred, and the reef should be taken into consideration when designing defences to avoid direct footprint disturbance during construction. Monitoring should also be carried out in PUs 11.1, 11.3, and 11.4 to ensure that hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and subtidal reef features.
16. PDZ 11 - During any scheme level design in PUs 11.1 and 11.3, survey should be undertaken to ascertain the location of sea caves and where present in the frontage of a design, measures should be implemented to avoid obstruction or disturbance to the sea caves features.
17. PDZ 11 – Develop and implement a monitoring and management plan for Arthog bog to ensure that the feature is managed to improve resilience to sea level rise and related water level management issues if unforeseen (extreme) rises in water levels or drainage issues arise.

18. PDZ 11 - Monitoring should be carried out of the intertidal habitats and extents within the Mawdach Estuary in order to ensure that mitigation is achieving the intended quantities, and to help inform the timeliness of appropriate measures.
19. PDZ 11 - A strategy should be developed and monitoring undertaken to provide survey data for the sediment movement through the policy units to the south of Morfa Dyffryn (PUs 11.18 to 11.20) to identify what the sediment feed requirement currently is, and identify the rate by which MR should be undertaken to ensure that this is maintained naturally by translation of the shore in parallel with sea level rise. The strategy should be developed between the Local Planning Authority and CCW in order to ensure that MR develops landward an appropriate rate for the maintenance of the dune system.
20. PDZ 11 - The MR policy in PU 11.13 must be designed, at the scheme level, to avoid the loss of or construction disturbance to the woodland/heathland habitat features, and that it results in sensitive and natural flooding to any habitat rather than the presence or construction of structures.
21. PDZ 12 - There is scope for some realignment of existing defences (particularly PU 12.9) where they begin to fail (even though HTL is stated policy) and where there is possible room to realign inland, and this should be explored during scheme level development, thereby reducing the potential extent of coastal squeeze on intertidal interests.
22. PDZ 12 - A monitoring programme should be implemented (covering PUs 12.2, 12.5, 12.6, 12.16, 12.18, 12.20, 12.22, and 12.24) to ensure that sediment supply is being maintained and that the hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and subtidal reef features.
23. PDZ 12 - Monitoring should be carried out of the intertidal habitats and extents within the Afon Glaslyn / Traeth Bach Estuary in order to ensure that mitigation is achieving the intended quantities, and to help inform the timeliness of appropriate measures.
24. PDZ 12 - The avoidance of disturbance or loss to the heathland or woodland habitat or species within the Meirionnydd Oakwoods and Bat Sites SAC should be implemented at the scheme development phase for PU 12.11. This mitigation should be successfully implemented.
25. PDZ 12 - During any scheme level design in PU 12.16, survey should be undertaken to ascertain the location of sea caves and where present in the frontage of a design, measures should be implemented to avoid obstruction or disturbance to the sea caves features.
26. PDZ 13 - A monitoring programme should be implemented in PUs 13.6, 13.7, and 13.8 to ensure sediment supply is being maintained and that the hydromorphology and dynamics are not being altered (such as increasing wave refraction/reflection) in such a way that they may begin to impact the intertidal and biogenic reef features.
27. PDZ 13 - Monitoring should be carried out of the intertidal habitats and extents within the PUs 13.6 to 13.8 in order to ensure that mitigation is achieving the intended quantities, and to help inform the timeliness of appropriate measures, as well as to confirm predicted changes and thereby allow for any preventative measures in response to unforeseen sea level rise.

28. PDZ 16 - There is scope for some realignment of existing defences where they begin to fail (even though HTL is stated policy) and where there is possible room to realign inland, and this should be explored during scheme level development, thereby reducing the potential extent of coastal squeeze on intertidal interests.
29. PDZ 16 (Morfa Dinlle, PUs 16.3, 16.4, and 16.5) – A strategy and management plan should be developed for the Morfa Dinlle dune system and surroundings, prior to development of MR policies, in order to ensure that proposals and actions appropriately enhance and allow the development of the dune habitats.
30. PDZ 16 - Monitoring should be undertaken to ensure that the extent of saltmarsh feature and distribution of saltmarsh types are not lost instead of the intertidal mudflat loss predicted.
31. PDZs 16 and 20 - Monitoring of the intertidal and subtidal sandbanks should be undertaken to ensure that overall extent of the subtidal sandbanks has not changed as a result of sea level rise.
32. PDZs 16 and 20 - Monitoring of the intertidal and subtidal reef habitats should be undertaken to ensure that no loss of extent or distribution occurs as a result of sea level rise.

7.2.2 However, even with the incorporation of preventative measures and mitigation measure it has not been possible for the appropriate assessment of the West of Wales SMP to conclude no adverse effect on the integrity of a number of International Sites.

7.3 Test of Alternative Solutions

7.3.1 The SMP partnership (which includes the local authorities, CCW, and the Environment Agency Wales) has identified the least damaging alternative to managing the coastline and its designated habitats over the next 100 years.

7.3.2 The test for no alternative solutions has therefore been based on the consideration of alternative options that may be more expensive, more difficult to achieve, less convenient to implement, but must not be unrealistic alternatives that are clearly not technically feasible. The policy development stage of the SMP process examined the four potential strategic policy options with respect to coastal management measures. Consequently, the Policy Units have been examined with respect to the effects of the alternative options on each of the *Natura 2000* Sites where a significant adverse effect on their integrity is identified. Subsequently, an initial examination of the strategic alternative options has been undertaken below of the four policy options.

No Active Intervention (NAI)

7.3.3 Where no existing defences are present within a policy unit, and where no significant social and economic assets are at risk, NAI has been selected during the SMP process. NAI would ensure that natural coastal processes occur with no intervention from human actions, and therefore is considered to be natural change. Error! Reference source not found. **Table 7.1** identifies the various policy units where NAI has been selected for the European Sites where an adverse effect on integrity has been identified.

Table 7.1 Policy Units where NAI is Selected

Site	Policy Unit	Epochs
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Site	Policy Unit	Epochs
Pembrokeshire Marine SAC	1.1 to 1.3	All epochs
	2.1	All epochs
	2.3	All epochs
	2.5	Epoch 3
	2.7	All epochs
	2.9	All epochs
	2.11	Epoch 3
	2.13	All epochs
	3.1	All epochs
	3.4	Epochs 2 and 3
	3.6 and 3.7	All epochs
Lleyn Peninsula and the Sarnau SAC	9.12 and 9.13	All epochs
	10.4	Epochs 2 and 3
	10.19	Epoch 3
	11.4 to 11.6	Epoch 3
	11.17	Epochs 2 and 3
	11.20	All epochs
	12.1	All epochs
	12.7	All epochs
	12.10	All epochs
	12.11	Epochs 2 and 3
	12.12	All epochs
	12.15	All epochs
	12.19	All epochs
	12.21	All epochs
	12.22	Epochs 2 and 3
	12.23	All epochs
	12.25	All epochs
	13.1	All epochs
	13.9 and 13.10	All epochs
	13.14	Epoch 3
13.15	Epoch 3	
13.16 to 13.19	All epochs	
14.1 to 14.7	All epochs	
14.9 to 14.11	All epochs	
15.1	All epochs	
Anglesey Coast: Saltmarsh SAC	16.6 to 16.8	All epochs
	16.10	All epochs
Menai Strait and Conwy Bay SAC	16.4 and 16.5	Epoch 3
	16.6 to 16.7	All epochs
	16.13	All epochs
	16.15 and 16.16	All epochs
	16.17	Epoch 3
	16.18	All epochs
	16.20	All epochs
	16.23	All epochs
	16.25 and 16.26	All epochs
	16.30 and 16.31	All epochs
19.1	All epochs	
19.6	All epochs	

Site	Policy Unit	Epochs
	19.7	Epochs 2 and 3
	19.8 and 19.9	All epochs
	19.11	All epochs
	19.13	All epochs
	19.15 to 19.17	All epochs
	20.12 and 20.13	All epochs
Traeth Lafan / Lavan Sands, Conwy SPA	16.27	All epochs
	16.30 and 16.31	All epochs
	20.1	All epochs

Managed Realignment

7.3.4 Where existing defences are present and/or where important infrastructure is present within a policy unit, and where negligible scale effects or constraints are on balance unlikely to occur (even if the assessment has identified a quantified extent), managed realignment is considered the appropriate option in order to allow for the relocation and realignment of structures, or to allow removal of potentially contaminating sites. Managed realignment would provide space for intertidal habitats to move landward in parallel with sea level rise, though in some circumstances realignment could provide a greater area for intertidal habitats to develop than would be lost were they constrained by the defence (and by the designated site boundary). These areas will be identified as potential compensation sites later. Managed realignment provides increasing 'space' for natural processes to develop and continue. Error! Reference source not found. **Table 7.2** identifies the various policy units where MR has been selected (for some or all Epochs) within the PDZs where an adverse effect on integrity has been identified for European Sites.

Table 7.2 Policy Units where MR is Selected

Site	Policy Unit	Epochs
Pembrokeshire Marine SAC	2.2	Epoch 3
	2.4	Epoch 3
	2.5	Epoch 2
	2.6	Epoch 3
	2.8	Epochs 2 and 3
	2.10	All epochs
	2.11	Epochs 1 and 2
	2.12	Epochs 2 and 3
	3.2	Epoch 3
	3.8	Epochs 2 and 3
	3.9	All epochs
Lleyn Peninsula and the Sarnau SAC	9.11	All epochs
	10.1	All epochs
	10.2	Epoch 3
	10.3	Epochs 2 and 3
	10.4	Epoch 1
	10.5 to 10.7	Epoch 3
	10.9	Epochs 2 and 3
	10.10	All epochs
	10.14 and 10.15	All epochs
10.18	Epochs 2 and 3	

Site	Policy Unit	Epochs
	10.19	Epochs 1 and 2
	11.2	All epochs
	11.4	Epoch 2
	11.5	Epochs 1 and 2
	11.6	Epoch 2
	11.9	Epochs 2 and 3
	11.10	All epochs
	11.12	Epochs 2 and 3
	11.13	All epochs
	11.15	Epochs 2 and 3
	11.17	Epoch 1
	11.18 and 11.19	All epochs
	12.2 and 12.3	Epochs 2 and 3
	12.5	All epochs
	12.9	Epochs 2 and 3
	12.11	Epoch 1
	12.16	All epochs
	12.17	Epochs 2 and 3
	12.18	Epoch 3
	12.22	Epoch 1
	12.24	Epochs 2 and 3
	13.2	Epochs 2 and 3
	13.7 and 13.8	Epochs 2 and 3
	13.11 and 13.12	Epochs 2 and 3
	13.14 and 13.15	Epoch 2
	14.8	Epoch 2
	15.2	Epochs 2 and 3
Anglesey Coast: Saltmarsh SAC	n/a	n/a
Menai Strait and Conwy Bay SAC	16.4	Epochs 1 and 2
	16.5	Epoch 2
	16.11	Epoch 3
	16.17	Epoch 2
	16.21 and 16.22	Epoch 3
	16.28	Epoch 3
	16.32	Epochs 1 and 2
	16.33	Epoch 3
	19.4	All epochs
	19.5	Epoch 3
	19.7	Epoch 1
	19.10	Epoch 3
	19.12	Epoch 3
	19.14	All epochs
	20.3	Epoch 3
	20.9	Epochs 2 and 3
	20.11	Epoch 3
Traeth Lafan / Lavan Sands, Conwy SPA	16.28	Epoch 3
	16.32	Epochs 1 and 2
	16.33	Epoch 3

Hold The Line

7.3.5 Where existing defences are present and/or where significant national and local infrastructure (transport, economic, and social) is present within a policy unit which cannot be replaced or adapted to prevent impacts on a European Site or its features, Hold the Line is considered the appropriate option, and further justification would be necessary under IROPI. Given the strategic level of this assessment, there are often ways of reducing the scale of impacts within units through the nature and type of defence actions used, or even with localised realignment. Where justified through a test for IROPI, compensatory habitat would need to be identified for these areas. Error! Reference source not found. **Table 7.3** identifies the various policy units where HTL has been selected (for some or all Epochs) within the PDZs where an adverse effect on integrity has been identified for European Sites.

Table 7.3 Policy Units where HTL is Selected

Site	Policy Unit	Epochs
Pembrokeshire Marine SAC	2.2	Epochs 1 and 2
	2.4	Epochs 1 and 2
	2.5	Epoch 1
	2.6	Epochs 1 and 2
	2.8	Epoch 1
	2.12	Epoch 1
	3.2	Epochs 1 and 2
	3.3	All epochs
	3.4	Epoch 1
	3.5	All epochs
	3.8	Epoch 1
Lleyn Peninsula and the Sarnau SAC	10.2	Epochs 1 and 2
	10.3	Epoch 1
	10.5 to 10.7	Epochs 1 and 2
	10.8	All epochs
	10.9	Epoch 1
	10.11 to 10.13	All epochs
	10.16 and 10.17	All epochs
	10.18	Epoch 1
	11.1	All epochs
	11.3	All epochs
	11.4	Epoch 1
	11.6	Epoch 1
	11.7 and 11.8	All epochs
	11.9	Epoch 1
	11.11	All epochs
	11.12	Epoch 1
	11.14	All epochs
	11.15	Epoch 1
	11.16	All epochs
	12.2 and 12.3	Epoch 1
	12.4	All epochs
12.6	All epochs	
12.8	All epochs	
12.9	Epoch 1	
12.13 and 12.14	All epochs	

Site	Policy Unit	Epochs
	12.17	Epoch 1
	12.18	Epochs 1 and 2
	12.20	All epochs
	12.24	Epoch 1
	13.2	Epoch 1
	13.3 to 13.6	All epochs
	13.7 and 13.8	Epoch 1
	13.11 and 13.12	Epoch 1
	13.13	All epochs
	13.14 and 13.15	Epoch 1
	14.8	Epochs 1 and 3
	15.2	Epoch 1
Anglesey Coast: Saltmarsh SAC	16.9	All epochs
Menai Strait and Conwy Bay SAC	16.5	Epoch 1
	16.11	Epochs 1 and 2
	16.12	All epochs
	16.14	All epochs
	16.17	Epoch 1
	16.19	All epochs
	16.21 and 16.22	Epochs 1 and 2
	16.24	All epochs
	16.27	All epochs
	16.28	Epochs 1 and 2
	16.29	All epochs
	16.32	Epoch 3
	16.33	Epochs 1 and 2
	19.5	Epochs 1 and 2
	19.10	Epochs 1 and 2
	19.12	Epochs 1 and 2
	20.1 and 20.2	All epochs
20.3	Epochs 1 and 2	
20.4	All epochs	
20.9	Epochs 1 and 2	
20.10	All epochs	
20.11	Epochs 1 and 2	

Site	Policy Unit	Epochs
Traeth Lafan / Lavan Sands, Conwy SPA	16.27	All epochs
	16.28	Epochs 1 and 2
	16.29	All epochs
	16.32	Epoch 3
	16.33	Epochs 1 and 2
	20.1	All epochs

Advance The Line

- 7.3.6 No policy units contain a policy of Advance the Line within the PDZs where an adverse effect has been identified on a European Site or its associated features.

Policy Unit Based Alternative Options

- 7.3.7 The tables presented in **Annex H-VII** present a unit by unit examination of which alternative options were unsuitable and why the selected option was considered suitable in light of the developed SMP policies. The tables are identified by European Site (based on those where an adverse affect on integrity has been assessed in **Section 5** and **Table 6.2**). The tables do not include policy units where NAI has been selected for all Epochs, and furthermore, where no constraint or effect to European Site features arises for a particular policy unit, the majority of these have been stated as such. The reasoning underlying these discussive descriptions that provide the test for alternative options is based on the developed SMP policies, agreed with all parties associated with the SMP development and the feasibility of the alternative options in relation to the objectives of the SMP. The consideration is given at a strategic level, which would need to be provided in more detail when any scheme or strategy was being developed at the site level.

7.4 Test of Imperative Reasons of Overriding Public Interest (IROPI)

- 7.4.1 Following the test for alternative solutions, the policies require approval for reasons of imperative overriding public interest. Acceptable reasons for IROPI are:

- Imperative, that it is both necessary and urgent;
- Overriding, that it is of such a scale of importance that the reasons outweigh the scale of harm to the integrity of the site(s);
- Of public, not private interest; and
- Of a social or economic nature unless a priority habitat or species may be affected.

- 7.4.2 The Flood Risk Management Operating Authorities (including the Environment Agency and coastal local authorities) seek to maximise the benefits and protection of social, economic and transport infrastructure of the region and coastline whilst protecting and enhancing the nature conservation and landscape interests, and SMPs play a very important role in this process. With predicted sea level rise and increased coastal storminess, it is forecast that flood risk and erosion will increase, resulting in increased risk to life and infrastructure within the SMP2 area. Without the SMP, risk to life and property would not be properly managed.

- 7.4.3 The SMP partnership (which includes the Environment Agency Wales, the local authorities, CCW, and CADW) has identified the least damaging alternative to managing the coastline and its designated habitats over the next 100 years.

Pembrokeshire Marine SAC - PDZ 2 and 3

- 7.4.4 As identified in **Table 1** in **Annex H-VII**, the various combinations of HTL/MR/NAI for specific units within the Pembrokeshire Marine SAC have been selected to provide protection to social and economic infrastructure or providing controlled movement of the defence line (MR) in locations where a policy of NAI would result in considerable loss or risk to life. NAI policy selection has taken place along much of the coastline of the Pembrokeshire Marine SAC, which will allow the shoreline to respond to sea level rise by providing the opportunity for natural change to occur. The significant adverse effects arise due to the constraints posed as a result of HTL policies, whilst MR policies provide space for shoreward development of intertidal habitats and are not seen to result in significant adverse effects.
- 7.4.5 HTL is required to prevent loss occurring to the social and economic infrastructure in a number of settlements, as well as protecting key regional transport infrastructure (railway lines and trunk roads) from flooding or erosion for all epochs or until appropriate realignment can be implemented at places such as Little Haven, Broad Haven, Nolton Haven, Solva, and Porth Clais. MR policies have been selected at many of these locations in Epochs 2 or 3 in order to provide sufficient time and programming for national bodies to develop the appropriate methodology for realignment of settlements and related infrastructure.
- 7.4.6 The scale of the importance is clear; given the social and transport infrastructure, HTL is necessary along some frontages to protect access within and amongst surrounding communities, or to maintain the economic function of specific locations that support surrounding communities.
- 7.4.7 The protection of the economic, social and transport infrastructure is in the nation's interest, as they are essential to the national economy within the region; although there would be many private interests that would be protected this is an indirect consequence.
- 7.4.8 The nature of the reason for the policy selections are to ensure the long term conservation objectives of the SAC, but also to protect important social, economic and regional transport infrastructure, that also form a key element of the social and economic infrastructure of the surrounding areas.

Lleyn Peninsula and the Sarnau SAC - PDZ 10, 11, 12, and 13

- 7.4.9 As identified in **Table 2** in **Annex H-VII**, the various combinations of HTL/MR/NAI for specific units within the Lleyn Peninsula and the Sarnau SAC have been selected to provide protection to social and economic infrastructure or providing controlled movement of the defence line (MR) in locations where a policy of NAI would result in considerable loss or risk to life. NAI policy selection has taken place along much of the coastline of the Lleyn Peninsula and the Sarnau SAC, which will allow the shoreline to respond to sea level rise by providing the opportunity for natural change to occur. The significant adverse effects arise due to the constraints posed as a result of HTL policies, whilst MR policies provide space for shoreward development of intertidal habitats and are not seen to result in significant adverse effects. In addition, with regard to the area

of priority habitat (bog) at Cors Fochno, whilst a HTL policy has been selected this aims to prevent sudden inundation and the potential adverse impact that this is likely to have on the bog habitat; however, the policy does not preclude controlled saline intrusion to build resilience of the bog habitat feature, in preparation for proposed tidal inundation in the future under an MR policy in Epoch 3.

- 7.4.10 HTL is required to prevent loss occurring to the social and economic infrastructure in a number of settlements, as well as protecting key national and regional transport infrastructure (railway lines and trunk roads) from flooding or erosion for all epochs or until appropriate realignment can be implemented at places such as Borth, Dyfi Junction, Morben, Gogarth, Aberdyfi, Fairbourne, Porthmadog, Criccieth, Pwllheli, and the railway line within the Dysynni estuary, at Rola, and Friog, in the Morfa Mawdach, at Penmaenpool, in the Artro estuary, at Llandanwg Headland, in the Harlech Valley, along the Cob at Porthmadog. MR policies have been selected at many of these locations in Epochs 2 or 3 in order to provide sufficient time and programming for national bodies to develop the appropriate methodology for realignment of settlements and related infrastructure.
- 7.4.11 The scale of the importance is clear; given the social, economic and transport infrastructure, HTL is necessary along some frontages to protect access within and amongst surrounding communities, or to maintain the economic function of specific locations that support surrounding communities.
- 7.4.12 The protection of the economic, social and transport infrastructure is in the nation's interest, as they are essential to the national economy within the region; although there would be many private interests that would be protected this is an indirect consequence.
- 7.4.13 The nature of the reason for the policy selections are to ensure the long term conservation objectives of the SAC, but also to protect important social, economic and national transport infrastructure, that also form a key element of the social and economic infrastructure of the surrounding areas.

Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC - PDZ 16

- 7.4.14 As identified in **Table 3** in **Annex H-VII**, the various combinations of HTL/NAI for specific units within the Anglesey Coast: Saltmarsh SAC have been selected to provide protection to social and economic infrastructure or, in the case of NAI, to allow the shoreline to respond to sea level rise by providing the opportunity for natural change. The only potentially significant effect on the Anglesey Coast: Saltmarsh arises due to constraint from HTL in PU 16.9, whilst the NAI policy allows a natural response to climate change.
- 7.4.15 HTL is required to prevent loss occurring to the social and economic infrastructure at Maltraeth, and protecting regional transport infrastructure (the A4080) from flooding or erosion for all epochs.
- 7.4.16 The scale of the importance is clear; given the social, economic and transport infrastructure, HTL is necessary to protect access within and amongst surrounding communities, and to maintain the economic function of Maltraeth that supports surrounding communities.

- 7.4.17 The protection of the economic, social and transport infrastructure is in the nation's interest, as they are essential to the national economy within the local area and the island; although there would be many private interests that would be protected this is an indirect consequence.
- 7.4.18 The nature of the reason for the policy selections are to ensure the long term conservation objectives of the SAC, but also to protect important social, economic and transport infrastructure, that form a key element of the social and economic infrastructure of the surrounding areas.

Menai Strait and Conwy Bay SAC - PDZ 16 and 20

- 7.4.19 As identified in **Table 4** in **Annex H-VII**, the various combinations of HTL/MR/NAI for specific units within the Menai Strait and Conwy Bay SAC have been selected to provide protection to social and economic infrastructure or providing controlled movement of the defence line (MR) in locations where a policy of NAI would result in considerable loss or risk to life. NAI policy selection has taken place along much of the coastline of the Menai Strait and Conwy Bay SAC, which will allow the shoreline to respond to sea level rise by providing the opportunity for natural change to occur. The significant adverse effects arise due to the constraints posed as a result of HTL policies, whilst MR policies provide space for shoreward development of intertidal habitats and are not seen to result in significant adverse effects.
- 7.4.20 HTL is required to prevent loss occurring to the social and economic infrastructure in a number of settlements, as well as protecting key national and regional transport infrastructure (railway lines and trunk roads) from flooding or erosion for all epochs or until appropriate realignment can be implemented at places such as along the coast north of Foryd, Llanfairfechan, and the railway line and A55 between Bangor and Llanfairfechan. MR policies have been selected at many locations in Epochs 2 or 3 in order to provide sufficient time and programming for national bodies to develop the appropriate methodology for realignment of settlements and related infrastructure.
- 7.4.21 The scale of the importance is clear; given the social, economic and transport infrastructure, HTL is necessary along some frontages to protect access within and amongst surrounding communities or even at the regional and national level, or to maintain the economic function of specific locations that support surrounding communities.
- 7.4.22 The protection of the economic, social and transport infrastructure is in the nation's interest, as they are essential to the national economy within the region; although there would be many private interests that would be protected this is an indirect consequence.
- 7.4.23 The nature of the reason for the policy selections are to ensure the long term conservation objectives of the SAC, but also to protect important social, economic and national transport infrastructure, that also form a key element of the social and economic infrastructure of the surrounding areas.

Traeth Lafan / Lavan Sands SPA - PDZ 16 and 20

- 7.4.24 As identified in **Table 5** in **Annex H-VII**, the various combinations of HTL/MR/NAI for specific units within the Lavan Sands SPA have been selected to provide protection to social and economic infrastructure or providing controlled movement of the defence line (MR) in locations where NAI would result in considerable loss or risk to life. NAI policy selection has taken place along much of the coastline of the Lavan Sands SPA, which will allow the shoreline to respond to sea level rise by providing the opportunity for natural change to occur. The significant adverse effects arise due to the constraints posed as a result of HTL policies, whilst MR policies provide space for shoreward development of intertidal habitats and are not seen to result in significant adverse effects.
- 7.4.25 HTL is required to prevent loss occurring to the social and economic infrastructure in a number of settlements, as well as protecting key national and regional transport infrastructure (railway lines and trunk roads) from flooding or erosion for all epochs or until appropriate realignment can be implemented at Llanfairfechan, and the railway line and A55 between Bangor and Llanfairfechan. MR policies have been selected in two policy units in order to provide sufficient time and programming for national bodies to develop the appropriate methodology for realignment of settlements and related infrastructure.
- 7.4.26 The scale of the importance is clear; given the social, economic and transport infrastructure, HTL is necessary along some frontages to protect access within and amongst surrounding communities or even at the regional and national level, or to maintain the economic function of specific locations that support surrounding communities.
- 7.4.27 The protection of the economic, social and transport infrastructure is in the nation's interest, as they are essential to the national economy within the region; although there would be many private interests that would be protected this is an indirect consequence.
- 7.4.28 The nature of the reason for the policy selections are to ensure the long term conservation objectives of the SPA, but also to protect important social, economic and national transport infrastructure, that also form a key element of the social and economic infrastructure of the surrounding areas.

7.5 Compensatory Habitat Requirements

- 7.5.1 Subject to approval from the Welsh Assembly Government to the test for IROPI, where habitats and species are being adversely affected, compensatory measures must be identified to ensure the ecological coherence of the *Natura 2000* network is protected. For the current level of information available to this strategy, quantitative data is not yet considered to be wholly accurate to accord the appropriate quantities to the year 2105, and ongoing work at lower levels of development (Strategy and Scheme levels) and subsequent review to the SMP will continue to improve the accuracy of both quantities and effects. Based on the summary of features affected in **Table 6.2**, broad brush compensatory habitat requirements have been identified as necessary at this strategic level. As mentioned in a number of places within this document, these values are considered to be the worst case or 'conservative' quantities and types that are likely to reduce as time and further studies are completed. Consequently, the compensatory

habitat requirements will themselves be conservative and these will be monitored and revised as necessary during subsequent SMP reviews.

- 7.5.2 **Table 7.4** Table 7.4 presents the compensatory habitat targets for this SMP, base on the detailed assessments **Annex H-IV** of this document, based on the work carried out and presented in **Sections 5** and **6** of this HRA, alongside GIS extraction of Site and location specific data from the topographic and bathymetric model created for the SMP2. The compensatory habitat requirement is that which will be required with the preferred policies being implemented, and many of them would be expected to be created from the Managed Realignment policies and locations.

Table 7.4 Summary of Predicted Compensatory Habitat Requirements

Designated Site	Habitat Type	Habitat area to be compensated (ha)		
		Epoch 1	Epoch 2	Epoch 3
Pembrokeshire Marine SAC	Intertidal habitats (sandflat)	1.05	1.43	0.11
Lleyn Peninsula and the Sarnau SAC	Intertidal habitats (sandflat, mudflat, and saltmarsh)	12.54	218.01	75.27
Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC	Intertidal habitats (mudflat)	0.17	3.30	3.65
Menai Strait and Conwy Bay SAC (including requirement for Traeth Lafan / Lavan Sands, Conwy SPA)	Intertidal habitats (sandflat)	1.21	3.87	0.01
All Sites	Intertidal habitats	14.97	226.61	79.04

na = actual extent unknown but is related to the loss of intertidal habitat identified within the Site for the PDZ.

* supporting habitat is related to the intertidal habitat loss in the same unit for the relevant SAC.

- 7.5.3 Overarching development of the compensatory habitat required will be developed through the Environment Agency Wales' Regional Habitat Creation Programme (RHCP), which the local authorities will sign up to. The RHCP will provide a strategic 'resource' of compensatory habitat.
- 7.5.4 The determination of which habitats will be lost and which would develop landward of their existing locations as a result of sea level rise does not (and at this stage and with the current level of information available cannot) take into account a number of site-specific factors. These factors include: the future extent and subsequent colonisation and communities of saltmarsh habitats, future erosion and accretion, and success of managed realignment schemes. Consequently, continued monitoring of habitats and topography / bathymetry should be undertaken at constant intervals to continue to inform the future SMPs and effects on the *Natura 2000* Sites.
- 7.5.5 Detailed studies and monitoring of the various managed realignment proposals in the near and medium term future will provide more detailed predictions of the benefits that will arise from these policies, and long term monitoring will confirm this. However for this strategy, a review of the potential areas available for managed realignment and creation of compensatory habitat has been undertaken. **Annex H-VIII** presents the summary of the review and identification. Due to the strategic nature of this document, it is essential

that it is accepted that the compensatory habitats available is seen as indicative for a wide variety of reasons and a number of assumptions, these are:

- The detail of mapping at this strategic level is poor, therefore the quantities are to provide an indicative extent rather than a 'guaranteed' level;
- Topography at this level is not fine in detail and therefore changes in potential extents could vary significantly at site level;
- The habitats present in managed realignment areas may change over time, and in some occurrences more habitat would be created than identified, with a lesser chance of a lesser extent of habitat being created;
- The compensatory areas do not take into account changing sediment patterns;
- The compensatory areas do not take into account the changing freshwater hydrology that could occur over time (both as a result of sea level rise or future man-made interventions or activities);
- The compensatory habitats identified are not selected based on landowner, however, they are selected based on whether key infrastructure is present (i.e. would not cover the area of infrastructure). The identification has been undertaken in most cases by avoiding areas of existing infrastructure even if the policy intent is for that infrastructure to be re-located or realigned, and therefore extents are considered to be at the low end;
- The identification of sites did not consider (except with one policy unit and the availability of a required compensatory habitat type) extensive earthworks as part of the compensation. However, this therefore wholly underestimates the potential habitat extents available for compensation;
- Given the extensive area that minor variations of sea level could significantly alter the habitat losses and compensatory requirements, the focus of the identification process was to identify land area which could become 'intertidal' as part of existing MR proposals, on top of that realignment component necessary to prevent an adverse effect at the given policy unit. The 'amount' of habitat extent left over therefore was what is identified as compensatory habitat;
- The identification of compensatory habitat has focussed on the provision of available area to alter the existing habitat to 'intertidal' or where existing land (undesigned) could be acted on to enhance or create specific terrestrial or freshwater habitats that need to be replaced. This stance has been taken due to the huge area available as part of the study area and that compensatory habitat can in effect be created anywhere and given the huge land areas, topography, hydrology across these areas, those habitats considered to be affected as result of SMP policy could be developed somewhere in these areas;
- The success and extent and type of habitat achieved at a compensation site can be significantly influenced by site specific factors and decisions (such as the extent of earthworks to be undertaken) which can 'force' the required habitat to be created (e.g. surface removal to lower ground levels to increase the extent of lower intertidal habitat);

- The identification of compensatory habitats does not take into account any other environmental receptor (such as recreation and amenity assets, non-designated ecological assets, archaeological assets, etc); and
- If any site identified for compensatory habitat is considered inappropriate for reasons that are site specific, it is considered that alternative appropriate site(s) for the required compensation are available within the SMP study area.

7.5.6 The following summarise the compensatory habitat indications as identified in **Annex H-VIII** by European Site:

- **Pembroke Marine SAC:** no specific sites were identified as providing compensation within the coastal frontage of the SAC, consequently, it is considered that compensatory habitat identified in the Lleyn Peninsula and the Sarnau SAC coastal frontage would provide the appropriate compensatory habitat. However, this does not take into account very small works within the Pembroke Marine SAC coastal frontage that may at strategy or site level provide the relevant compensatory habitat.
- **Lleyn Peninsula and the Sarnau SAC:** around 13.59ha of intertidal sandflat, mudflat, and saltmarsh habitats are required in Epoch 1, and the review process identified a capability of around 330ha in the coastal frontage of the SAC in this Epoch; in Epoch 2, 219.44ha is required against a potential capability of over 1,200ha; and for Epoch 3, 75.38ha is required against a potential capability of over 1,570ha. The requirements identified have included the Pembroke Marine SAC compensatory habitat requirement. However, it is clear that a significant extent of sites available for compensation is available, which would avoid any risk of not achieving the required targets of compensation.
- **Anglesey Coast: Saltmarsh SAC:** around 0.17ha of intertidal sandflat, mudflat, and saltmarsh habitats are required in Epoch 1, however the review process could not identify any capacity in the SACs coastal frontage or even nearby, so either the capacity is provided via the Lleyn Peninsula and the Sarnau SAC or the Menai Strait and Conwy Bay SAC compensatory habitat availability. In Epoch 2 a 3.3ha extent is required, and the Abermenai and Aberffraw Dunes SAC contained a potential capability of over 51ha in this epoch; whilst for Epoch 3 the requirement of 3.65ha would also be set against a potential capability of over 127ha in the Abermenai and Aberffraw Dunes SAC coastal frontage. It is evident that more than sufficient areas available for compensation are available at other SACs in the SMP study area, which would avoid any risk of not achieving the required targets of compensation.
- **Menai Strait and Conwy Bay SAC (including Lavan Sands, Conwy SPA):** around 1.21ha of intertidal sandflat habitat is required in Epoch 1, and the review process identified a capability of around 1.7ha in the coastal frontage of the SAC in this Epoch; in Epoch 2, 3.87ha is required against a potential capability of over 2.35ha; and for Epoch 3, 0.01ha is required against a potential capability of over 7.9ha. Given the slight shortfall in Epoch 2, it is considered wholly possible that earthworks and design could ensure that at least the 3.87ha extent needed could be created, or alternatively offset by the compensatory habitat available in the Lleyn Peninsula and the Sarnau

SAC, which would avoid any risk of not achieving the required targets of compensation.

7.5.7 The planned and potential realignments identified within this plan will provide over and above the overall level of compensation of intertidal habitat lost through coastal squeeze as a result of the SMP policies (22 times in Epoch 1, 5.3 times in Epoch 2, and 20 times in Epoch 3). Therefore although landownership and many other factors cannot be considered at this strategic stage, there is no likely underachievement expected provided adequate planning and implementation of the compensatory habitat requirements is carried out and supported by the national government and its agencies.

7.5.8 Terrestrial, freshwater, or dune habitats likely to be lost as a result of compensatory habitat creation is summarised in **Table 7.5** below, based on the review and assessment carried out in **Annex H-VIII**. However, clarification of these types and extents can only be identified when scheme specific applications are being developed.

Table 7.5 Habitats Lost as a Result of Compensation Policy Unit	Area (ha)			Habitat Type	European Site
	Epoch 1	Epoch 2	Epoch 3		
10.6	na	na	273.73	Fen-marsh-swamp	Lleyn Peninsula and the Sarnau SAC
10.7	na	na	52.15	Fen-marsh-swamp	
10.10	22.20	6.06	1.08	Fen-marsh-swamp	
11.6	na	na	1.50	Bogs	
11.9	na	59.75	1.76	Fen-marsh-swamp Bogs Improved grassland Broad-leaved mixed yew woodland	
11.10	30.16	6.40	0.99	Fen-marsh-swamp Improved grassland Broad-leaved mixed yew woodland	
11.12	28.17	14.49	15.27	Fen-marsh-swamp Improved grassland Broad-leaved mixed yew woodland	
11.13	26.36	11.73	9.37	Fen-marsh-swamp Improved grassland Broad-leaved mixed yew woodland	
12.3	na	13.82	na	Improved grassland	
12.11	4.89	4.55	3.30	Improved grassland	
Total	111.78	116.80	359.15	Fen-marsh-swamp Bogs Improved grassland Broad-leaved mixed yew woodland	

Table 7.5 Habitats Lost as a Result of Compensation Policy Unit	Area (ha)			Habitat Type	European Site
	Epoch 1	Epoch 2	Epoch 3		
10.6	na	na	264.86	Fen-marsh-swamp	Dyfi Estuary SPA
10.7	na	na	na	Covered in Lleyn Peninsula and Sarnau SAC habitat losses	
10.10	na	na	na		
Total	0.00	0.00	264.86	Fen-marsh-swamp	
12.3	na	28.70	12.88	Improved grassland	Morfa Harlech and Morfa Dyffryn SAC
16.5	na	na	9.47	Improved grassland	Abermenai and Aberffraw Dunes SAC
Total	111.78	145.50	646.36	See above	All sites

- 7.5.9 Considering that a number of European Sites and their features would be lost as a result of work to improve and protect existing habitats which would be significantly affected by SMP policies, and which have been justified on the test of alternative options and IROPI, further compensatory habitat requirement has therefore been necessary. This was also recorded within **Annex H-VIII**, and **Table 3** in the Annex indicates the total available based on the appraisal reported in **Table 2** of the Annex. The planned and potential areas that are considered suitable provide a sufficiently large pool of land bank to obtain and create the compensatory habitat for terrestrial and freshwater habitats required (notably over 13.5 times the amount required is available in Epoch 1, 14.5 times is available in Epoch 2, and 2.8 times is available in Epoch 3). It is assumed that the compensation for terrestrial / freshwater habitats would be implemented through the Environment Agency Wales' Regional Habitat Creation Programme, supported by the coastal authorities for the West of Wales SMP2. Two small areas of bog habitat (PUs 11.6 and 11.9) could be affected, however, it is expected that through compensation and mitigation these habitats can be managed to migrate successfully.
- 7.5.10 However, due to the lead in and development time for carrying out terrestrial and freshwater habitat creation, it is identified that immediate development is necessary of habitats to commence offsetting the losses predicted to occur in Epoch 1 for PUs 10.10, 11.10, 11.12, 11.13, and 12.11. These offsets should also consider the future losses predicted in Epoch 2, and may best be sought through the RHCP. Priority should then (after the previous PU compensatory habitats) be PUs 11.9 and 12.3; though there is appropriate time for greater strategy and detail to be developed.
- 7.5.11 Some dune systems could potentially be affected by sea level rise particularly the back dune areas if encroachment of intertidal habitats occurs inland of the dune system. In PU 10.15 and 12.3, this effect is predicted to occur as a result of MR, however, there is appropriate space for dune management and expansion parallel to the existing back dune areas (13ha and 20ha respectively) and that coupled with appropriate management would both mitigate and compensate for the predicted adverse effects.

7.6 Risks

7.6.1 The following key risks have been identified associated with achieving mitigation / compensation habitat for *Natura 2000* Sites of the West of Wales SMP:

- Lack of data of sufficient detail on the existing flora and fauna;
- Lack of clarity regarding the verification of interest features;
- Uncertainty regarding the success of the implementation of mitigation / compensation;
- Uncertainty regarding the timing of measures / actions to successfully compensate for habitat losses;
- Failure of compensatory habitat applications would prevent compensatory habitat being implemented;
- Risk of a lack of funding; and
- Where alternative approaches to shoreline management occur as a result of site specific decision making, there is a potential for unforeseen affects to arise. Consequently, any departures from the SMP policies should undertake an HRA in order to ensure no adverse effects on integrity arise, and also to ensure that their implementation does not prevent or inhibit the attainment of the mitigation measures and compensatory habitat requirements identified in this SMP.

7.7 Status and Timescale

7.7.1 For the West of Wales SMP2, the HRA will be submitted in December 2011 to the Welsh Assessmby Government.

8 CONCLUSIONS

8.1 Introduction

8.1.1 The provision of an active consideration of maintaining the integrity of International sites in the preparation and development of SMP policy is reflected within this assessment. It is clearly apparent that measures have been taken to factor the requirements of the International sites into the SMP policy suite. Accordingly, SMP policy is largely focused on maintaining or pursuing measures which will either maintain or enhance the features of International sites. PDZs can therefore be classified as falling into two categories:

- PDZs policies which are not considered to have an adverse effect on international sites; and
- PDZs containing policies which are considered to have an adverse effect on the integrity of the international sites.

8.1.2 It should be noted that in providing an assessment of SMP policy, the actual design of schemes to implement such policy, will provide the most focused stage in preventing any adverse effect on the integrity of International sites. The preventative measures supplied therefore will ensure that where a policy could have an adverse effect, the implementation of policy is provided in a manner which will prevent this.

8.1.3 Of the SMP policies assessed (the 'alone' assessment), the Policy Development Zones fall into the following categories:

No adverse effect on the integrity of International sites

8.1.4 For twelve of the PDZs, it can be concluded that the policy suite they contain will not have an adverse effect on the integrity of an International site. Such management areas are:

- PDZ 1 - St Anns Headland to St Anns Head to Borough Head
- PDZ 4 – Pen Anglas to Pen-y-Bal
- PDZ 5 – Pen y Bal to Cardigan
- PDZ 6 – Pencribach to New Quay Head
- PDZ 7 – New Quay Head to Llanina Point
- PDZ 8 – Gilfach to Llanrhystud
- PDZ 9 – Carreg to Sarn Gynfelyn
- PDZ 14 – Trwyn Cilan to Carreg Du
- PDZ 15 – Carreg Ddu to Trwyn y Tal
- PDZ 17 – Teyn y Parc to Trwyn Cliperau
- PDZ 18 – Twyn Cliperau to Trwyn Cwmrwd
- PDZ 19 – East Bays Anglesey

8.2 Summary of Adverse Effects on Integrity of the International Sites

8.2.1 PDZs have been identified where it cannot be concluded that their policy suite would not have an adverse effect on the integrity of International sites or that an adverse effect is likely, unless additional measures are provided in implementing specific policies, or policy intent is expressed in such a way (and through the SMP Actions) that would show clear avoidance of the physical disturbance from policy that could be resulting in an adverse effect on Site features. Such PDZs should be considered in regard to the manner to which caveats can be added to SMP policy, which focus implementation and the steps which can be taken at the actual scheme level (which in itself will then be likely to require a Habitats Regulations Assessment). Consequently, some of the PDZs could be described following consultation as having no adverse effect on the integrity of an International Site, provided that the supplementary measures specified are shown to be intended. The preventative or mitigation measures will ensure (as the name implies) that any adverse effect on site integrity is prevented or mitigated for. In this respect, these caveats will become part of SMP policy and therefore mitigate any adverse effect of the PDZ policy. The additional preventative measures will be included in the SMP as part of an implementation strategy that will ensure that the measures focus policy implementation.

8.2.2 The significant adverse effect on the integrity of Natura 2000 Sites within or adjacent to the SMP2 study area, as a result of the preferred policies, are as follows:

- Pembroke Marine SAC: a direct effect as a result of coastal squeeze from the maintained defences would arise, resulting in the loss of intertidal sandflat habitat.
- Lleyn Peninsula and the Sarnau SAC (and Cors Fochno and Dyfi Ramsar Site): a direct effect as a result of coastal squeeze from the maintained defences, resulting in the loss of intertidal (sandflat, mudflat, and saltmarsh) habitats; and an indirect effect on terrestrial and freshwater interest features which could arise as a result of managed realignment to compensate for intertidal habitats.
- Dyfi Estuary SPA: an indirect effect on terrestrial and freshwater interest features which could arise as a result of managed realignment to compensate for intertidal habitat losses in the Lleyn Peninsula and the Sarnau SAC and Cors Fochno and Dyfi Ramsar Site.
- Morfa Harlech and Morfa Dyffryn SAC: an indirect effect on terrestrial and freshwater interest features which could arise as a result of managed realignment to compensate for intertidal habitat losses in the Anglesey Coast: Saltmarsh SAC and possibly the Menai Strait and Conwy Bay SAC.
- Anglesey Coast: Saltmarsh SAC: a direct effect as a result of coastal squeeze from the maintained defences, resulting in the loss of intertidal mudflat habitat.
- Menai Strait and Conwy Bay SAC: a direct effect as a result of coastal squeeze from the maintained defences would arise, resulting in the loss of intertidal sandflat habitat.
- Abermenai and Aberffraw Dunes SAC: an indirect effect on terrestrial and freshwater interest features which could arise as a result of managed

realignment to compensate for intertidal habitat losses in the Lleyn Peninsula and the Sarnau SAC.

- Traeth Lafan / Lavan Sands, Conwy SPA: a direct effect on the SPA interest species (specifically oystercatcher) as a result of intertidal sandflat habitat loss due to coastal squeeze from the maintained defences.

8.2.3 **Table 8.1** presents a summary of the International Sites, habitat types and physical extents that are predicted to occur as a result of the SMP policies. Since the assessment is of the plan, rather than a constituent policy, it is concluded therefore that the SMP will have an adverse effect on the integrity of International Sites.

8.2.4 Of the plans and projects included within this assessment, none were considered to be contributory to the same potential effects as SMP policy given that suggested preventative measures ensure that any possible adverse effects of SMP policy are avoided. It is also likely however, that since SMP provides the broader strategic focus to coastal defence (albeit on a non-statutory basis) policies which are likely to have a similar effect to SMP policy are unlikely to be evident. For an in-combination effect to be considered, as discussed within this document, it needs to be clearly shown that the effect of such plans or projects would need to be demonstrably the same (effect) as that of the SMP. In the context of this assessment and the preventative measures listed, such examples were not found, with the exception of the West Wales Regional Transport Plan and a potential in-combination impact in the Lleyn Peninsula and the Sarnai SAC intertidal mudflat feature.

Table 8.1 Habitats Lost as a Result of Compensation

Designated Site	Habitat Type	Habitat area reduction (ha)		
		Epoch 1	Epoch 2	Epoch 3
Pembrokeshire Marine SAC	Intertidal sandflat	1.05	1.43	0.11
Lleyn Peninsula and the Sarnau SAC	Intertidal sandflat	7.61	82.11	47.41
	Saltmarsh	4.93	135.90	27.86
	Terrestrial and freshwater habitats (fen-marsh-swamp, bogs, Improved grassland, broad-leaved mixed yew woodland)	111.78	116.80	359.15
Dyfi Estuary SPA	Terrestrial and freshwater habitats (fen-marsh-swamp)	0.00	0.00	264.86
Morfa Harlech and Morfa Dyffryn SAC	Improved grassland	0.00	28.70	12.88

Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC	Intertidal mudflat	0.17	3.30	3.65
Menai Strait and Conwy Bay SAC	Intertidal sandflat	1.21	3.90	0.01
Abermenai and Aberffraw Dunes SAC	Improved grassland	0.00	0.00	9.47
Traeth Lafan / Lavan Sands, Conwy SPA	Supporting habitat*	1.21	3.90	0.01

na = actual extent unknown but is related to the loss of intertidal habitat identified within the Site for the PDZ.

* supporting habitat is related to the intertidal habitat loss in the same unit for the relevant SAC.

8.3 Test for Alternative Solutions

8.3.1 The consideration of the effects of SMP policy on the features and conservation objectives of the International Sites in this area has been central to policy production in this process. However, due to the conflicting and mutually exclusive requirements of the SMP (in both a socio-economic and environmental context), or due to the very nature that policy to protect a Site could have adverse effects on it or other nearby Sites, it has not been possible for the appropriate assessment of the West of Wales SMP to conclude no adverse effect on the integrity of the International Sites.

8.3.2 However, as presented in **Section 7.3**, the preferred policy options are the most suitable policies because they minimise constraint in the natural change of the coast, but protect the most valuable social, economic and transport infrastructure.

8.4 Test for Imperative Reasons of Overriding Public Interest (IROPI)

8.4.1 The consideration of the effects of SMP policy on the features and conservation objectives of the International Sites in this area has been central to policy production in this process. However, due to the conflicting and mutually exclusive requirements of the SMP (in both a socio-economic and environmental context) it has not been possible for the appropriate assessment of the West of Wales SMP to conclude no adverse effect on the integrity of the International Sites, and no suitable alternative policy is considered appropriate. Consequently, the test for imperative reasons of overriding public interest was undertaken at the strategic level (see **Section 7.4**).

8.4.2 The IROPI test concludes that the policy options that are predicted to result in an adverse effect on the integrity of the European Sites listed in Table 8.1 are supported by the test for imperative reasons of overriding public interest, in that they are intended to urgently protect or maintain the protection to settlements and their social and economic infrastructure essential for the region and nation, as well as protecting national transport infrastructure.

8.5 Compensatory Habitat Requirements

- 8.5.1 The compensatory habitat requirements identified from this Appropriate Assessment indicates that intertidal and transitional habitat will be required, with 14.97ha in Epoch 1, 226.61ha in Epoch 2, and 79.04ha in Epoch 3. The intertidal and transitional habitats will be created from the MR policy locations within the SMP study area, and there is potential for compensatory habitat 332ha in Epoch 1, 1,201ha in Epoch 2, and 1,574ha in Epoch 3. These identified areas would be developed at the strategy and scheme level, as well as through the RHCP.
- 8.5.2 In addition, freshwater and terrestrial habitats would also need to be compensated with 14.97ha in Epoch 1, 226.61ha in Epoch 2, and 79.04ha in Epoch 3. A strategic review of potential sites and available land bank indicates that there is the potential for 1,539ha in Epoch 1, 2,120ha in Epoch 2, and 1,826 in Epoch 3.
- 8.5.3 Overall, given the large bank of potential areas available for compensatory habitat, at the strategic level there is no doubt as to the ability of compensatory habitats to be provided.
- 8.5.4 The identified quantities of compensatory habitat sites / locations / areas / types will need to be specifically measured and determined through strategy studies as well as site and scheme specific development / application. However, it is expected that compensatory habitat would also be implemented through the Environment Agency Wales' Regional Habitat Creation Programme which will be supported by the maritime local authorities involved in this SMP.

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10 GLOSSARY OF TERMS

Appropriate Assessment (AA): Is defined as Stage 3 of a Habitats Regulations Assessment (HRA). An AA determines whether the adverse effects (identified from likely significant effects assessment - Stage 2 of the HRA) will affect the integrity of the International or European designated sites in question.

Biodiversity Action Plan (BAP): An agreed plan for a habitat or species, which forms part of the UK's commitment to biodiversity. For further information consult the BAP website: <http://www.ukbap.org.uk>

Birds Directive: European Community Directive (79/409/EEC) on the conservation of wild birds. Implemented in the UK as the Conservation (Natural Habitats, etc.) Regulations (1994). For further information consult Her Majesty's Stationery Office website: http://www.hmso.gov.uk/si/si1994/Uksi_19942716_en_1.htm

Compensation: Used in this document to refer to measures to compensate for significant adverse effects (i.e. loss of habitat) on the environment outside the designated area with which a loss of habitat has been identified.

Competent Authority: The organisation which prepares a plan or programme subject to the Directive and is responsible for the AA.

Department for Communities and Local Government (DCLG): The department that is responsible for local communities and social issues. For further information please view the website <http://www.communities.gov.uk/corporate/>

Habitats Directive: The Habitats Directive (Council Directive 92/43/EEC of 21 May 1992) requires EU Member States to create a network of protected wildlife areas, known as Natura 2000, across the European Union. This network consists of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), established to protect wild birds under the Birds Directive (Council Directive 79/409/EEC of 2 April 1979). These sites are part of a range of measures aimed at conserving important or threatened habitats and species.

Habitats Regulations Assessment (HRA): A four staged assessment to determine whether a likely significant effect (LSE; Stage 2) on International or European designated nature conservation sites will occur as a result of a proposed plan, policy or project. If there are LSEs, Stage 3 of the process, the Appropriate Assessment will assess whether the integrity of the designated sites be adversely affected. The final stage of the HRA assessment (Stage 4) involves the approval or refusal of the plan, policy or project.

Mitigation: Used in this document to refer to measures to avoid, reduce or offset significant adverse effects on the environment within the same designated area with which a loss of habitat has been identified.

Objective: A statement of what is intended, specifying the desired direction of change in trends.

Plan or Programme: For the purposes of an HRA, the term "plan or programme" covers any plans or programmes to which the Directive applies.

Ramsar Site: The Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat (1971) requires the UK Government to promote using wetlands wisely and to protect wetlands of international importance. This includes designating certain areas as Ramsar sites, where their importance for nature conservation (especially with respect to waterfowl) and environmental sustainability meet certain criteria. Ramsar sites receive SSSI designation under The Countryside and Rights of Way (CRoW) Act 2000 and The Wildlife and Countryside Act 1981 (as amended). Further information can be located on the Ramsar convention on wetlands website: <http://www.ramsar.org/>

Scoping: The process of deciding the scope and level of detail of a Habitats Regulations Assessment (HRA). This includes the likely significant environmental effects (Stage 2 of the HRA) and alternatives which need to be considered, the assessment methods to be used for the Appropriate Assessment, and the structure and contents of the HRA Report.

Shoreline Management Plan (SMP): Non-statutory plans to provide sustainable coastal defence policies (to prevent erosion by the sea and flooding of low-lying coastal land) and to set objectives for managing the shoreline in the future. They are prepared by us or maritime local authorities, acting individually or as part of coastal defence groups.

Site of Special Scientific Interest (SSSI): Sites of Special Scientific Interest (SSSIs) are notified under the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way (CRoW) Act 2000 for their flora, fauna, geological or physiographical features. Notification of a SSSI includes a list of work that may harm the special interest of the site. The Wildlife and Countryside Act 1981 (provisions relating to SSSIs) has been replaced by a new Section 28 in Schedule 9 of the CROW Act. The new Section 28 provides much better protection for SSSIs. All cSACs, SPAs and Ramsar sites are designated as SSSIs. For further information refer to Country side Council for Wales's website: <http://www.naturalengland.org.uk/>

Special Protection Area (SPA): A site of international importance for birds, designated as required by the EC Birds Directive. SPAs are designated for their international importance as breeding, feeding and roosting habitat for bird species. The Government must consider the conservation of SPAs in all its planning decisions. SPAs receive SSSI designation under The Countryside and Rights of Way (CRoW) Act 2000 and The Wildlife and Countryside Act 1981 (as amended). For further details refer to the European Commission website <http://europa.eu.int/>

11 LIST OF ABBREVIATIONS

AA	Appropriate Assessment
ATL	Advance the Line
BAP	Biodiversity Action Plan
CCW	Country side Council for Wales
CHaMP	Coastal Habitat Management Plan
CSG	Client Steering Group
DCLG	Department for Communities and Local Government
EAW	Environment Agency Wales
EMP	Estuary Management Plan
FCS	Flood and Coastal Strategy
FEPA	Food and Environmental Protection Act
HRA	Habitats Regulations Assessment
HTL	Hold the Line
IPPC	Integrated Pollution and Prevention Control
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
LDD	Local Development Document
LDP	Local Development Plan
LSE	Likely Significant Effect
MFA	Marine and Fisheries Agency
MHWS	Mean High Water Springs
MLWS	Mean Low Water Springs
MR	Managed Realignment
MAN	Management Unit
NAI	No Active Intervention
PDZ	Policy Development Zone

PPS Planning Policy Statement

PU Policy Unit

RHCP Regional Habitat Creation Programme

RSPB Royal Society for the Protection of Birds

Ramsar The Ramsar Convention on Wetlands of International Importance

RoC Review of Consents

RPG Regional Planning Guidance

RSS Regional Spatial Strategy

SAC Special Area of Conservation

SEA Strategic Environmental Assessment

SINC Site of Important Nature Conservation

SMP Shoreline Management Plan

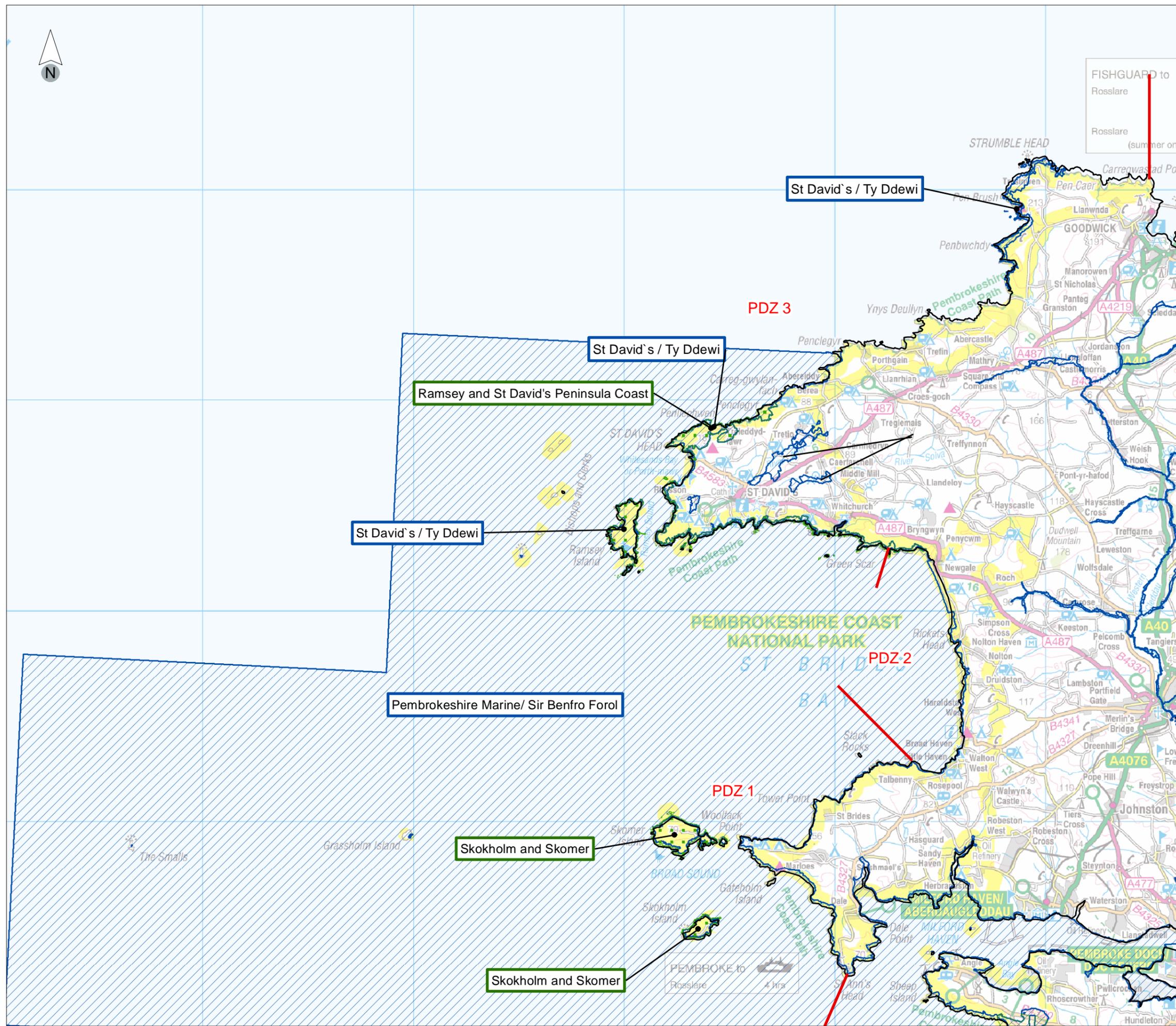
SPA Special Protection Area

SSFDC Southern Sea Fisheries District Committee

SSSI Site of Special Scientific Interest

UDP Unitary Development Plans

Annex I: Nature Conservation Designations



- Key:
- Policy Development Zones
 - Special Protection Areas
 - Ramsar
 - Special Areas of Conservation
 - Sites of Specific Scientific Interest

St David's / Ty Ddewi

St David's / Ty Ddewi

Ramsey and St David's Peninsula Coast

St David's / Ty Ddewi

Pembrokeshire Marine/ Sir Benfro Forol

Skokholm and Skomer

Skokholm and Skomer

FISHGUARD to Rosslare
Rosslare (summer only)

PEMBROKE to Rosslare
4 hrs

Title:
Nature Conservation Designations in the West Wales SMP2

Project:
West Wales SMP2

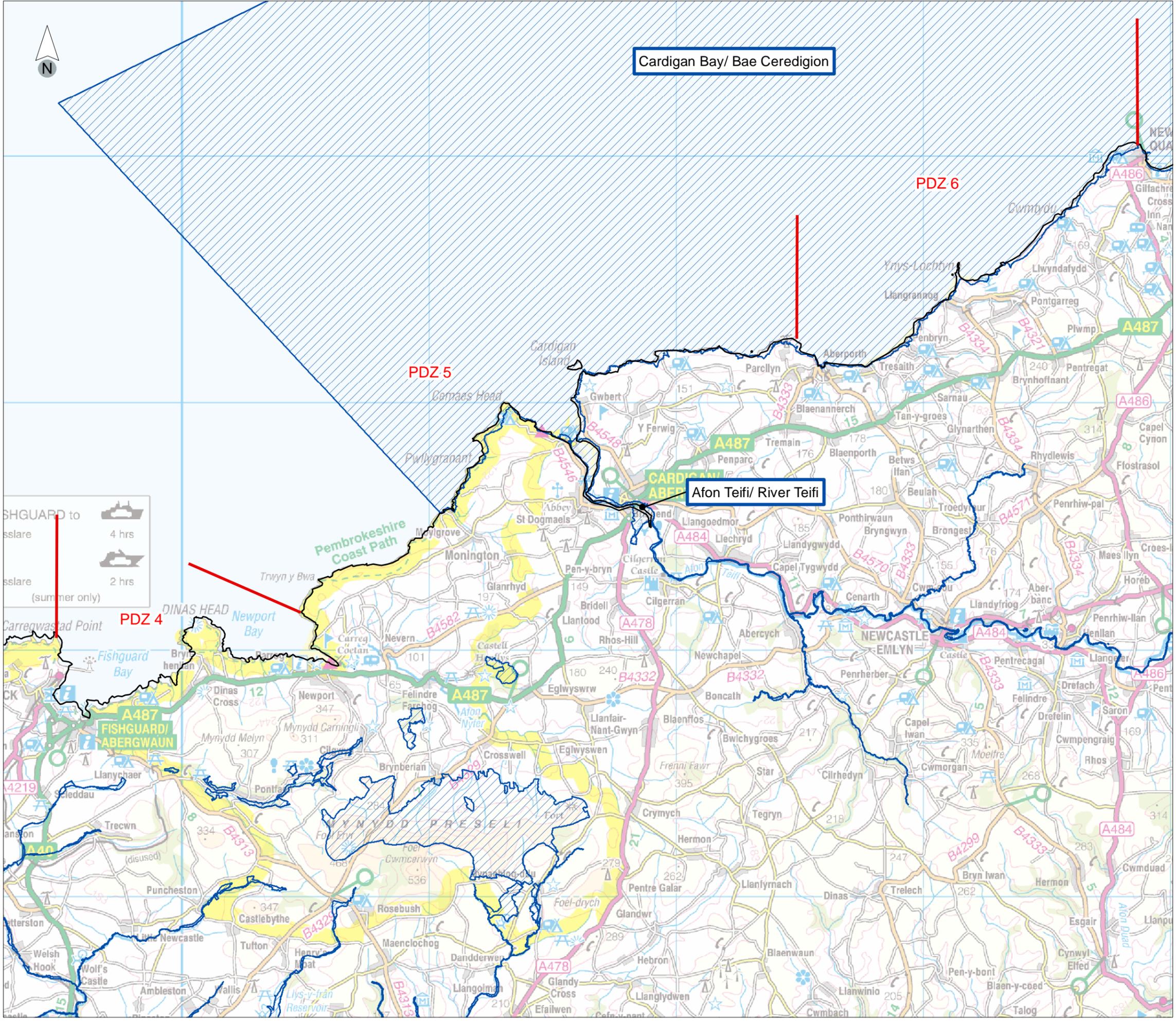
Client:
Pembrokeshire County Council

Date:
November 2011

Scale:
NTS

Figure:
Annex G-I Coastal Area a





- Key:
- Policy Development Zones
 - Special Protection Areas
 - Ramsar
 - Special Areas of Conservation
 - Sites of Specific Scientific Interest

Cardigan Bay/ Bae Ceredigion

Afon Teifi/ River Teifi

FISHGUARD to
 sslare 4 hrs
 sslare 2 hrs
 (summer only)

Title:
Nature Conservation Designations
in the West Wales SMP2

Project:
West Wales SMP2

Client:
Pembrokeshire County Council

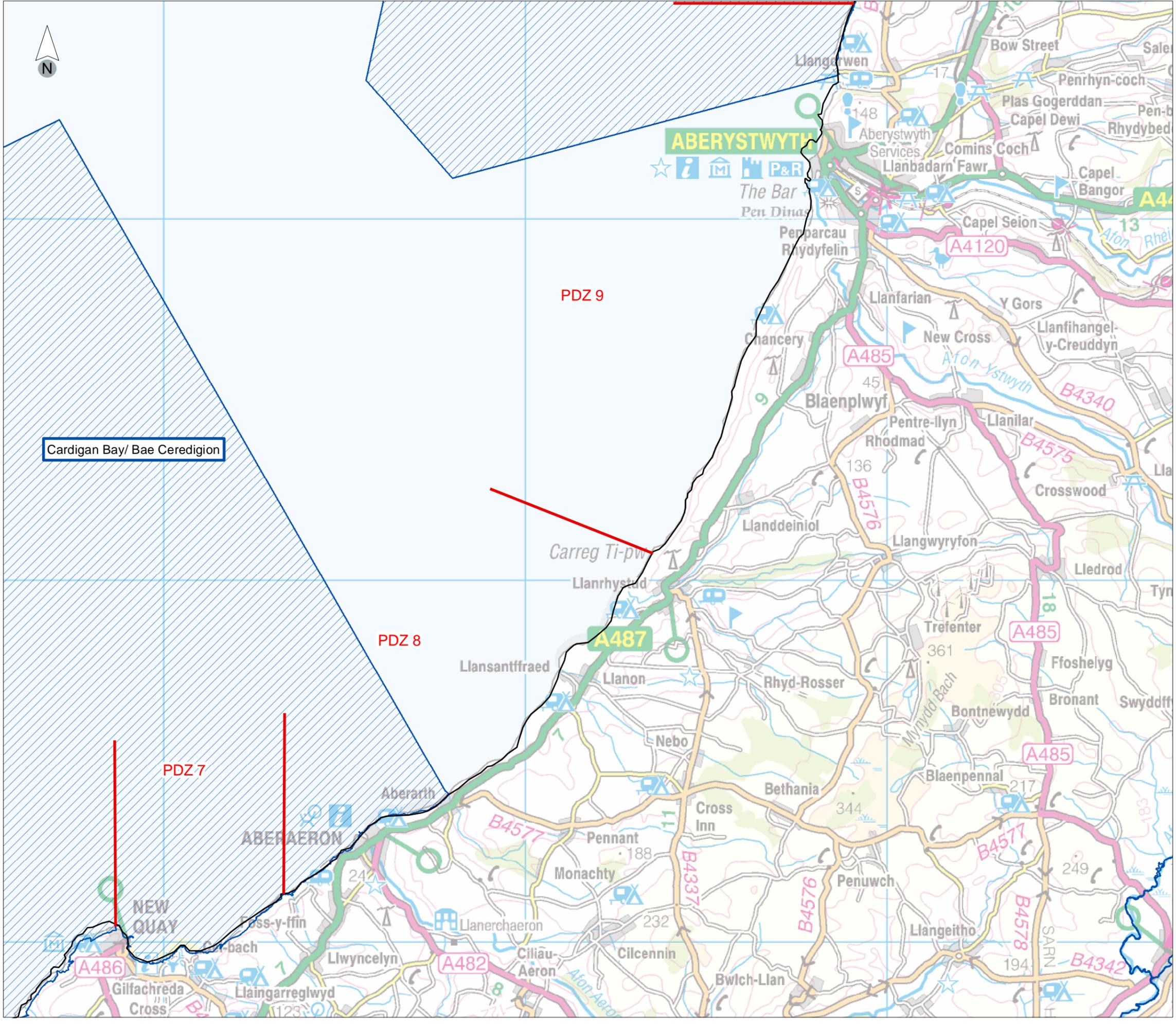
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November 2011

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NTS

Figure:
Annex G-I Coastal Area b



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- Key:
- Policy Development Zones
 - Special Protection Areas
 - Ramsar
 - Special Areas of Conservation
 - Sites of Specific Scientific Interest

Title:
Nature Conservation Designations
in the West Wales SMP2

Project:
West Wales SMP2

Client:
Pembrokeshire County Council

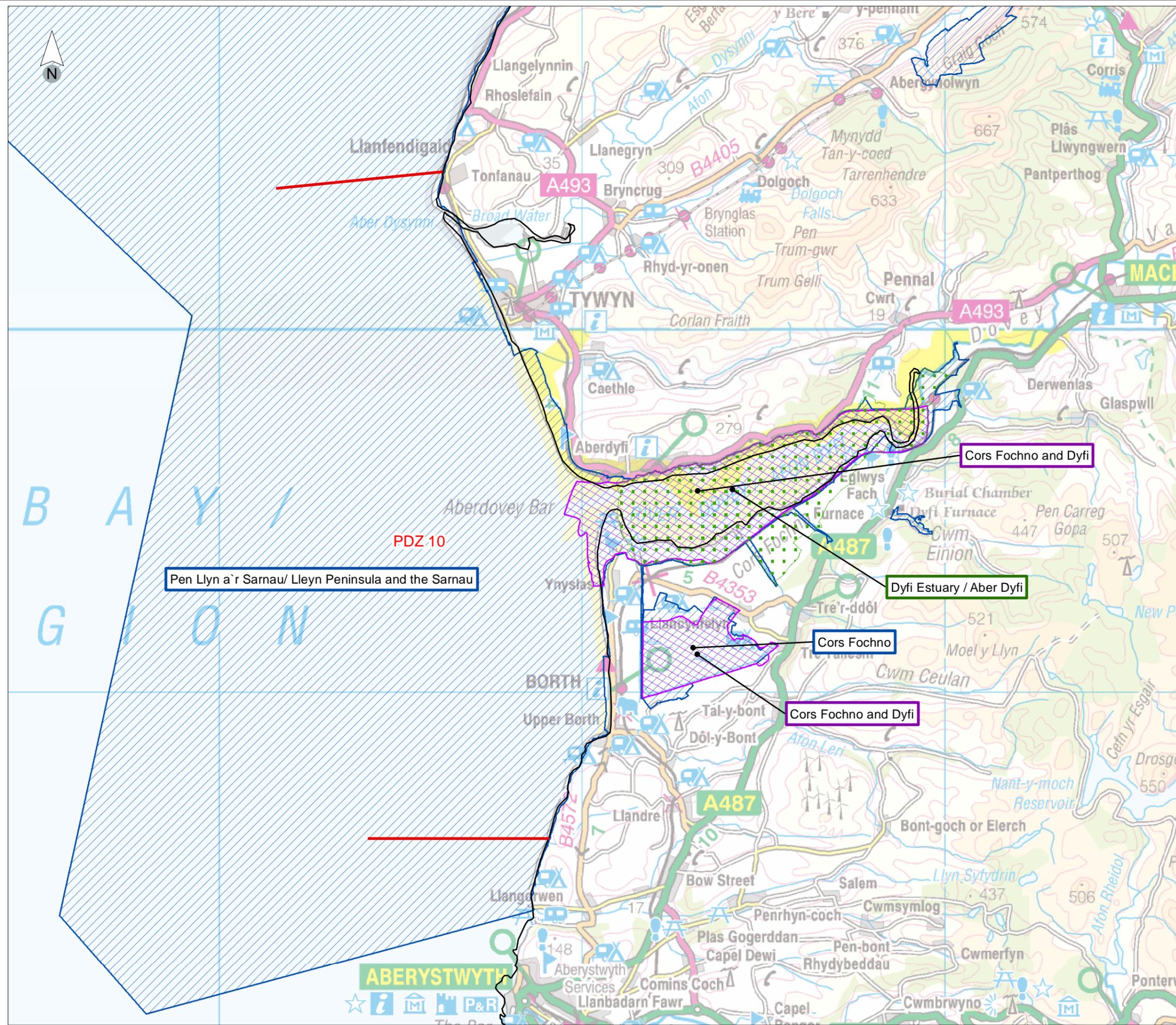
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November 2011

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NTS

Figure:
Annex G-I Coastal Area c



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- Key:
- Policy Development Zones
 - Special Protection Areas
 - Ramsar
 - Special Areas of Conservation
 - Sites of Specific Scientific Interest

Title:
Nature Conservation Designations
in the West Wales SMP2

Project:
West Wales SMP2

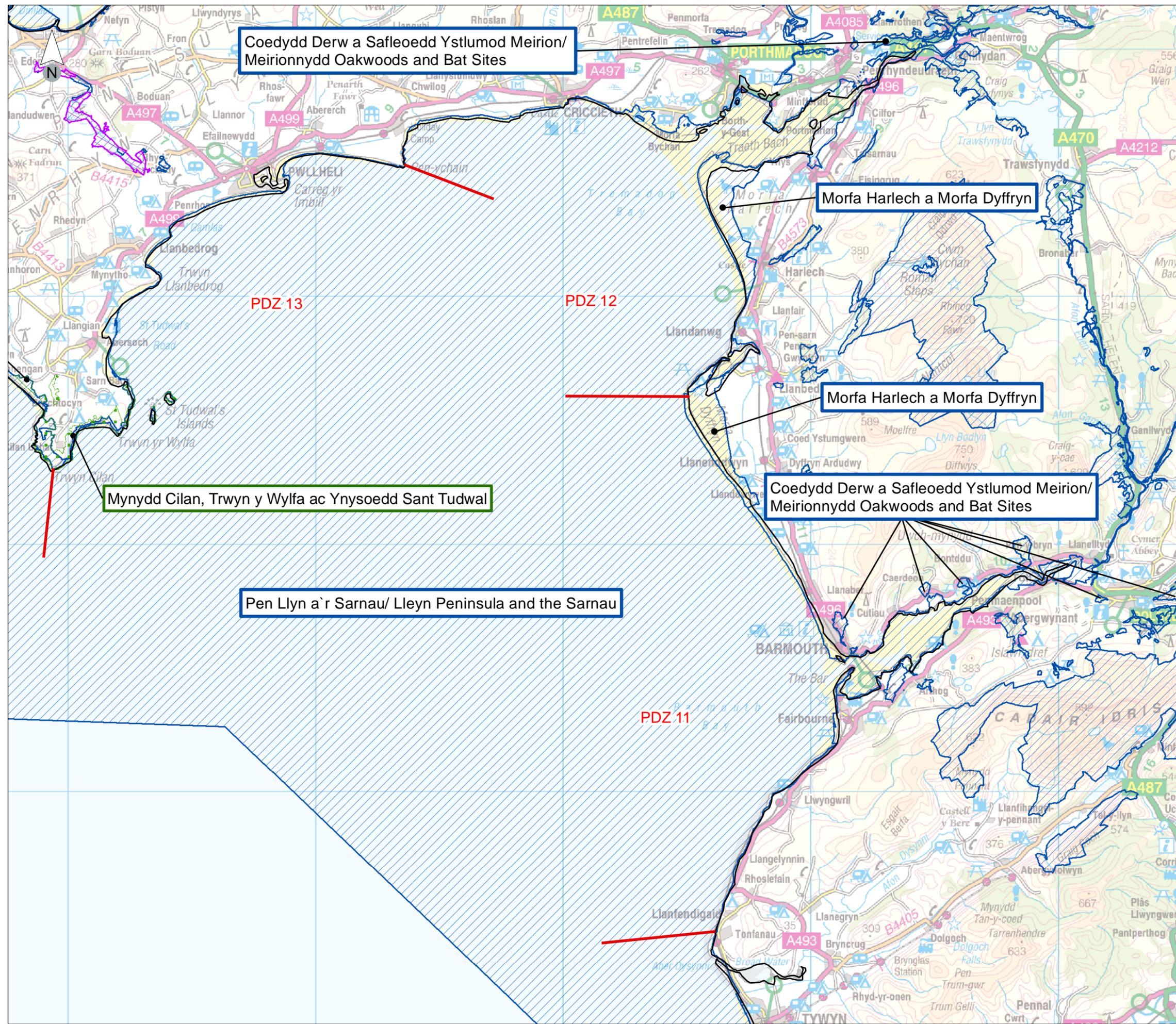
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Pembrokeshire County Council

Date:
November 2011

Scale:
NTS

Figure:
Annex G-I Coastal Area d





- Key:
- Policy Development Zones
 - Special Protection Areas
 - Ramsar
 - Special Areas of Conservation
 - Sites of Specific Scientific Interest

Title:
Nature Conservation Designations
in the West Wales SMP2

Project:
West Wales SMP2

Client:
Pembrokeshire County Council

Date: November 2011	Scale: NTS
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Figure:
Annex G-I Coastal Area e





- Key:
- Policy Development Zones
 - Special Protection Areas
 - Ramsar
 - Special Areas of Conservation
 - Sites of Specific Scientific Interest

Glannau Aberdaron and Ynys Enlli /
Aberdaron Coast and Bardsey Island

Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal

PDZ 14

Clogwyni Pen Llyn/ Seacliffs of Llyn

Clogwyni Pen Llyn/ Seacliffs of Llyn

Glannau Aberdaron and Ynys Enlli /
Aberdaron Coast and Bardsey Island

Pen Llyn a'r Sarnau/ Llyn Peninsula and the Sarnau

Mynydd Cilan, Trwyn y Wylfa
ac Ynysoedd Sant Tudwal

Title:
Nature Conservation Designations
in the West Wales SMP2

Project:
West Wales SMP2

Client:
Pembrokeshire County Council

Date:
November 2011

Scale:
NTS

Figure:
Annex G-I Coastal Area f



Annex II: Scoping Report Stage 2



West of Wales Shoreline Management Plan 2: Habitat Regulation Assessment – Scoping Report Stage 2

July 2010
Consultation Report
9T9001



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Document title West of Wales Shoreline Management Plan 2:
Habitat Regulation Assessment –
Scoping Report Stage 2
Status Consultation Report
Date July 2010
Project name West of Wales Shoreline Management Plan
Project number 9T9001
Client Pembrokeshire County Council
Reference 9T9001/AA SR.v1/Exeter

Drafted by Peter Brunner
Checked by Peter Thornton
Date/initials check 20-07-10 PMT
Approved by Peter Thornton
Date/initials approval 20-07-10 PMT

CONTENTS

		Page
1	INTRODUCTION	1
	1.1 Background	1
	1.2 HRA in the Shoreline Management Plan Context	1
	1.3 Identification of Competent Authority for the SMP2	2
	1.4 Aim of Scoping Report	2
	1.5 Report Structure	2
2	SITES AND FEATURES FOR CONSIDERATION WITHIN THE APPROPRIATE ASSESSMENT	3
	2.1 Introduction	3
	2.2 Sites Within or Adjacent to SMP2 Management Units	3
	2.3 New Sites Within or Adjacent to SMP2 Management Units	46
	2.4 Sites Outside the SMP Boundary	46
	2.5 Consultation	46
3	METHODOLOGY	49
	3.1 Introduction to Appropriate Assessment	49
	3.2 Existing Policy Suite	51
	3.3 Appropriate Assessment of SMP2 Policies	51
	3.4 Provision of an Habitats Regulations Assessment Report	55
4	OTHER PLANS AND PROJECTS	56
	4.1 Introduction	56
	4.2 Land Use Plans	56
5	HRA STAGE 2 - ASSESSMENT OF LIKELY SIGNIFICANT EFFECT AND SCOPING IN / OUT OF NATURA 2000 SITES	57
	5.1 Introduction	57
	5.2 Findings	72
6	CONCLUSIONS	73
	6.1 Introduction	73
	6.1 Next Stage: Where to From Here?	73
7	REFERENCES	73
8	GLOSSARY OF TERMS	73
9	LIST OF ABBREVIATIONS	73
10	APPENDIX A	73

TABLES

Table 2.1	Summary of Existing Consultation Responses	47
Table 3.1	Stages in the Appropriate Assessment Process	49
Table 3.2	Suggested Table to Record the Appropriate Assessment	52
Table 5.1	Scoping the Appropriate Assessment	58
Table 5.2	West of Wales SMP2 Natura 2000 and Ramsar Sites Scoped In or Out of SMP Policy Options	72

FIGURES

Figure 2.1	Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC Boundary	4
Figure 2.2	Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC Boundary	5
Figure 2.3	Carmarthen Bay Dunes/ Twyni Bae Caerfyrddin SAC Boundary	6
Figure 2.4	Bae Caerfyrddin / Carmarthen Bay SPA Boundary	6
Figure 2.5	Pembrokeshire Marine/ Sir Benfro Forol SAC Boundary	7
Figure 2.6	Afonydd Claddau / Cleddau Rivers SAC Boundary	8
Figure 2.7	Castlemartin Coast SPA Boundary	9
Figure 2.8	Pembrokeshire Bat Sites and Bosherton Lakes/ Safleoedd Ystlum Sir Benfro a Llynno SAC Boundary	10
Figure 2.9	Skokholm and Skomer SPA Boundary	11
Figure 2.10	Ramsey and St David's Peninsula Coast SPA Boundary	13
Figure 2.11	St David`s / Ty Ddewi SAC Boundary	14
Figure 2.12	North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro SAC Boundary	15
Figure 2.13	Afon Teifi/ River Teifi SAC Boundary	16
Figure 2.14	Cardigan Bay/ Bae Ceredigion SAC Boundary	17
Figure 2.15	Pen Llyn a`r Sarnau/ Llyn Peninsula and the Sarnau SAC Boundary	18
Figure 2.16	Cors Fochno SAC Boundary	19
Figure 2.17	Dyfi Estuary / Aber Dyfi SPA Boundary	20
Figure 2.18	Cors Fochno (and Dyfi) Ramasr/SAC Boundary	21
Figure 2.19	Morfa Harlech a Morfa Dyffryn SAC Boundary	22
Figure 2.20	Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC Boundary	23
Figure 2.21	Afon Eden – Cors Goch Trawsfynydd SAC Boundary	25
Figure 2.22	Corsydd Llyn/ Llyn Fens SAC Boundary	25
Figure 2.23	Anglesey and Llyn Fens Ramsar Site Boundary (on Llyn Peninsula)	26

Figure 2.24	Clogwyni Pen Llyn/ Seacliffs of Llyn SAC Boundary	27
Figure 2.25	Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA Boundary	28
Figure 2.26	Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island SPA Boundary	29
Figure 2.27	Glynllifon SAC Boundary	30
Figure 2.28	Afon Gwyrfai a Llyn Cwellyn SAC Boundary	31
Figure 2.29	Y Twyni o Abermenai i Aberffraw/ Abermenai to Aberffraw Dunes SAC Boundary	33
Figure 2.30	Glannau Môn: Cors heli / Anglesey Coast SAC Boundary	34
Figure 2.31	Glan-traeth SAC Boundary	35
Figure 2.32	Llyn Dinam SAC Boundary	36
Figure 2.33	Glannau Ynys Gybi/ Holy Island Coast SPA Boundary	37
Figure 2.34	Ynys Feurig, Cemlyn Bay and The Skerries SPA Boundary	38
Figure 2.35	Bae Cemlyn/ Cemlyn Bay SAC Boundary	39
Figure 2.38	Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC Boundary	40
Figure 2.36	Ynys Seiriol / Puffin Island SPA Boundary	41
Figure 2.37	Traeth Lafan / Lavan Sands, Conway Bay SPA Boundary	42
Figure 2.39	Coedydd Aber SAC Boundary	43
Figure 2.40	Great Orme`s Head/ Pen y Gogarth SAC Boundary	44
Figure 2.41	Coedwigoedd Penrhyn Creuddyn/ Creuddyn Peninsula Woods SAC Boundary	45
Figure 3.1	Appropriate Assessment Methodology	50
Figure 6.1	Integration of the Habitats Regulations Assessment Process into SMP2	73

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1 INTRODUCTION

1.1 Background

- 1.1.1 The need for a Habitats Regulations Assessment (HRA) arises under the requirements of the EC Habitats Directive (92/43/EEC) and its implementation in Wales under IVA of the Habitats Regulations (The Conservation (Natural Habitats, & c.) (Amendment) (England and Wales) Regulations 2007). The procedure for the HRA is identified in regulation 85A-E in the 2007 Regulations. In summary the HRA must undertake an appropriate assessment of the implications of the SMP policies for the European Sites in view of their conservation objectives.
- 1.1.2 A European Site or *Natura 2000* Site is either a Special Area of Conservation (SAC) or a Special Protection Area (SPA). In accordance with TAN 5 Nature and Conservation Planning (2009), Ramsar Sites and pSPAs should also be subject to the provisions of the Habitats Regulations. Ramsar Sites, SPAs and SACs, are collectively referred to hereafter as 'International Sites' or 'European Sites' as appropriate.
- 1.1.3 HRA is the process to support a decision by the 'Competent Authority' as to whether the proposed plan or project would have an adverse effect on the integrity of any European Site. Only where the plan or project can be determined as not having an adverse effect on any European Site can it be approved by the Competent Authority.
- 1.1.4 The favourable conservation status of a European Site is defined through the Site's conservation objectives and it is against these objectives that the effects of the plan or project must be assessed. Conservation objectives set out the physical, chemical and biological thresholds, and limits of anthropogenic activity and disturbance which are required to be met to achieve the integrity of the Site. Conservation objectives serve both as criteria against which Site condition can be assessed and reported against, and also as a basis for assessing plans or projects which may affect the Site.
- 1.1.5 Where it is not possible to determine that a plan or project under consideration will not have an adverse effect on a European or Ramsar site, then alternative solutions which avoid harming site integrity must be sought. If alternatives are not possible, then the plan or project can only proceed on the basis of imperative reasons of over-riding public importance (IROPI). If IROPI is agreed by the Assemblies Government then compensatory measures must be secured to offset damage done by the plan or project, such that the overall coherence of the SAC/SPA network is maintained.
- 1.1.6 Conservation objectives for European Marine Sites are set out in the Relevant Regulation 33 documents (so called as their production is a requirement of Regulation 33 (2) of the Habitats Regulations) for each Site, which for English European Marine Sites in Wales are the responsibility of Countryside Council of Wales (CCW).

1.2 HRA in the Shoreline Management Plan Context

- 1.2.1 The following documents: "*Wales Spatial Plan Update Habitats Regulations Assessment & Appropriate Assessment*" (WAG, 2008), "*TAN 5 - Nature Conservation Planning*" (WAG, 2009), "*Assessing Projects Under the Habitats Directive – Guidance for Competent Authorities*" (CCW, 2008), "*The Assessment of Development Plans in Wales Under the provisions of the Habitats Regulations*" (WAG, 2006), "*Planning for the Protection of European Sites: Appropriate Assessment*" (DCLG, 2006), "*The Assessment of Regional Spatial Strategies under the Provisions of the Habitats Regulations – Draft Guidance*" (English Nature, 2006), and "*Appropriate Assessment of Flood Risk Management Plans*"

Under the Habitats Regulations” (Environment Agency, Draft document) currently provide the most cohesive source of guidance relating to the provision of HRA for Shoreline Management Plans. Accordingly, these documents have been used as in the approach and methodology for establishing the scope of the HRA for the West of Wales SMP2.

1.3 Identification of Competent Authority for the SMP2

1.3.1 One of the first steps in addressing SMPs under the Habitats Regulations is identification of the Competent Authority. In this instance, Royal Haskoning is undertaking the technical analysis that forms the basis of the Appropriate Assessment, but the ultimate responsibility for signing off the Appropriate Assessment and ensuring compliance with the Habitats Regulations falls to the Competent Authority. In this instance, **the Competent Authority is the Local Authorities within the SMP2 Study Area.**

1.4 Aim of Scoping Report

1.4.1 The aim of this report is to:

1. Identify the relevant *Natura 2000* sites and their features within or adjacent to the West of Wales SMP2 management units and likely significant effect on the integrity of the *Natura 2000* sites in response to the shoreline management options considered in the West of Wales SMP2;
2. Provide a methodology for the Appropriate Assessment;
3. Clarify other relevant plans and projects for consideration within the Appropriate Assessment; and
4. Provide a summary of the potential issues associated with the shoreline management options which require consideration within the Appropriate Assessment and those which do not.

1.4.2 In addition, this report will be used as a consultation tool to inform the detailed Appropriate Assessment stage during the preparation of the SMP and the Strategic Environmental Assessment (SEA).

1.5 Report Structure

1.5.1 The remainder of this report is set out as follows:

- Section 2 Sites and Features for Consideration within the Appropriate Assessment;
- Section 3 Appropriate Assessment Methodology;
- Section 4 Consideration of Other Plans and Projects;
- Section 5 Shoreline Management Options Scoped In or Out; and
- Section 6 Conclusions.

2 SITES AND FEATURES FOR CONSIDERATION WITHIN THE APPROPRIATE ASSESSMENT

2.1 Introduction

2.1.1 The West of Wales SMP2 study area includes all, or part of 40 *Natura 2000* Sites (SACs and SPAs) designated under the Habitats Directive and Birds Directive, along with one Site designated under the Ramsar Convention. These Sites are considered in this Scoping Report with regards to the potential impacts of the SMP2 policy options. An account of the Sites is given in **Section 2.2**, which includes the identification of the primary reasons for their designation, the factors influencing the condition of the Sites, and the Sites' conservation objectives and sensitivities. Further details of the Sites are presented in **Appendix A**.

2.1.2 In addition, an overview of the likely significant effects (LSE) on the integrity of the *Natura 2000* Sites, and their features, in response to the shoreline management options associated with the West of Wales SMP2, is undertaken in **Section 5**.

2.2 Sites Within or Adjacent to SMP2 Management Units

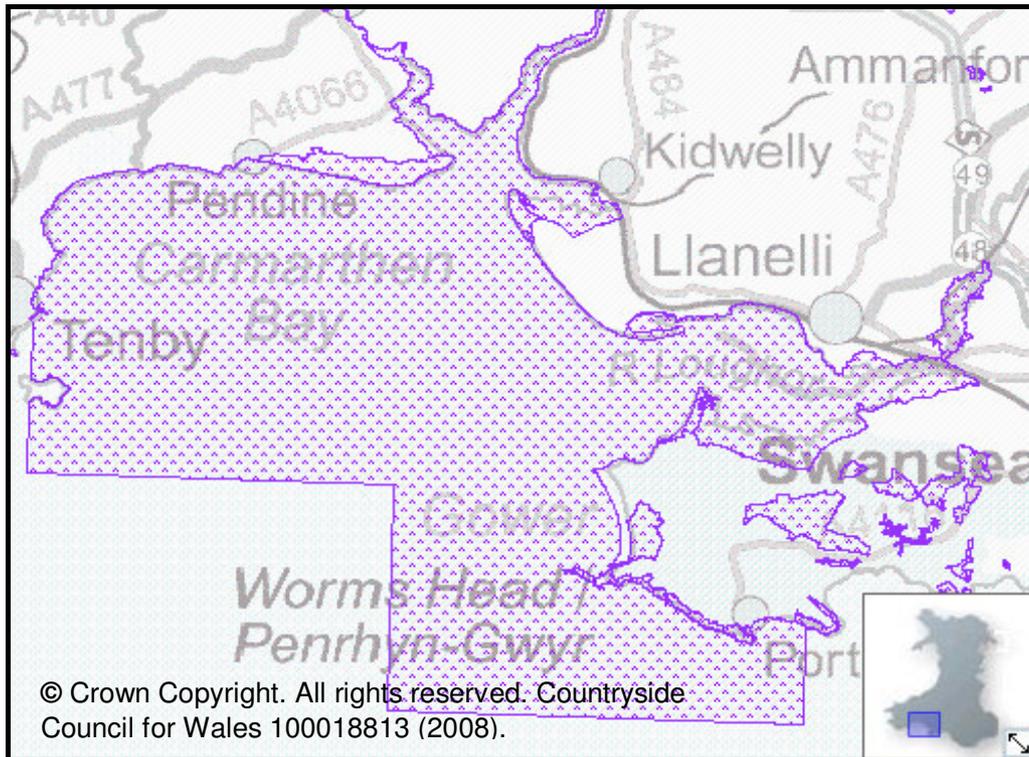
Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC

2.1.1 The Site (see **Figure 2.1**) comprises Annex I habitats that are a primary reason for selection of the Site, including sandbanks which are slightly covered by sea water all the time; estuaries, mudflats and sandflats not covered by seawater at low tide, large shallow inlets and bays, *Salicornia* and other annuals colonising mud and sand, and Atlantic salt meadows (*Glauco-Puccinellietalia maritima*). An Annex II species that is a primary reason for selection of the Site is the twaite shad (*Alosa fallax*). Annex II species present as a qualifying feature but not a primary reason for site selection include sea lamprey (*Petromyzon marinus*), river lamprey (*Lampetra fluviatilis*), allis shad (*Alosa alosa*), and otter (*Lutra lutra*).

2.1.2 The conservation objectives of the Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the sandbanks, estuary and coastal features, *Salicornia* and Atlantic salt meadows; and to maintain the populations of shad, otter, river lamprey, and sea lamprey, and the extent and characteristics of their supporting habitats.

2.1.3 The key factors or sensitivities influencing the condition of the SAC habitats include: developments in fishing practices and target species which could threaten the integrity of both the benthic communities and the sea-duck population (for which the Bay is also proposed as an SPA). Most of the potential threats come from fisheries and related activities such as shellfish management and access issues related to mussel and cockle gathering. These works may have an effect locally on the biology of the Bank, and in conjunction with other coastal defence works may also affect sediment budgets and characteristics over a wider area. CCW has encouraged monitoring and further research.

Figure 2.1 Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC Boundary



Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC

- 2.1.4 The Site (see **Figure 2.2**) comprises Annex I habitats that are a primary reason for selection of the Site, including vegetated sea cliffs of the Atlantic and Baltic coasts; and fixed dunes with herbaceous vegetation ('grey dunes') (a priority feature). Annex I habitats also present within the Site include European dry heaths, Semi-natural dry grasslands and scrubland facies: on calcareous substrates (*Festuco-Brometalia*), caves not open to the public, submerged or partially submerged sea caves, mudflats and sandflats not covered by seawater at low tide, embryonic shifting dunes, shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"), and humid dune slacks. Annex II species that are a primary reason for selection of the Site include greater horseshoe bat (*Rhinolophus ferrumequinum*), and early gentian (*Gentianella anglica*). Annex II species, the petalwort (*Petalophyllum ralfsii*), is present but neither as primary for selection or qualifying species.
- 2.1.5 The conservation objectives of the Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the vegetated sea cliffs and fixed dunes; and maintain the extent and characteristics of the qualifying habitat features such as European dry heaths, semi-natural grasslands, caves not open to public, and submerged or partially submerged sea caves. The current site condition assessment for these features is **Unfavourable, Declining** (vegetated sea cliffs, dry heath, and grasslands) and **Favourable** (fixed dunes, caves not open to public, submerged or partially submerged caves).
- 2.1.6 The Site is dependent on the requirements for the maintenance or re-introduction of a traditional grazing regime, which is crucial for the management of this SAC. Key factors influencing the condition of the Site include scrub encroachment, recreational pressures, and chemical/oil pollution from the sea.

Figure 2.2 Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC Boundary



Carmarthen Bay Dunes/ Twyni Bae Caerfyrddin SAC

- 2.1.7 The Site (see **Figure 2.3**) comprises Annex I habitats that are a primary reason for selection of the Site, including coastal lagoons (a priority feature); embryonic shifting dunes; shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes'); fixed dunes with herbaceous vegetation ('grey dunes') (a priority feature); dunes with *Salix repens* ssp; *argentea* (*Salicion arenariae*); and humid dune slacks. Annex II species present within the Site that are a primary reason for selection include the narrow-mouthed whorl snail (*Vertigo angustior*), petalwort, and fen orchid (*Liparis loeselii*).
- 2.1.8 The conservation objectives of the Carmarthen Bay Dunes/ Twyni Bae Caerfyrddin SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the dune community; and maintain the populations of narrow-mouthed whorl snail, petalwort, and fen orchid. The current condition assessment for these features for the Site is **Favourable** (embryonic shifting dunes, white dunes) and **Unfavourable, Declining** (fixed dunes, dunes with *Salix repens* ssp.*Argentea*, humid dune slacks, narrow-mouthed whorl snail, petalwort, and fen orchid).
- 2.1.9 Key factors or sensitivities influencing the condition of the SAC habitats include: encroachment by *Hippophae* of substantial areas of open dunes, while the damp slacks are similarly under pressure from *Salix repens*; these threats are detrimental to species of early successional stages such as *Liparis loeselii* and *Petrellophyllum ralfsii*. Management has been undertaken to address these problems by CCW and the Local Authority (at Whiteford NNR and Pembrey Local Nature Reserve - LNR), but significant areas are still subject to change.

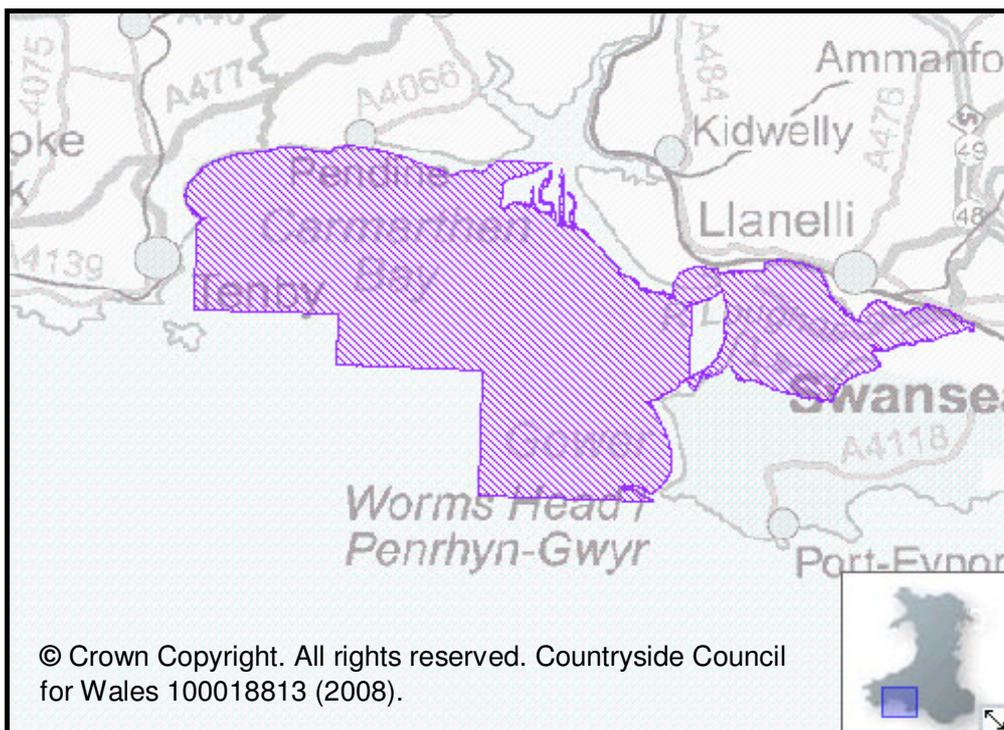
Figure 2.3 Carmarthen Bay Dunes/ Twyni Bae Caerfyrddin SAC Boundary



Bae Caerfyrddin / Carmarthen Bay SPA

2.1.10 The site (see **Figure 2.4**) qualifies under Article 4.2 of the Birds Directive (79/409/EEC) by supporting populations of European species of importance, which for this site is wintering common scoter (*Melanitta nigra*). Key supporting habitats include estuaries, Atlantic salt meadows, *Salicornia* (pioneer saltmarsh community), intertidal mudflats and sandflats, large shallow inlets and bays, and subtidal sandbanks.

Figure 2.4 Bae Caerfyrddin / Carmarthen Bay SPA Boundary

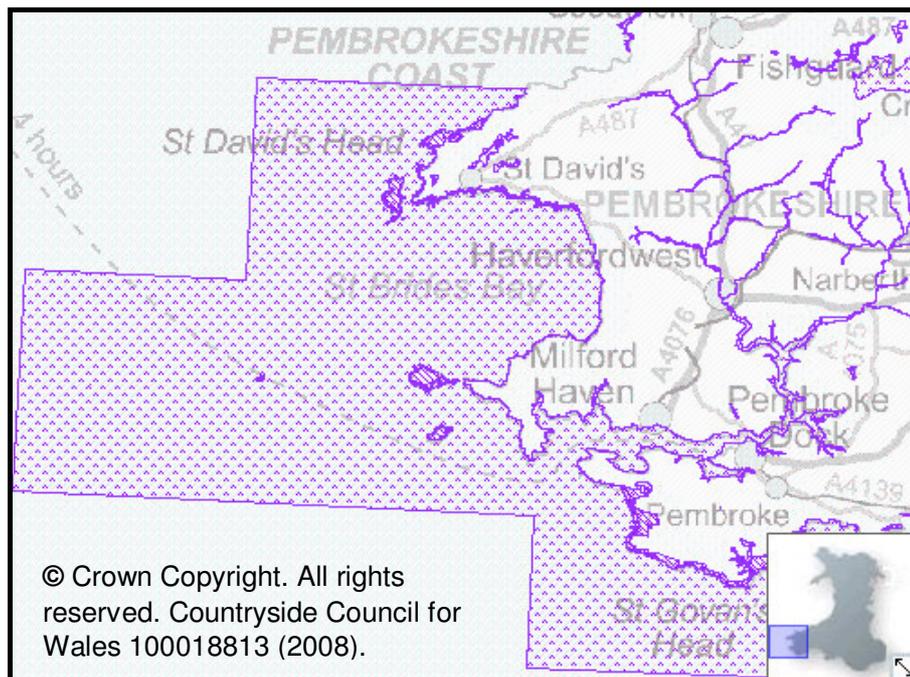


- 2.1.11 The conservation objectives of the Bae Caerfyrddin / Carmarthen Bay SPA are to maintain in 'favourable condition', taking account of natural change, the common scoter population, and the extent and characteristics of its supporting habitats.
- 2.1.12 The potential factors or sensitivities influencing the condition of the SPA (and common scoter population) include: developments / changes in fishing practices; oil pollution; increases in recreational, commercial or military water-surface or aerial activities during winter months; infrastructure developments, such as for offshore energy generation; changes to the sediment structures or sediment transport regime; climate change, and coastal squeeze.

Pembrokeshire Marine/ Sir Benfro Forol SAC

- 2.1.13 The Site (see **Figure 2.5**) comprises Annex I habitats that are a primary reason for selection of the Site, including estuaries; large shallow inlets and bays; and reefs. Annex II primary qualifying species present within the Site are grey seal (*Halichoerus grypus*); and shore dock (*Rumex rupestris*). Habitats and species present as qualifying but not as a primary reason for site selection include sandbanks slightly covered by sea water, mudflats and sandflats not covered by sea water at low tide, coastal lagoons (a priority feature), Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*), submerged or partially submerged sea caves, sea lamprey, river lamprey, allis shad, twaite shad, and otter.

Figure 2.5 Pembrokeshire Marine/ Sir Benfro Forol SAC Boundary

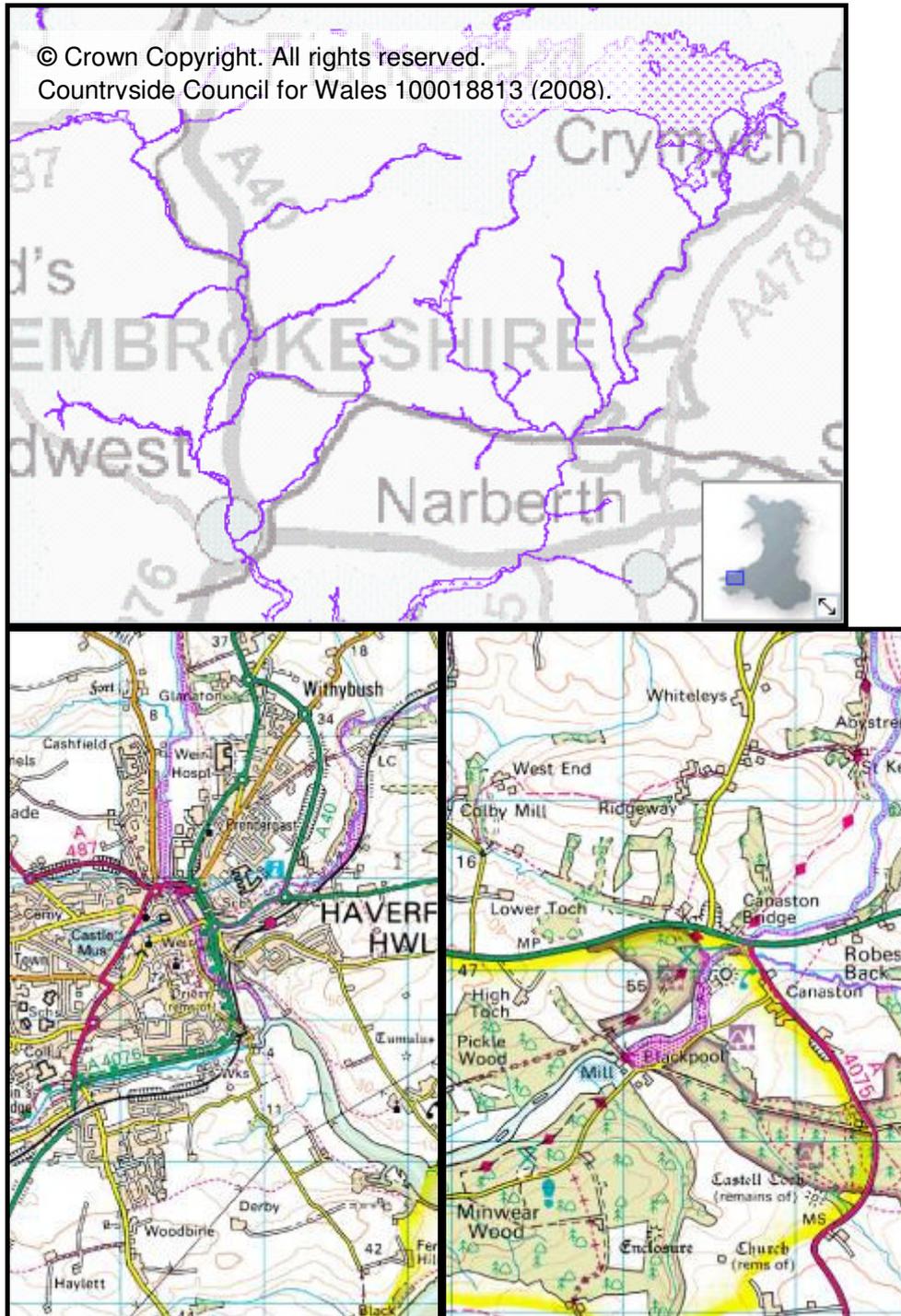


- 2.1.14 The conservation objectives of the Pembrokeshire Marine/ Sir Benfro Forol SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the estuaries, large shallow inlets and bays, and reefs; and to maintain the populations of river and sea lamprey, shore dock, shad *Alosa spp*, otter, and grey seal.
- 2.1.15 The key factors or sensitivities influencing the condition of the SAC habitats and species include: water quality issues such as those associated with dredge-spoil disposal; pollution originating from the transport or exploration/production of oil and gas, marine communities are also vulnerable to damage by certain fishing methods, and visitor pressures including gathering of firewood and kindling, which could affect intertidal features.

Afonydd Cleddau/ Cleddau Rivers SAC

- 2.1.16 The Site (see **Figure 2.6**) comprises Annex I habitats that are a qualifying feature but not a primary reason for selection of the Site include: water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation; active raised bogs (a priority feature); and alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*) also a priority feature. Annex II species that are a primary reason for the selection of the Site are brook lamprey, river lamprey, bullhead, and otter. The Annex II species, sea lamprey, is also present within the Site.

Figure 2.6 Afonydd Claddau / Cleddau Rivers SAC Boundary



- 2.1.17 The conservation objectives of the Afonydd Cleddau/ Cleddau Rivers SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the water courses, alluvial forests, and active raised bogs; as well as the populations of sea lamprey, brook lamprey, river lamprey, bullhead, and otter. The current Site condition assessment for the majority of these features is **Unfavourable** with the exception of the otter populations which are considered **Favourable**.
- 2.1.18 The habitats and species within the SAC are vulnerable to pollution from agricultural sources and physical changes such as canalisation, abstraction, riverbank clearance, gravel extraction, alterations to grazing, and man-made obstructions. Healthy fish and otter populations require a semi-natural channel structure, and the fish species also require silt and gravel beds in which to spawn. Over-exploitation of fisheries and introduction of non-native species of animal or plant could also be a threat. Otters are also vulnerable to human disturbance, habitat loss, crossing highways, and injury from discarded fishing equipment. Associated wetland habitats require high water levels and where necessary, controlled grazing. These issues are currently being addressed by various action plans and the Pembrokeshire Rivers Trust is actively seeking and undertaking habitat improvements within the Cleddau rivers catchment, in partnership with Environment Agency Wales, CCW, and landowners.

Castlemartin Coast SPA

- 2.1.19 The site (see **Figure 2.7**) qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting populations of European species of importance, which for this site is breeding and wintering chough (*Pyrhocorax pyrrhocorax*). Key supporting habitats include vegetated sea cliffs of the Atlantic and Baltic coasts, fixed dunes with herbaceous vegetation ("grey dunes") (a priority feature), European dry heaths, semi-natural dry grasslands, sand beaches, machair, shingle, sea cliffs and islets, and submerged or partially submerged caves.

Figure 2.7 Castlemartin Coast SPA Boundary

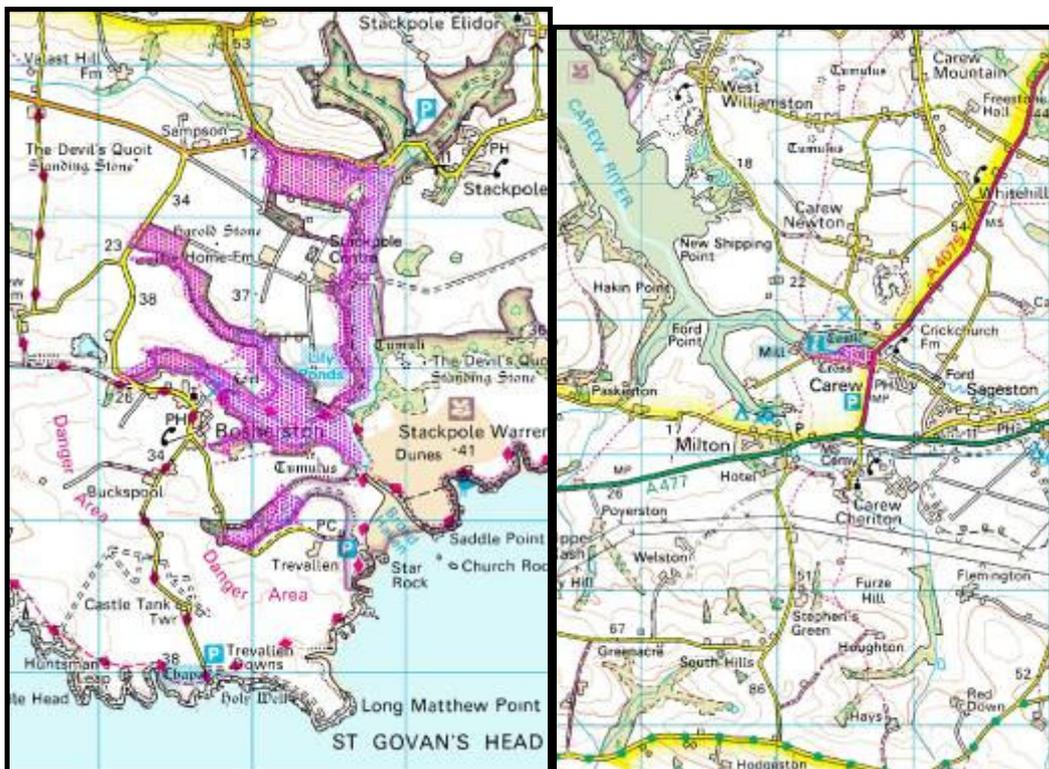


- 2.1.20 The conservation objectives of the Castlemartin Coast SPA are to maintain in 'favourable condition', taking account of natural change, the chough population and the extent/characteristics of its supporting habitats. The current Site condition assessment of this feature is **Favourable**.
- 2.1.21 The condition or the sensitivity of the chough at this SPA is dependent on traditional grazing without fertilizers, by livestock and rabbits, and help to maintain the short open conditions necessary for the chough. On the army range, winter grazing is dependent on the transhumance of sheep from Preseli candidate Special Area of Conservation and the seasonal nature of the current firing programme. Some soil disturbance from the military training can be beneficial for the chough, enabling better access to soil invertebrates. An Integrated Land Management Plan for the range is being produced by partnership organisations including CCW, Ministry of Defence, National Trust, National Park Authority, and the Wildlife Trust, which covers all aspects of land management, including recreation. There is also close liaison with the British Mountaineering Council over impacts of rock climbing. Grazing management on the adjacent Stackpole National Nature Reserve is a key element of the joint Countryside Council for Wales/National Trust management plan, and management agreements encourage grazing of the dunes at Broomhill Burrows.

Pembrokeshire Bat Sites and Bosherton Lakes/ Safleoedd Ystum Sir Benfro a Llynno SAC

- 2.1.22 The Site (see **Figure 2.8**) comprises Annex I habitats that are a primary reason for selection of the Site, including hard oligo-mesotrophic waters with benthic vegetation of *Chara spp.* Annex II species that are a primary reason for selection of the Site are the greater horseshoe bat. Annex II species that are present as a qualifying species are the lesser horseshoe bat (*Rhinolophus hipposideros*) and otter.

Figure 2.8 Pembrokeshire Bat Sites and Bosherton Lakes/ Safleoedd Ystum Sir Benfro a Llynno SAC Boundary

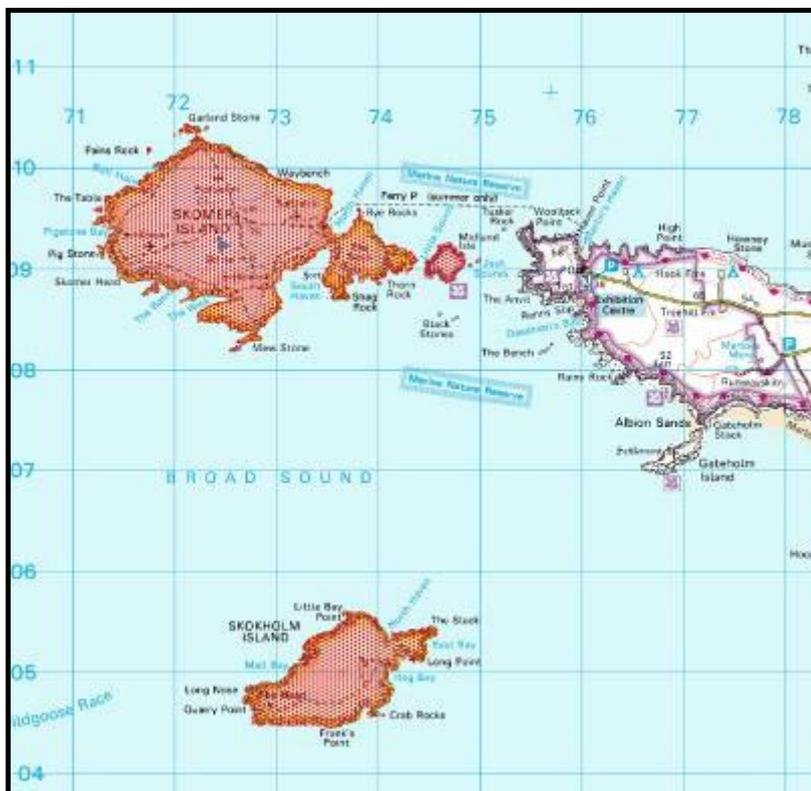


- 2.1.23 The conservation objectives of the Pembrokeshire Bat Sites and Bosherton Lakes / Safleoedd Ystlum Sir Benfro a Llynno SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the marl lakes, and maintaining the populations of the greater horseshoe bat, lesser horseshoe bat, and otter, and the extent and characteristics of their supporting habitats. The current site condition assessment for the marl lakes and otter is **Unfavourable, Declining** and **Favourable, Maintained** for the greater and lesser horseshoe bat.
- 2.1.24 Potential factors or sensitivities influencing the condition of the SAC habitats and species include: physical deterioration of buildings which contain the roosts, human disturbance, and habitat loss and disturbance within their key feeding areas. These issues are being addressed through existing or pending management agreements or management plans over nursery roosts, transitory roosts, associated hibernacula and adjacent feeding habitats. The lakes are vulnerable to drought; nutrient enrichment; and to siltation. They are covered by a Nature Reserve Agreement with the owners, the National Trust, which is addressing these issues. The breeding otter population is vulnerable to water pollution, human disturbance, entanglement in fishing gear, and habitat loss. These issues are also being addressed through the Nature Reserve Agreement.

Skokholm and Skomer SPA

- 2.1.25 The Site (see **Figure 2.9**) qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting populations of European species of importance, including breeding populations of storm petrel (*Hydrobates pelagicus*), chough, and short-eared owl (*Asio flammeus*). The Site also supports breeding puffin (*Fratercula arctica*), Manx shearwater, and lesser black-backed gull (*Larus fuscus*), which qualify under Article 4.2 of the Birds Directive. Key supporting habitats include coastal sand dunes, sand beaches, and machair.

Figure 2.9 Skokholm and Skomer SPA Boundary



2.1.26 The conservation objectives of the Skokholm and Skomer SPA are to maintain in 'favourable condition', taking account of natural change, the European storm petrel, chough, short-eared owl, razorbill, lesser black-backed gull, Manx shearwater, and puffin populations, as well as the extent and condition of their supporting habitats. For the chough, breeding success has been within limits in recent years and the site population is considered **Favourable, Maintained**. For the other species their current site condition assessment ranges between **Favourable, Maintained** (Manx shearwater, and puffin), **Unfavourable, No Change** (lesser black-backed gull and short-eared owl), and **Unfavourable, Unclassified** (storm petrel, sea bird assemblage).

2.1.27 Potential factors or sensitivities influencing the condition or sensitivity of the SPA (and European storm petrel, razorbill, Atlantic puffin, and Manx shearwater populations) include: the vulnerability to pollution at sea, either directly by contact or indirectly via food sources. Certain changes in fishing methods will also affect the birds' food source and cause direct mortality. Skomer Island is subject to intensive seasonal recreational pressures. Management of the islands visitors by the Dyfed Wildlife Trust has prevented any significant disturbance, and the Marine Nature Reserve minimises disturbance from the sea around Skomer through a code of conduct and by having a wardening presence. There is avian predation (especially by great black-backed gulls), particularly of the burrow-nesting storm petrels, puffins, and Manx shearwaters. Colonisation of the islands by mammalian predators such as mink and rats are of special concern. Management plans are in place to control the threats if they increase or arise.

Grassholm SPA

2.1.28 The Site is located in excess of 10km to the west of Skomer. The Site qualifies under Article 4.2 of the Birds Directive (79/409/EEC) by supporting 12.5% of the breeding population of Northern Gannet (*Morus bassanus*). Key supporting habitats include shingle, sea cliffs, and inlets.

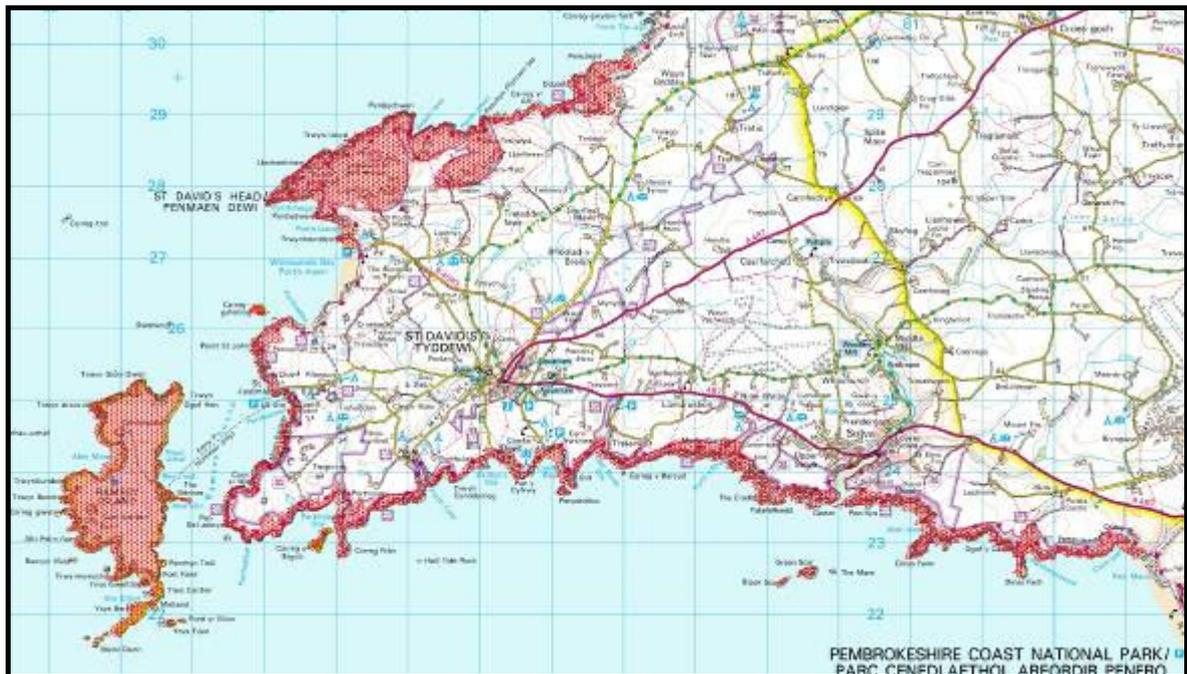
2.1.29 The conservation objectives of the Skokholm and Skomer SPA are to maintain in 'favourable condition', taking account of natural change, the Northern Gannet populations, as well as the extent and condition of their supporting habitats.

Ramsey and St David's Peninsula Coast SPA

2.1.30 The Site (see **Figure 2.10**) qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting populations of European species of importance, which for this site is breeding chough. Key supporting habitats include inland water bodies (standing water, running water), marine areas and sea inlets, vegetated sea cliffs of the Atlantic and Baltic coasts, and European dry heaths. Floating water plantain (*Luronium natans*) is a key feature of the site.

2.1.31 The conservation objectives of the Ramsey and St David's Peninsula Coast SPA are to maintain in 'favourable condition', taking account of natural change, the chough populations and the extent and characteristics of its supporting habitats. The current Site condition assessment of the floating water plantain is **Favourable**. No information was available for the condition assessment of the chough populations.

Figure 2.10 Ramsey and St David's Peninsula Coast SPA Boundary



- 2.1.32 The condition or sensitivity of the chough and peregrine populations at this Site is dependent on the adequate provision of feeding and breeding habitat and absence of serious disturbance from humans. CCW and partner organisations are implementing 'A Chough Conservation Strategy for Pembrokeshire'. The National Trust and other landowners, with financial help from CCW management agreements and the Environmental Sensitive Area (ESA) scheme, have re-introduced traditional grazing of coastal slopes, safeguarding and extending the chough's short sward feeding grounds. On Ramsey the RSPB's management benefits both species. Here, reduction in rabbit grazing due to Rabbit Viral Haemorrhagic Disease is a recent problem and any decline in the quality and extent of feeding grounds due to lack of grazing will have to be compensated for by habitat management (e.g. grazing by sheep). The Site is subject to recreational pressure, particularly from tourists walking the coast path. The impact of this disturbance is minimised by most of the nest sites being on inaccessible high cliffs, and by the numbers of visitors to Ramsey being strictly limited.

St David's / Ty Ddewi SAC

- 2.1.33 The Site (see **Figure 2.11**) comprises Annex I habitats that are a primary reason for selection of the Site, including vegetated sea cliffs of the Atlantic and Baltic coasts, and European dry heaths. Annex II primary qualifying species present within the Site are the floating water-plantain.
- 2.1.34 The conservation objectives of the St David's / Ty Ddewi SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the vegetated sea cliffs and maintaining the population of floating water-plantain maintaining the extent and characteristics of its supporting habitat. The current site condition assessment for the vegetated sea cliffs is **Favourable, Maintained** and **Favourable** for floating water-plantain. The dry heaths are **Unfavorable, Recovering**.

Figure 2.11 St David's / Ty Ddewi SAC Boundary



- 2.1.35 Key factors or sensitivities influencing the condition of the SAC habitats and species include: cessation in some areas of traditional coastal slope grazing, whilst scrub and bracken have spread at the expense of more maritime communities. The lack of grazing increases the risk of damage from accidental summer fires. Agricultural improvement is also a threat, which is being addressed by management agreements over parts of the site, through the ESA scheme and by the re-introduction of traditional grazing by the National Trust. On Ramsey Island, grazing by sheep and rabbits continues in accordance with the management plan. Rabbit Viral Haemorrhagic Disease is a recent problem. The site is also subject to recreational pressures, particularly from tourists along the coastal path, but these are not yet causing significant deleterious change to the vegetation. On Ramsey, visitor numbers are strictly limited.

North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro SAC

- 2.1.36 The Site (see **Figure 2.12**) comprises Annex I habitats that are a primary reason for selection of the Site, including European dry heaths, transition mires and quaking bogs. An Annex II species that is a primary reason for selection of the Site is the floating water-plantain. Annex I qualifying features present but not a primary reason for selection include Northern Atlantic Wet heaths with *Erica tetralix* (including H4 humid heath), and *Molinia* Meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*).

Figure 2.12 North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro SAC Boundary



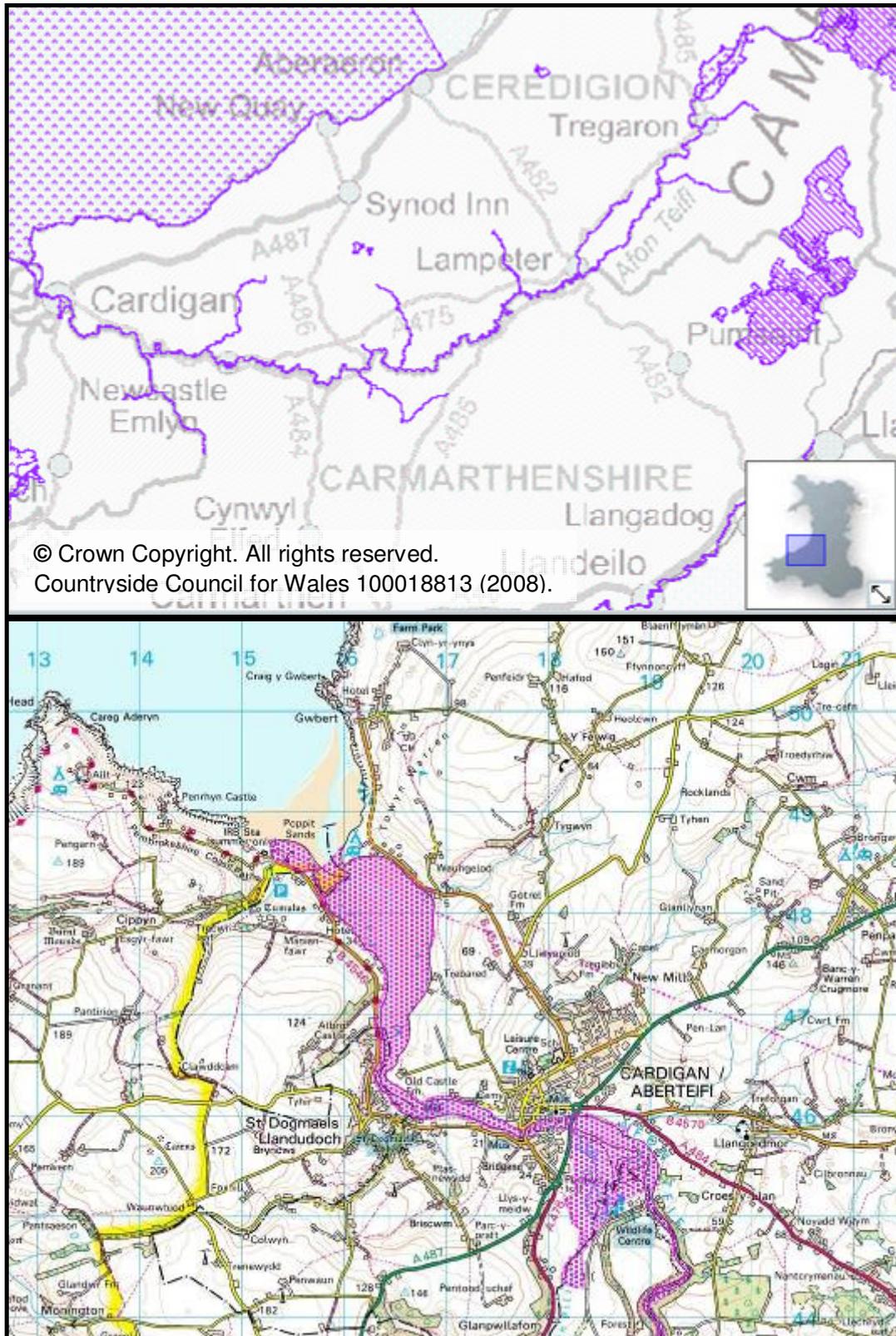
- 2.1.37 The conservation objectives of the North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the dry heaths, mires and bogs, floating water-plantain, Northern Atlantic Wet Heaths with *Erica tetralix* (including H4 humid heath), and *Molinia* Meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*); as well as maintaining the population of floating water plantain and its supporting habitat. The current site condition assessment for these features is generally **Unfavourable, Recovering**.
- 2.1.38 Neglect of the Site allows species such as *Ulex gallii* and *Molinia caerulea* to dominate and produce a species-poor sward of uniform structure. In contrast, combinations of cutting, grazing and burning reduce the dominance of sub-shrubs and create a species-rich *Eu-Molinion* sward of varied structure. Current conservation management aims to increase the proportion of shorter vegetation of this nature. Many of the commons are owned or managed by conservation organisations (Pembrokeshire Coast National Park Authority, National Trust, and Wildlife Trust West Wales). Management is supported in part by the Heritage Lottery Fund through the Tomorrow's Heathland Heritage Project.

Afon Teifi/ River Teifi SAC

- 2.1.39 The Site (see **Figure 2.13**) comprises Annex I habitat that is a primary reason for selection of the Site, notably water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. Annex II species present that are a primary reason for selection of the Site are brook lamprey, river lamprey, Atlantic salmon, bullhead, otter, and floating water-plantain. Habitats and species present as qualifying features but not primary reason for site selection include oligotrophic to mesotrophic standing waters with vegetation

of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*, and sea lamprey. Other Annex I habitats present within the Site include: mudflats and sandflats not covered by seawater at low tide, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows (*Glauco-Puccinellietalia maritima*), and embryonic shifting dunes.

Figure 2.13 Afon Teifi/ River Teifi SAC Boundary

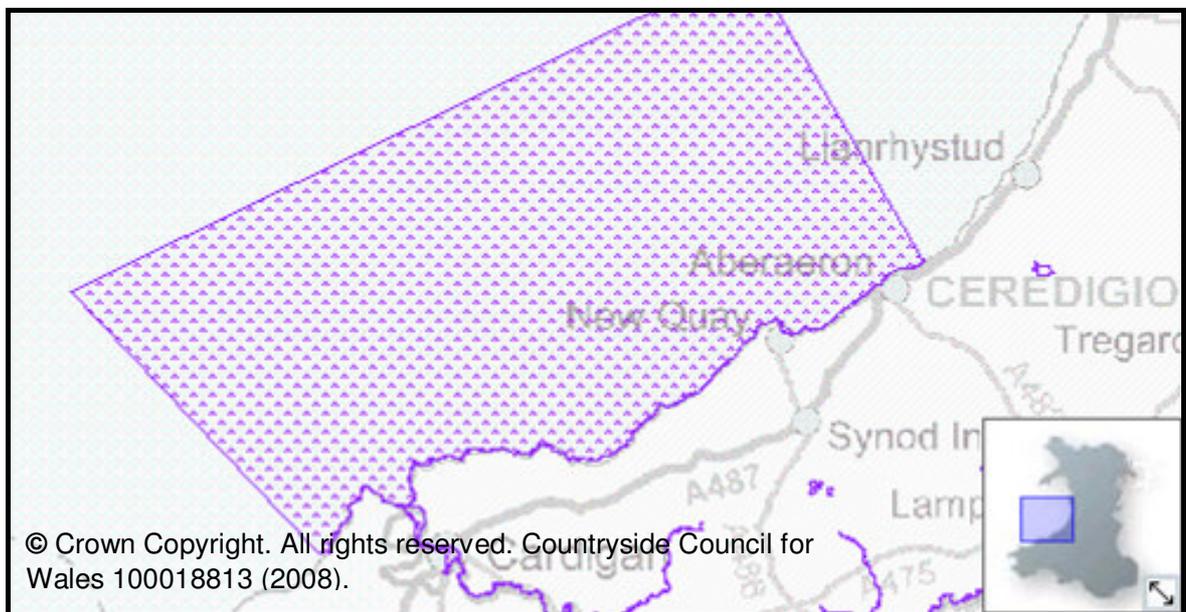


- 2.1.40 The conservation objectives of the Afon Teifi/ River Teifi SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the water courses and standing water; and maintain the populations of brook lamprey, river lamprey, sea lamprey, Atlantic salmon, bullhead, otter, and floating water-plantain. The current site condition assessment for these features is **Unfavourable, Unclassified** (brook/river/sea lamprey, bullhead, Atlantic salmon) and **Favourable** (water courses, floating water-plantain, standing water, and otter).
- 2.1.41 The sensitivity of the habitats and species within the SAC are dependent on water quality, flow rate and appropriate management of riparian habitat. Existing abstractions and discharges are being reviewed by the Environment Agency Wales. Future proposals for abstractions and discharges will require careful scrutiny. Management agreements are being used to secure appropriate management of riparian habitat. In recent decades the number of otters on the site has been increasing. Migratory fish are vulnerable to obstacles to migration (e.g. pollution, in-stream artificial structures), overfishing and damage to habitats outside the site. CCW are working closely with the authorities responsible for fisheries, wildlife, environmental protection, and local planning, to address these issues.

Cardigan Bay/ Bae Ceredigion SAC

- 2.1.42 The Site (see **Figure 2.14**) comprises Annex I habitats that are a primary reason for selection of the Site, including sandbanks which are slightly covered by sea water all the time, reefs, and submerged or partially submerged sea caves. Annex I habitats present but not a qualifying feature include mudflats and sandflats not covered by seawater at low tide. Annex II species present as a primary reason for selection of the Site are bottlenose dolphin (*Tursiops truncatus*). Annex II species present as qualifying feature but not primary reasons for site selection are sea lamprey, river lamprey, and grey seal (*Halichoerus grypus*).

Figure 2.14 Cardigan Bay/ Bae Ceredigion SAC Boundary



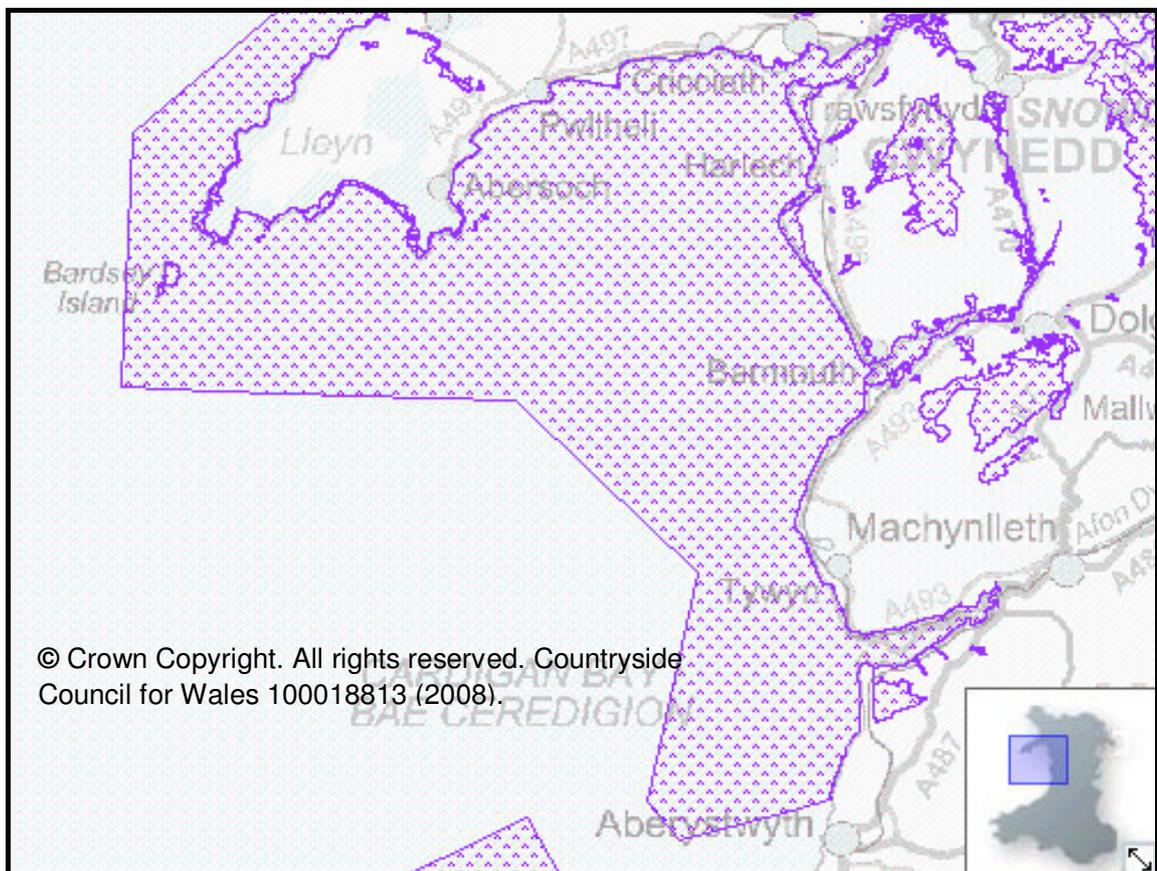
- 2.1.43 The conservation objectives of the Cardigan Bay/ Bae Ceredigion SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of sandbanks which are slightly covered by seawater all the time, reefs and submerged or partially submerged sea caves; and to maintain the populations of bottled nose dolphin, river and sea lamprey and grey seal.

2.1.44 Bottlenose dolphins, porpoise and seals are vulnerable to disturbance from seismic survey for oil and gas, and ecotourism and sea-based recreational activities. Environmental contaminants, particularly mercury and PCBs, are a concern being addressed by studies on potential dolphin and porpoise prey species. There are many small harbour-dredging projects in the Bay. The potential for the disposal of spoil from these projects to affect seabed habitats and marine mammals.

Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC Boundary

2.1.45 The Site (see **Figure 2.15**) comprises Annex I habitats that are a primary reason for selection of the Site, including sandbanks which are slightly covered by sea water all the time, estuaries, coastal lagoons (a priority feature), large shallow inlets and bays, and reefs. Qualifying habitats and species include mudflats and sandflats not covered by seawater at low tide, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows (*Glauco-Puccinellietalia maritima*), submerged or partially submerged sea caves, bottlenose dolphin (*Tursiops truncatus*), otter, and grey seal.

Figure 2.15 Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC Boundary



2.1.46 The conservation objectives of the Pen Llyn a`r Sarnau/ Lleyn Peninsula and the Sarnau SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the sandbanks, estuary and coastal features; and to maintain the populations of the grey seal, bottled nose dolphin, and otter, and the extent and characteristics of their supporting habitats.

2.1.47 The factors or sensitivities influencing the condition of the SAC habitats include: construction, e.g. of slipways, coastal defence and marinas/harbours, could cause disturbance to the estuarine, intertidal mudflat and sandflat, and reef habitats and disrupt physical processes

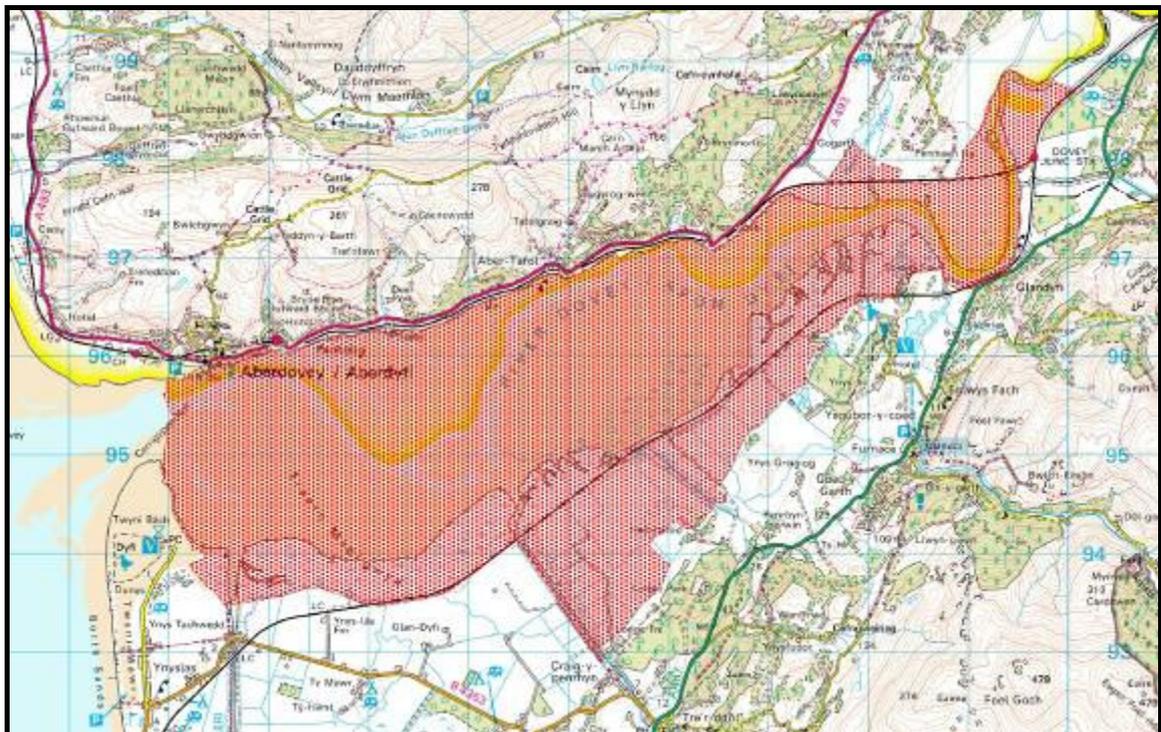
2.1.49 The conservation objectives of the Cors Fochno SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the active raised bogs and degraded raised bogs, which have current condition status for the Site of **Unfavourable, No Change**.

2.1.50 Key factors or sensitivities influencing the condition of the SAC habitats include: past drainage works, agricultural conversion, peat cutting and fire. A significant proportion of the degraded mire is protected from seawater incursion by artificial structures and is therefore vulnerable to flooding. The potential for restoration of brackish transitions requires detailed assessment. Vulnerability of the intact mire has been significantly reduced in recent decades by land acquisition and designation, such that a broad 'buffer zone' of modified mire is now under conservation management. The maintenance of peripheral drains is the main threat to successful rehabilitation. Monitoring of the hydrology and the mire vegetation indicates a positive response to ditch-blocking works commenced in 1981. Further remedial actions are being addressed, as set out in the management plan.

Dyfi Estuary / Aber Dyfi SPA

2.1.51 The Site (see **Figure 2.17**) qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting populations of European species of importance, which for this site in the wintering Greenland white-fronted geese (*Anser albifrons flavirostris*). Key supporting habitats include tidal rivers, estuaries, mud flats, sand flats, lagoons (including saltwork basins), salt marshes, and improved grassland.

Figure 2.17 Dyfi Estuary / Aber Dyfi SPA Boundary



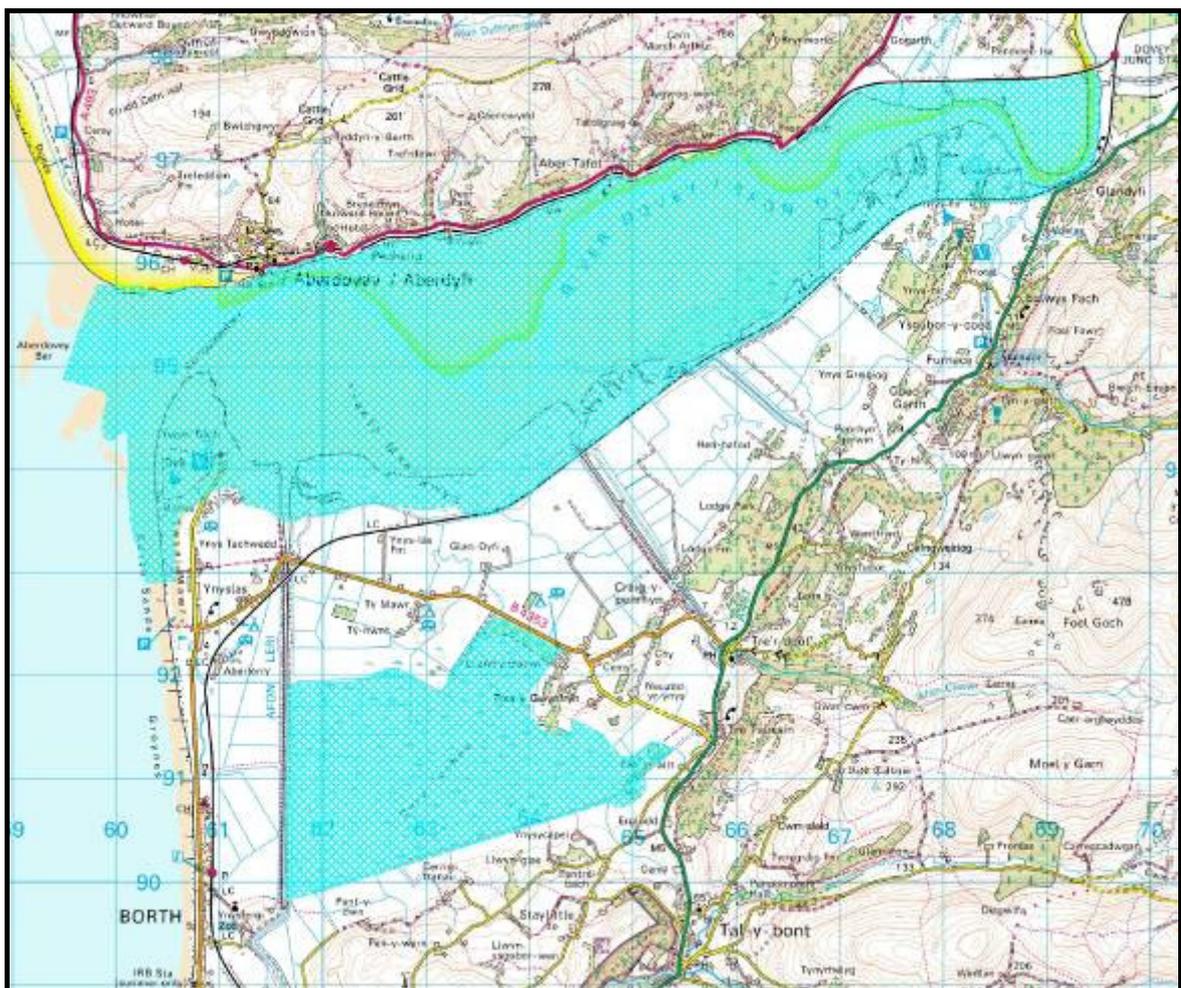
2.1.52 The conservation objectives of the Dyfi Estuary / Aber Dyfi SPA are to maintain in 'favourable condition', taking account of natural change, the populations of white-fronted geese and the extent and characteristics of its supporting habitats. The current Site condition assessment of this feature is declining and the conservation status is **Unfavourable**.

2.1.53 Potential factors or sensitivities influencing the condition of the SPA (and white-fronted geese population) include: disturbance by leisure activities, including wildfowling, and also low-flying aircraft, may be significant to feeding and roosting geese. CCW and the Royal Society for the Protection Birds (RSPB) lease the sporting rights over the majority of the Site. The sporting rights are let to local wildfowling clubs within the National Nature Reserve (NNR) where there is a voluntary ban on shooting the geese. There are also sanctuary areas where no shooting takes place within the eastern half of the estuary. The SPA is warded by CCW and the RSPB, and disturbance from leisure activities is monitored. Appropriate grazing of the saltmarsh and grassland is important to maintain feeding areas. There is an increasing resident flock of Canada geese on the estuary of approximately 2,000 birds. The interaction between this species and the Greenland white-fronted geese and the impact on the habitat is currently unknown.

Cors Fochno and Dyfi Ramsar

2.1.54 The Site (see **Figure 2.18**) is a bar-built estuarine complex, comprising the Dyfi estuary, two calcareous dune systems, and a large raised mire. The Dyfi is one of the best examples in north-west Europe of a small, drying, nutrient poor estuary, which has been relatively unaffected by industrial development. The Site includes Ramsar criterion 1 in that the Site contains the largest expanse of primary raised mire in lowland Britain; the largest estuarine raised mire, and third-largest `active` raised mire in Britain.

Figure 2.18 Cors Fochno (and Dyfi) Ramsar/SAC Boundary



- 2.1.55 The conservation objectives of the Cors Fochno and Dyfi Ramsar are to maintain in 'favourable condition', taking account of natural change, the extent and physical condition of active raised bogs, degraded raised bogs still capable of natural regeneration and depressions on peat substrates of the *Rhynchosporion*. The current Site condition assessment of these features is **Unfavourable, No Change**.
- 2.1.56 Key factors or sensitivities influencing the condition of the Cors Fochno and Dyfi Ramsar Site have in the past been from drainage works, agricultural conversion, peat cutting and fire, which have degraded the quality and extent of the raised mire and transitional brackish mire habitats. Vulnerability of the intact mire has been significantly reduced in recent decades by land acquisition and designation, such that a broad 'buffer zone' of modified mire is now under conservation management. The maintenance of peripheral drains is the main threat to successful rehabilitation, and CCW is addressing this problem through liaison with the Environment Agency, and input to a Water Level Management Plan.

Morfa Harlech a Morfa Dyffryn SAC

- 2.1.57 The Site (see **Figure 2.19**) comprises Annex I habitats that are a primary reason for selection of the site, including embryonic shifting dunes; shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes'), dunes with *Salix repens ssp. argentea* (*Salicion arenariae*), and humid dune slacks. Annex II species present that are a primary reason for site selection is the petalwort. Annex II species also present on the site is great-crested newt (*Triturus cristatus*).

Figure 2.19 Morfa Harlech a Morfa Dyffryn SAC Boundary



- 2.1.58 The conservation objectives of the Morfa Harlech a Morfa Dyffryn SAC are to maintain in 'favourable condition', taking account of natural change the dune community and petalwort.

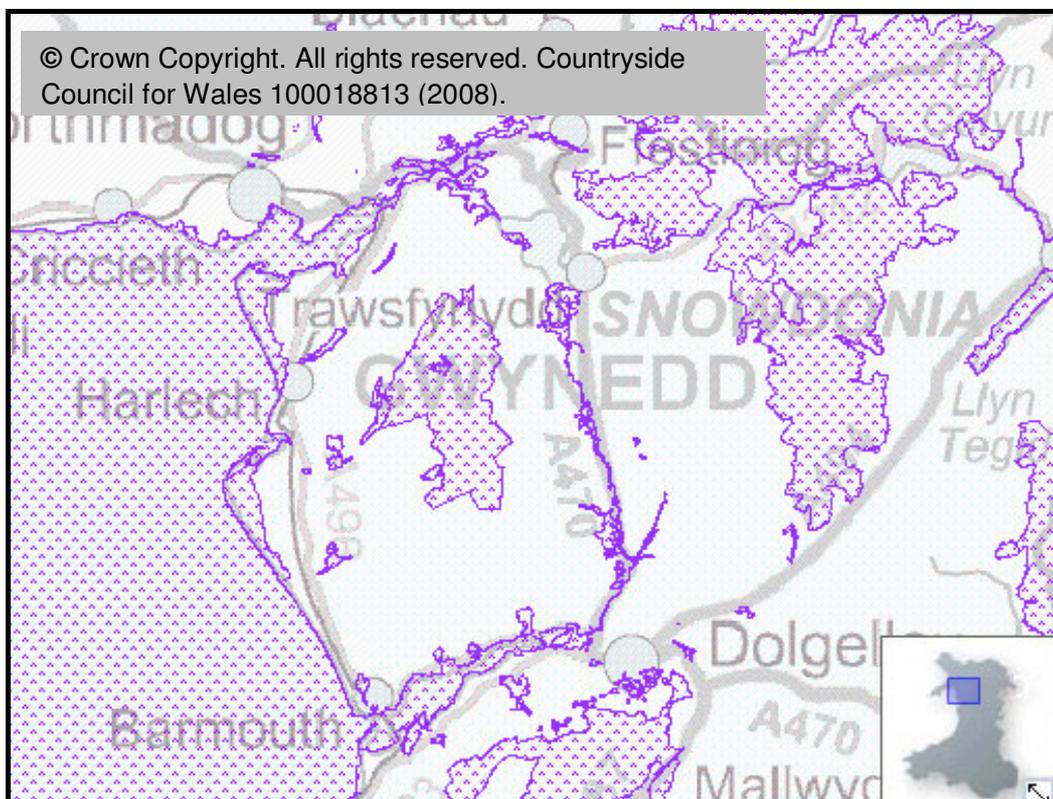
The current site condition assessment for the dune community is **Favourable, Maintained** with the exception of humid dune slacks and dune with *Salix repens ssp* (**Favourable, Unclassified**).

2.1.59 Key factors or sensitivities influencing the condition of the SAC habitats include: heavy recreational pressure, which is having an impact on the beaches adjacent to both dune systems particularly in the summer months. Access points through the dunes are actively managed to minimise anthropogenic dune destabilisation. Morfa Dyffryn is especially vulnerable as it is actively mobile and has a limited external sand supply. Parts of both dunes have been managed as National Nature Reserves since the late 1950s (Morfa Harlech) and early 1960s (Morfa Dyffryn).

Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC

2.1.60 The Site (see **Figure 2.20**) comprises Annex I habitats that are a primary reason for selection of the site, including old sessile oak woods with *Ilex* and *Blechnum* in the British Isles, and alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*), a priority feature. An Annex II species present that is a primary reason for site selection is the lesser horseshoe bat. Annex I habitats present as a qualifying feature but not a primary reason for site selection include water courses of plain to montane levels with *the Ranunculion fluitantis* and *Callitriche- Batrachion* vegetation, Northern Atlantic wet heaths, European dry heaths, *Tilio-Acerion* forests of slopes, screes and ravines (a priority feature), and bog woodland (a priority feature). Other Annex II species also present include Atlantic salmon and otter.

Figure 2.20 Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC Boundary



2.1.61 The conservation objectives of the Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC are to maintain in 'favourable condition', taking

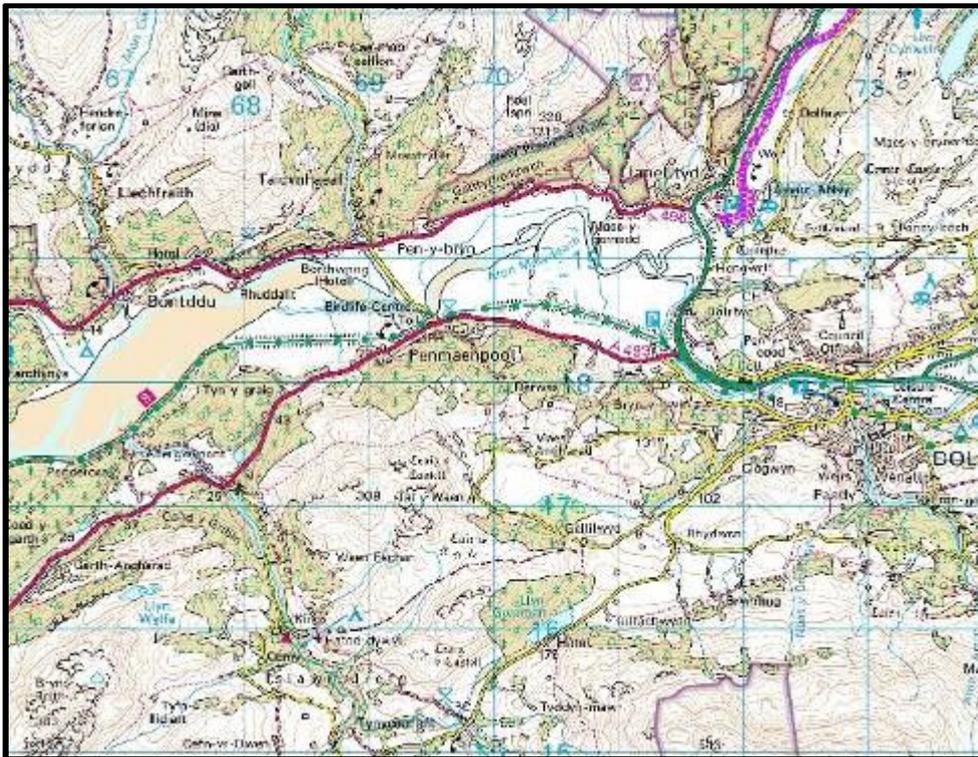
account of natural change, the old sessile oak woods, alluvial forests, water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche- Batrachion* vegetation, *Tilio-Acerion* forests of slopes, screes and ravines, European dry heaths and bog woodland; and maintaining the populations of the lesser horseshoe bat and the extent and characteristics of its supporting habitats.

- 2.1.62 The current site condition assessment is generally **Unfavourable** for the forest, woodland and lesser horseshoe bat features with the exception of *Tilio-Acerion* forests (**Favourable**). The dry heaths are regarded as being in **Unfavourable** condition.
- 2.1.63 Conditions influencing the SAC habitats and species include: management of the key features of these woodlands, i.e. the Atlantic bryophyte and lichen assemblages, requires light grazing of the field layer vegetation, usually by sheep grazing. This must be balanced against the requirements to allow natural regeneration of trees. Within the NNRs, fencing is maintained to allow grazing regimes ranging from total exclusion to relatively heavy periodic grazing. Mosses and liverworts in gorges where recreational activities such as gorge-walking and extreme canoeing take place are threatened by over-use. Feral goats present within some of the sites require careful control to prevent bark-stripping and browsing damage to sapling and seedling trees. Due to the very acid nature of the soils throughout the woodlands, they are vulnerable to acidification. In the past the heathland has been threatened by inappropriate burning/grazing and afforestation. The populations of lesser horseshoe bats are most vulnerable in their summer and winter roosts, though many roosts in mine adits have now been grilled to prevent disturbance to hibernating bats. They are also affected by a reduction in the availability of insect prey due to changes in agricultural practices and pesticide use.

Afon Eden – Cors Goch Trawsfynydd SAC

- 2.1.64 The Site (see **Figure 2.21**) comprises Annex I habitat that is a primary reason for selection of the site is active raised bogs (a priority feature). Annex II species present within the Site which are a primary reason for site selection are freshwater pearl mussel (*Margaritifera margaritifera*) and floating water plantain (*Luronium natans*); and Annex II species present as qualifying features are salmon and otter.
- 2.1.65 The conservation objectives of the Afon Eden SAC are to maintain in ‘favourable condition’, taking account of natural change, the extent and characteristics of the active raised bogs, and maintaining the population of the freshwater pearl mussel, floating water plantain, salmon and otter, and their supporting habitats. The current Site condition assessment for the features and species is **Unfavourable**.
- 2.1.66 Key factors or sensitivities influencing the condition of the SAC habitats and species are not known, however, any alterations to the hydrological functions and water quality could affect the quality of the Sites features.

Figure 2.21 Afon Eden – Cors Goch Trawsfynydd SAC Boundary



Corsydd Llyn/ Lleyn Fens SAC

2.1.67 The Site (see **Figure 2.22**) comprises Annex I habitat that is a primary reason for selection of the site is alkaline fens. An Annex II species present that is a primary reason for site selection is Desmoulin’s whorl snail (*Vertigo moulinsiana*); whilst Annex II qualifying species present but not primary reason for site selection is Geyer’s whole snail (*Vertigo geyeri*).

Figure 2.22 Corsydd Llyn/ Lleyn Fens SAC Boundary



- 2.1.68 The conservation objectives of the Corsydd Llyn/ Llyn Fens SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the fen habitats, and maintaining the population of the Desmoulin's whorl-snail, geyer's whole snail (*Vertigo geyeri*) and their supporting habitats. The current Site condition assessment for the features and species is **Unfavourable**.
- 2.1.69 Key factors or sensitivities influencing the condition of the SAC habitats and species include, pressure from agricultural pressures (e.g. ditch maintenance, fertiliser application, neglect). Also the water quality of the site is vulnerable to deterioration due to agricultural activities (e.g. slurry). Scrub encroachment is an ongoing management problem. CCW owns and manages part of the site (Cors Geirch NNR) and can therefore control these activities, subject to resource availability. There are also management agreements in place over other parts of the Site which address the agricultural and water quality issues. However, about one-third of the site has no kind of agreement or protective ownership.
- 2.1.70 Part of the site also lies within the Anglesey and Llyn Fens Ramsar site, as shown on **Figure 2.23**.

Figure 2.23 Anglesey and Llyn Fens Ramsar Site Boundary (on Llyn Peninsula)



Clogwyni Pen Llyn/ Seacliffs of Llyn SAC

- 2.1.71 The Site (see **Figure 2.24**) comprises Annex I habitat that are a primary reason for selection of the site, namely vegetated sea cliffs of the Atlantic and Baltic coasts.

Figure 2.24 Clogwyni Pen Llyn/ Seacliffs of Llyn SAC Boundary



- 2.1.72 The conservation objectives of the Clogwyni Pen Llyn/ Seacliffs of Llyn SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the vegetated sea cliffs. The current Site condition assessment for the vegetated sea cliffs is **Unfavourable, Recovering**.
- 2.1.73 Key factors or sensitivities influencing the condition of the SAC include minor threats due to occasional waste disposal from adjacent domestic properties.

Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA

- 2.1.74 The Site (see **Figure 2.25**) qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting populations of European species of importance, which for this site is breeding and wintering chough. Key supporting habitats include dry coastal heath and grassland, wet heath, scrub, maquis and garrigue, phygrana, shingle, sea cliffs and islets. Plant assemblages and the mason bee are also important species features of the site.

Figure 2.25 Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA Boundary



- 2.1.75 The conservation objectives of the Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA are to maintain in 'favourable condition', taking account of natural change, the chough population and the extent and characteristics of its supporting habitats. The current site condition assessment of the chough population is **Favourable, Maintained**.
- 2.1.76 The condition or sensitivity of the chough population at this Site is dependent on the proximity of several sea cliff nesting sites to maritime heath, grassland and farmland feeding sites. The integrity of such feeding sites and their diverse invertebrate and plant assemblages depend on medium grazing pressures twinned with low intensity traditional farming methods that do not involve the use of agrochemicals. The cliff nesting sites are vulnerable to disturbance from climbers, a problem which seems to have been successfully overcome by means of a voluntary climbing ban between February and July, mediated by British Mountaineering Council.

Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island SPA

- 2.1.77 The Site (see **Figure 2.26**) qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting populations of European species of importance, which for this site is breeding and wintering chough. The site also supports breeding Manx shearwater (*Puffinus puffinus*) which qualifies under Article 4.2 of the Birds Directive. Key habitats include heath scrub, maquis and garrigue, phygrana, shingle, sea cliffs, islets, dry grassland, and steppes.

Figure 2.26 Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island SPA Boundary



- 2.1.78 The conservation objectives of the Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island SPA are to maintain in 'favourable condition', taking account of natural change, the populations of chough and Manx shearwater and the extent and characteristics of their supporting habitats, particularly coastal heath. The current Site condition assessment for both the chough and Manx shearwater populations is **Favourable, Maintained**, and **Unfavourable, Recovering** for coastal heath.
- 2.1.79 Key factors or sensitivities influencing the condition of the SPA (and chough and Manx shearwater populations) include: heavy levels of sheep grazing causing physical damage of burrows of Manx shearwater; management plans to reduce livestock numbers are being considered, invasion of bracken into coastal grassland is reducing feeding areas; methods to

control bracken invasion are being considered. Parts of the area experience heavy recreational pressure from walkers and their dogs which disturb feeding chough, although this is not thought to be significant at present.

Glynllifon SAC

- 2.1.80 The Site (see **Figure 2.27**) supports an Annex II species of the Habitats Directive that is a primary reason for selection of the site, namely lesser horseshoe bat (*Rhinolophus hipposide*).

Figure 2.27 Glynllifon SAC Boundary

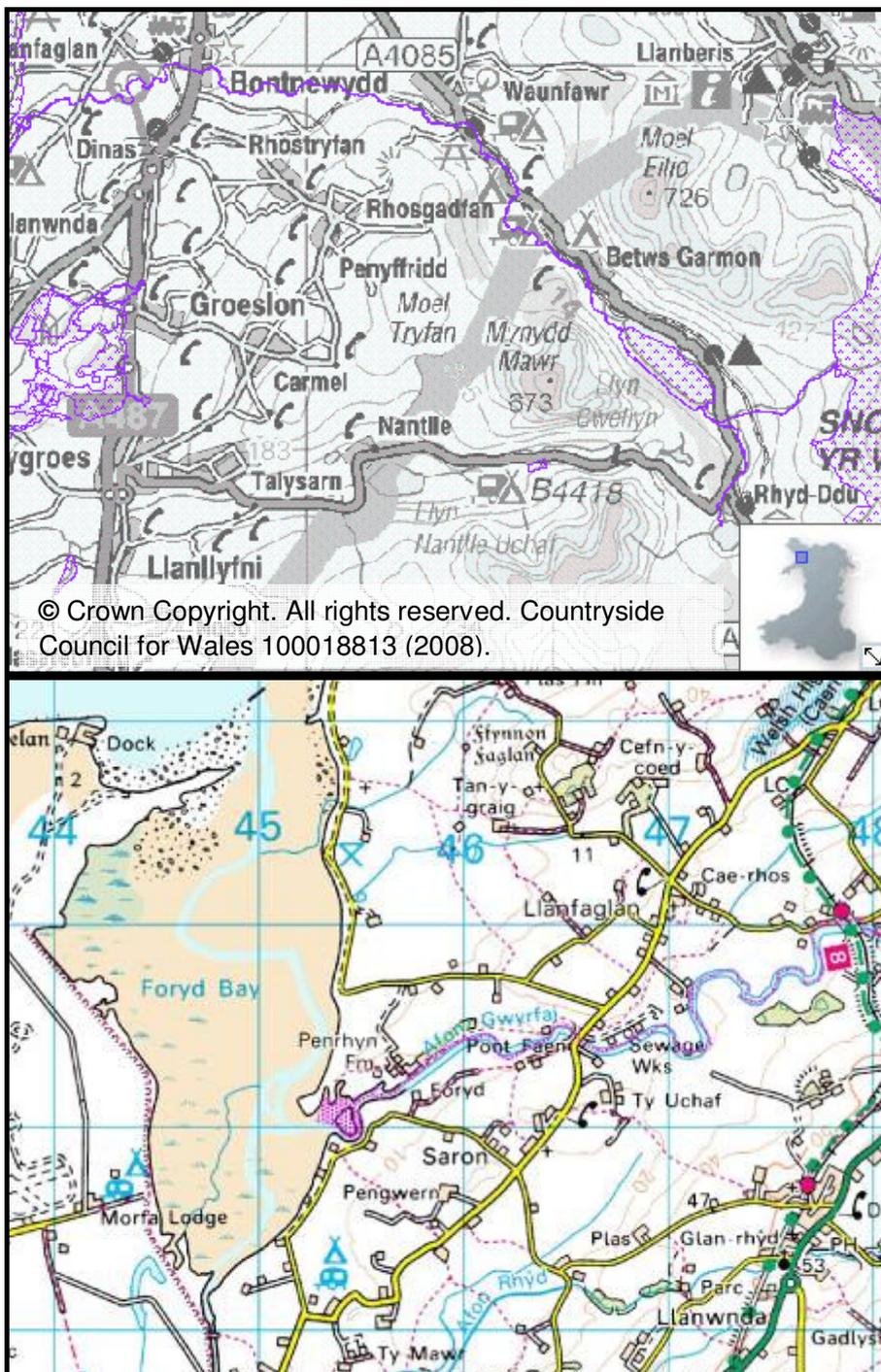


- 2.1.81 The conservation objectives of the Glynllifon SAC are to maintain in ‘favourable condition’, taking account of natural change, the population of the lesser horseshoe bat to the extent and characteristics of its supporting habitats. There are three maternity roosts and two hibernation roosts within the SAC and all roosts need to be in favourable condition for the SAC as a whole to be considered **Favourable**. The features within this Site are currently considered to be **Unfavourable**.
- 2.1.82 The Site includes the roost and adjacent feeding areas utilised by the bats. The building in which the roost is located is currently on sale, and the management of the estate grounds, including the woodlands, is being revised. A recent road improvement scheme, which has interfered with a key flightpath out of the estate and which has failed to incorporate adequate mitigation for the bats, also illustrates the pressure on this Site. A management agreement exists with the current owners of the roost building but this does not extend to the feeding areas, currently excluded from the SSSI and SAC. There is some scope for improving management of the site as a whole for the bats, through management agreement, agri-environment schemes, and other partnership initiatives.

Afon Gwyrfai a Llyn Cwellyn SAC

2.1.83 The Site (see **Figure 2.28**) comprises Annex I habitats that are a primary reason for selection of the site, including oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*; and water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation. Annex II species present that are a primary reason for selection of the Site are Atlantic salmon and floating water-plantain. Species present as qualifying but not primary reason for site selection is otter, and other Annex II species also present in the site are brook lamprey and river lamprey.

Figure 2.28 Afon Gwyrfai a Llyn Cwellyn SAC Boundary



- 2.1.84 The conservation objectives of the Afon Gwyrfai a Llyn Cwellyn SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of water courses and standing waters; and the populations of Atlantic salmon and floating water-plantain and otter. The current Site condition assessment for these features is **Unfavourable, Recovering** (standing waters), **Unfavourable, Unclassified** (Salmon, otter), **Favourable** (water courses, floating water-plantain).
- 2.1.85 The habitats and species within the SAC are vulnerable to increases in emissions of oxides of sulphur and nitrogen and subsequent acidic depositions in the form of 'acid rain'. The management of the extensive block of coniferous plantation on the shores of Llyn Cwellyn is an important factor in safeguarding the conservation value of the lake. A management plan has been agreed upon between the CCW and Forest Enterprise. Negotiations are in progress to re-design the plantation to remove trees from around tributary streams, and hence reduce any further risk of acidification. The Afon Gwyrfai is likely to be most vulnerable to cumulative impacts of small-scale changes along its length, which may affect water quality and habitat structure.

Y Twyni o Abermenai i Aberffraw/ Abermenai to Aberffraw Dunes SAC

- 2.1.86 The Site (**Figure 2.29**) comprises Annex I habitats that are a primary reason for selection of the site, including embryonic shifting dunes, shifting dunes along the shoreline with *Ammophila arenaria* ('white dunes'), fixed dunes with herbaceous vegetation ('grey dunes') (a priority feature), Atlantic decalcified fixed dunes, dunes with *Salix repens ssp. argentea* (*Salicion arenariae*), and humid dune slacks. Annex II species present that are primary reason for the selection of the Site are petalwort and shore dock. Annex I habitats that are qualifying features but not primary reasons for site selection include the natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* type vegetation, and transition mires and quaking bogs.
- 2.1.87 The conservation objectives of the Twyni o Abermenai i Aberffraw/ Abermenai to Aberffraw Dunes SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the dune communities and the natural eutrophic lakes with *Magnopotamion* or *Hydrocharition* type vegetation, and maintaining the populations of petalwort and shore dock by maintaining the extent and characteristics of their supporting habitats. The current site condition assessment for the dune community is **Unfavourable; Unfavourable Declining** for the petalwort and shore dock; and **Unfavourable, Maintained** for the natural eutrophic lakes.
- 2.1.88 Key factors or sensitivities influencing the condition of the SAC habitats and species include dune stabilisation which is leading to the gradual loss of early successional phases. The maintenance of dynamic geomorphological processes is constrained at Newborough by the conifer forest that occupies the same part of the site. The hydrological integrity of the site is also compromised by water-table reduction due to the conifer crop. The spread of *Hippophae rhamnoides* and pine seedlings from the forest threaten the dunes, and both are controlled by cutting and spraying. There is no ready solution to these problems without removal of part of the forest. Redesign of the forest is now under discussion with the Forestry Commission. Abandonment of traditional grazing on Aberffraw common land could occur due to traffic hazards on unfenced roads, and the installation of cattle grids is under discussion with the owners.

Figure 2.29 Y Twyni o Abermenai i Aberffraw/ Abermenai to Aberffraw Dunes SAC Boundary



Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC

- 2.1.89 The Site (see **Figure 2.30**) comprises Annex I habitats that are a primary reason for selection of the site, namely *Salicornia* and other annuals colonising mud and sand, and Atlantic salt meadows (*Glauco-Puccinellietalia maritima*). Estuaries and mudflats and sandflats not covered by seawater at low tide are qualifying habitats, whilst other Annex I habitats present include vegetated sea cliffs and *Spartina* swards.
- 2.1.90 The conservation objectives of the Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the *Salicornia* and other annuals colonising mud and sand, and the Atlantic salt meadows. The current Site condition assessment for these features is **Favourable** (*Salicornia*) and **Unfavourable** (salt meadows).

Figure 2.30 Glannau Môn: Cors heli / Anglesey Coast SAC Boundary

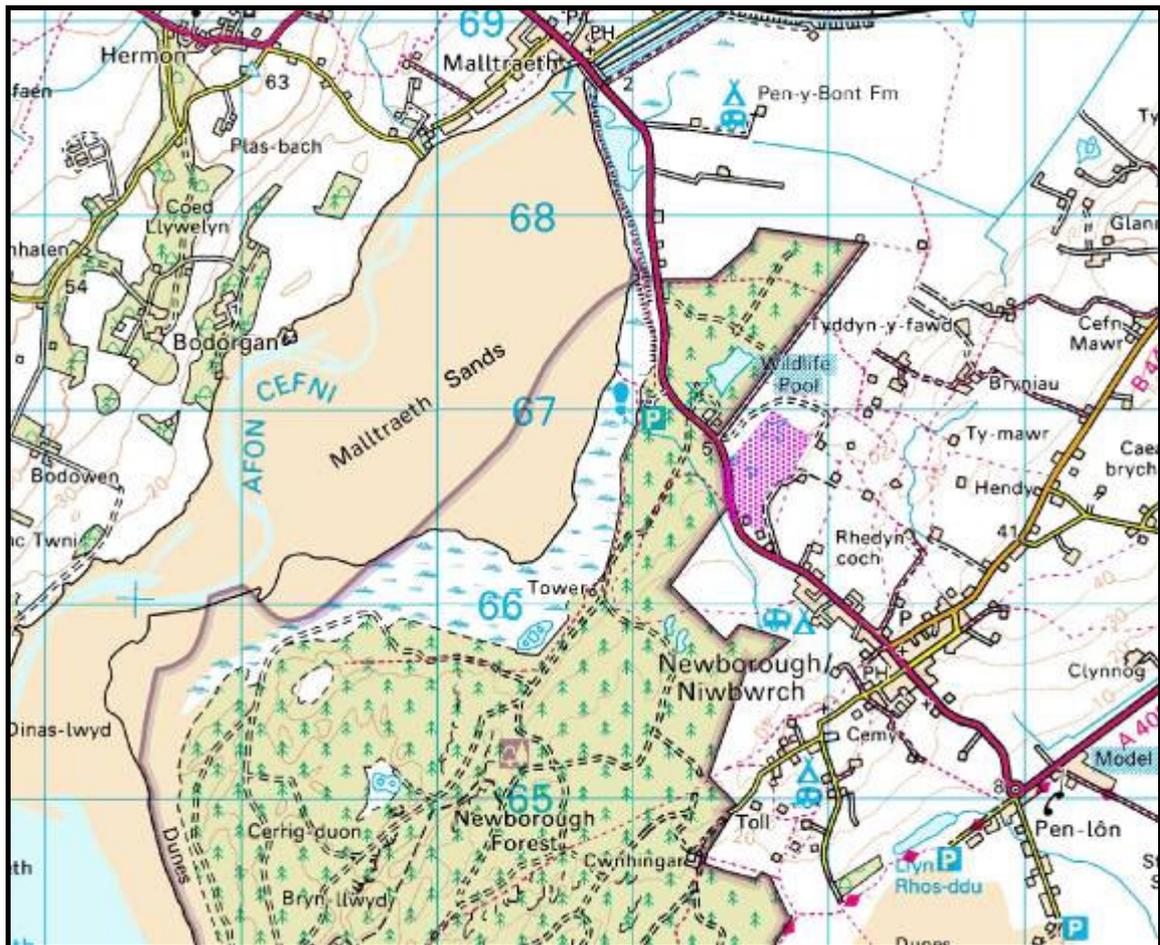


- 2.1.91 Key factors or sensitivities influencing the condition of the SAC habitats include: drastic modification to the Cefni estuary in the early 19th century, which continues to cause rapid accretion of sediment, permitting invasion by *Spartina anglica* on the seaward edges of the saltmarsh. This is reduced by herbicide treatment but successional development of saltmarsh over much of the present mudflat area is inevitable. Some development of *Spartina anglica* on the Braint estuary is also likely.

Glan-traeth SAC

- 2.1.92 The Site (see **Figure 2.31**) supports primary species under Annex II of the Habitats Directive that are the primary reason for selection of the Site, specifically great-crested newt. In addition, the site comprises Annex I habitat, fixed dunes with herbaceous vegetation ('grey dunes' which are a priority feature.
- 2.1.93 The conservation objectives of the Glan-traeth SAC are to maintain in 'favourable condition', taking account of natural change, the great-crested newt population and the extent and characteristics of the supporting habitat. The current condition status for the Site is **Unfavourable, Declining**.
- 2.1.94 Potential factors or sensitivities influencing the condition of the SAC habitats include: the lowering of the water-table as extensive forestry plantations in Newborough Forest mature could affect the permanence of shallow pools, which are important as newt breeding sites. Pond management or creation onsite would be considered if breeding habitat and the newt population is affected. The next known great-crested newt population is 2km south-west.

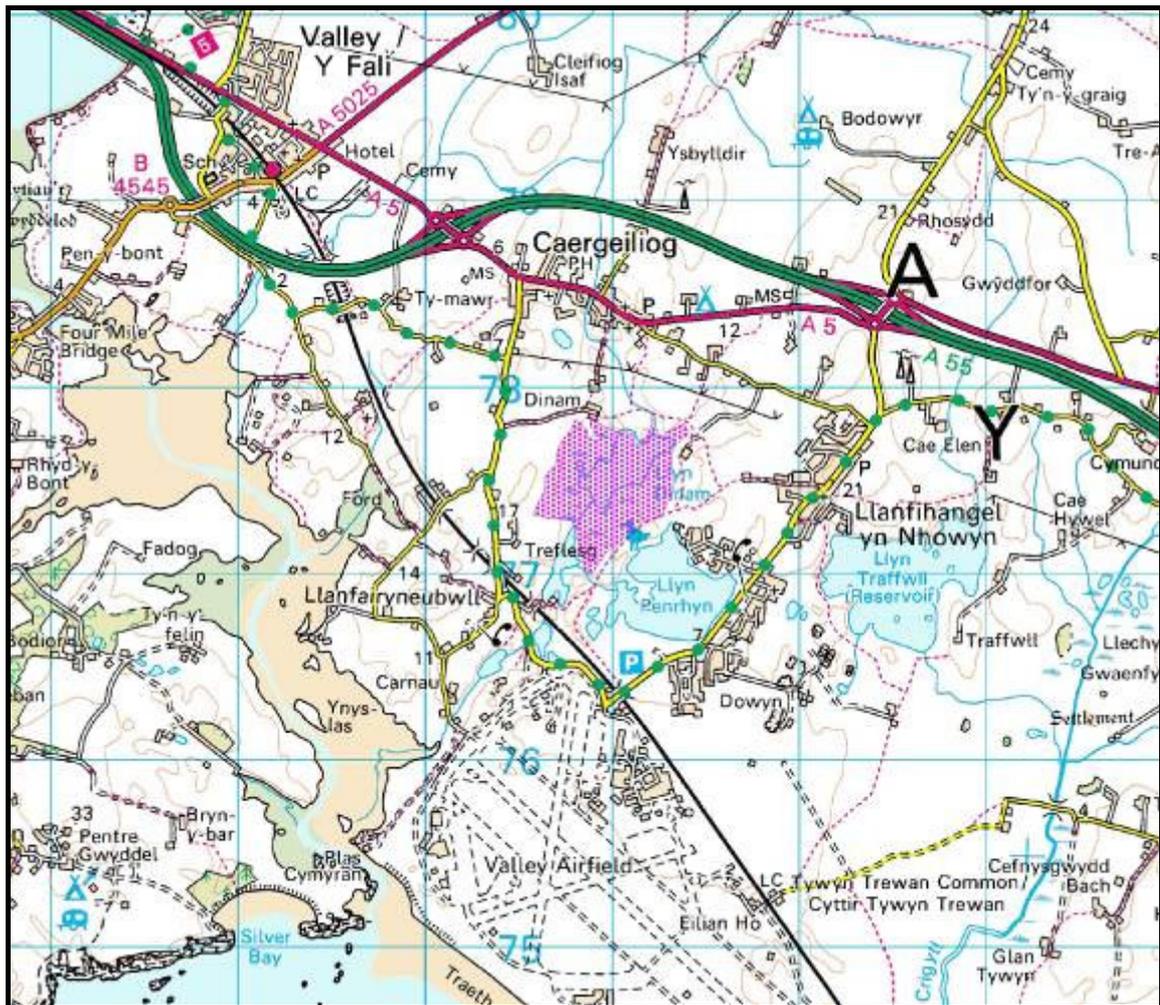
Figure 2.31 Glan-traeth SAC Boundary



Llyn Dinam SAC

- 2.1.95 The Site (**Figure 2.32**) comprises Annex I habitats that are a primary reason for selection of the site, specifically natural eutrophic lakes with *Magnopotamion* or *Hydrocharition*-type vegetation.
- 2.1.96 The conservation objectives of the Llyn Dinam SAC are to maintain in ‘favourable condition’, taking account of natural change, the extent and characteristics of the natural eutrophic lakes. Llyn Dinam is **Unfavourable** largely because broadleaved *Potamogeton* species are absent and because the Mean Annual Total Phosphorous level exceeds the limit for this type of lake at 58 µg/l based on data from 2003 –2005.
- 2.1.97 The Site is 75% controlled by the RSPB and a further part falls under an ESA scheme. Ownership of 25% of the lake is not known. Key sensitivities include minor threats from occasional waste disposal from adjacent domestic properties.

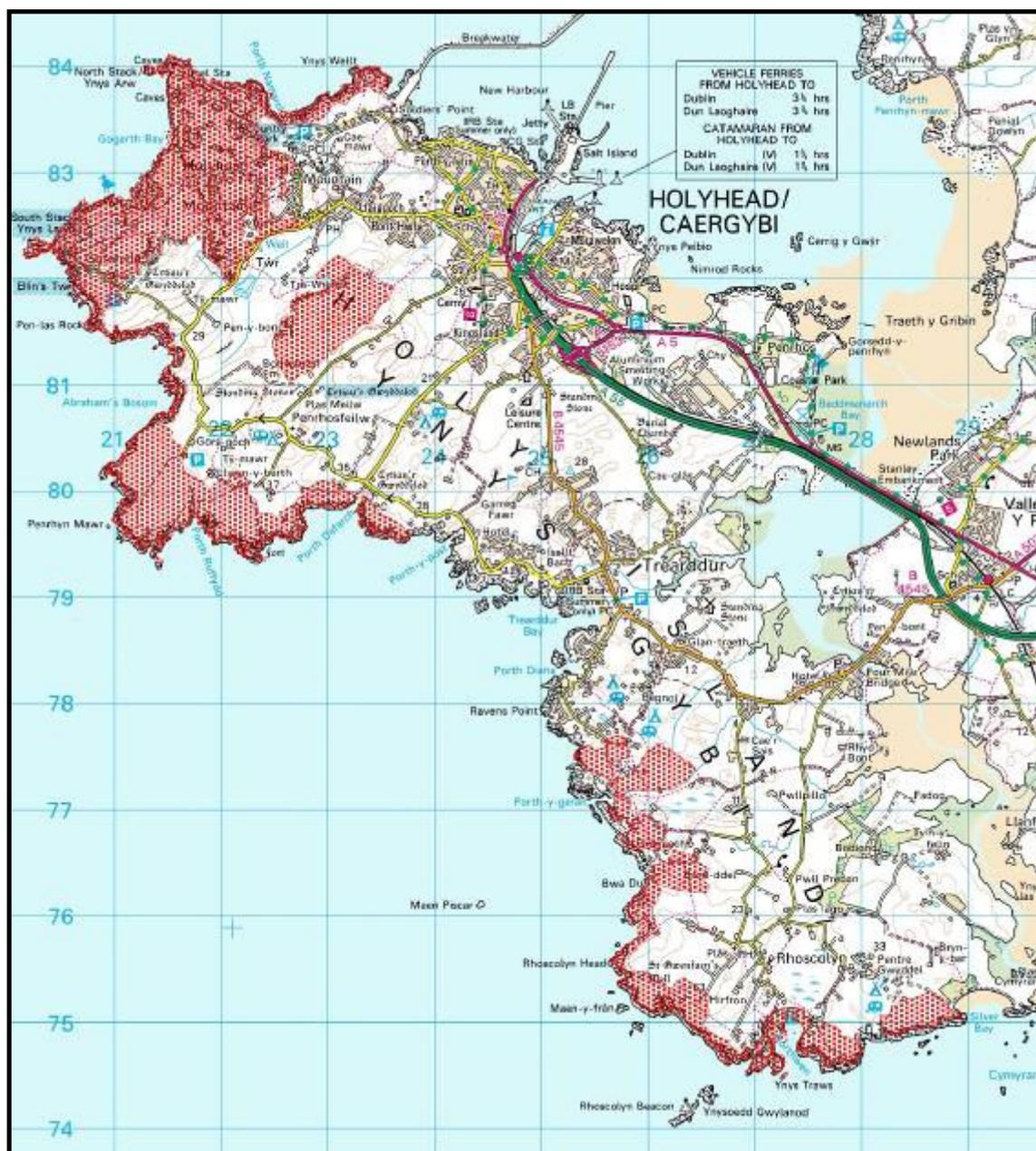
Figure 2.32 Llyn Dinam SAC Boundary



Glannau Ynys Gybi/ Holy Island Coast SPA/SAC

- 2.1.98 The Site (see **Figure 2.33**) qualifies under Article 4.1 of the Birds Directive by supporting populations of European species of importance, which for this site is breeding and wintering chough and comprises Annex I habitats of the Habitats Directive that are a primary reason for selection of the Site, namely vegetated sea cliffs of the Atlantic and Baltic coasts, and European dry heaths. Qualifying habitats present but not a primary reason for selection of this site are Northern Atlantic wet heaths with *Erica tetralix*, whilst other Annex I habitats present include reefs, and submerged or partially submerged sea caves. In addition, the Site also supports Annex II species, namely gray seal.
- 2.1.99 The conservation objectives of the Glannau Ynys Gybi/ Holy Island Coast SPA are to maintain in 'favourable condition', taking account of natural change, the chough population and the extent and characteristics of its supporting habitats. The SAC features for which favourable condition status is to be achieved includes vegetated sea cliffs of the Atlantic and Baltic coasts, European dry heaths and Northern Atlantic wet heaths. The current condition assessment for the majority of these features within the Site is **Unfavourable**.

Figure 2.33 Glannau Ynys Gybi/ Holy Island Coast SPA Boundary



2.1.100 Key factors or sensitivities influencing the condition of the SPA include: pressure for recreational development which remains a threat and visitor pressure, which requires constant management to counter soil erosion and the disturbance of wildlife. There is a mineral extraction permit on land held by the Local Authority which is not currently exercised, and pressure for further telecommunications development. The spread of exotic plants (e.g. *Disphyma crassifolium*) from nearby colonies may cause future problems with cliff communities, and this is being carefully monitored. Vegetation succession on areas remote from the cliff top requires regular intervention by grazing, cutting or burning to mimic traditional management. Much of the area is managed by RSPB in accordance with a management plan or by private landowners under CCW management agreement or ESA agreements.

Ynys Feurig, Cemlyn Bay and The Skerries SPA

- 2.1.101 The Site (see **Figure 2.34**) qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting populations of European species of importance, including breeding populations of roseate tern (*Sterna dougallii*), common tern (*Sterna hirundo*), arctic tern (*Sterna paradisaea*), and sandwich tern (*Sterna sandvicensis*). Key supporting habitats include tidal rivers, estuaries, mud flats, sand flats, lagoons (including saltwork basins), shingle, sea cliffs, and islets.

Figure 2.34 Ynys Feurig, Cemlyn Bay and The Skerries SPA Boundary

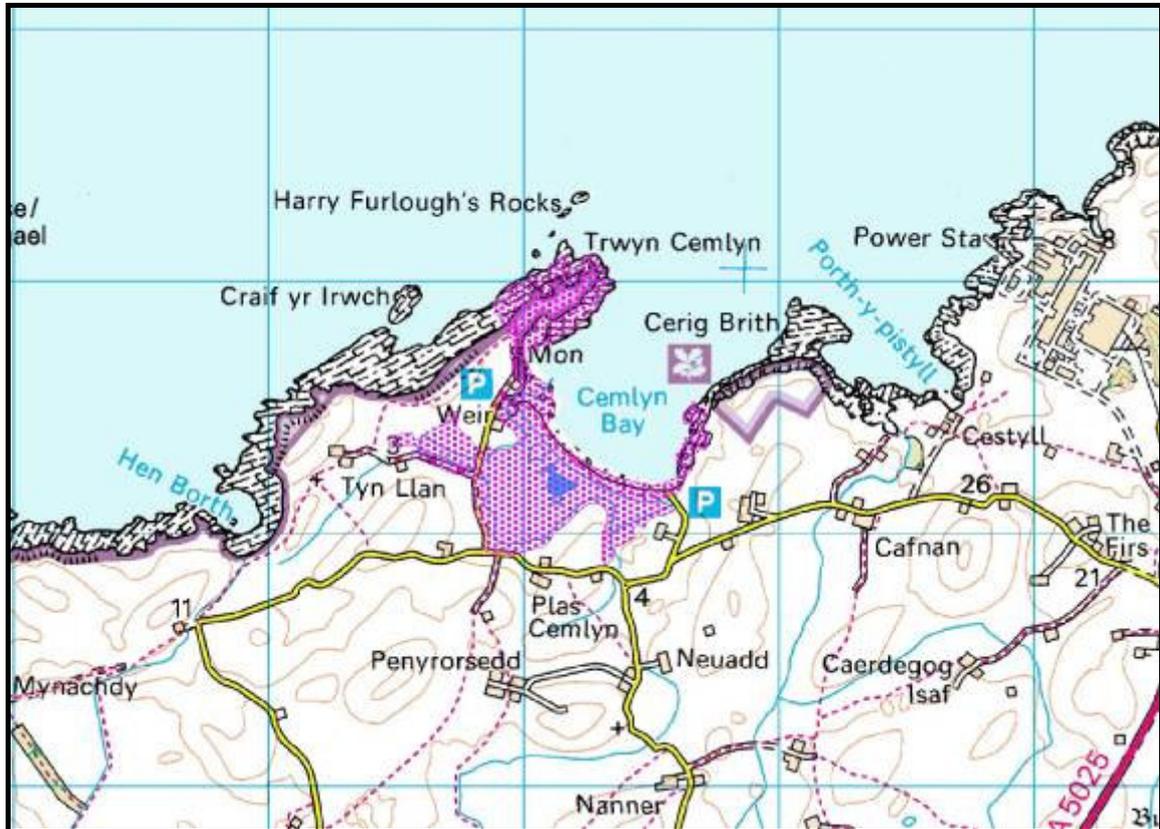


- 2.1.102 The conservation objectives of the Ynys Feurig, Cemlyn Bay and The Skerries SPA are to maintain in 'favourable condition', taking account of natural change, the common tern, arctic tern, sandwich tern, and roseate tern populations, through maintaining the extent and characteristics of the supporting habitats. The common tern, arctic tern, and sandwich tern populations have a condition status of **Favourable, Maintained**. The roseate tern population for the Site has a condition status of **Unfavourable, Unchanged**.
- 2.1.103 Potential factors or site sensitivities influencing the condition of the SPA (and roseate tern, common tern, arctic tern and sandwich tern populations) include: pressures beyond the control of the site managers, including wide-ranging factors affecting food supply, winter survival etc. Recreational pressure at Cemlyn arises from the promotion of the coastal footpath which passes close to the colonies and requires 24 hour wardening to guide the public below the skyline. Other colonies suffer occasional disturbance from inadvertent public access, requiring constant wardening. Ground predators (stoat and fox) require regular control at Cemlyn Bay and Ynys Feurig. Peregrine falcons and rogue gulls have caused mortality and desertion of colonies on some occasions. Theft of eggs by collectors continues to be a threat.

Bae Cemlyn/ Cemlyn Bay SAC

- 2.1.104 The Site (see **Figure 2.35**) comprises Annex I habitat that is a primary reason for selection of the Site, namely coastal lagoons (a priority feature). Perennial vegetation old stony banks are also present within the Site as a qualifying feature.

Figure 2.35 Bae Cemlyn/ Cemlyn Bay SAC Boundary

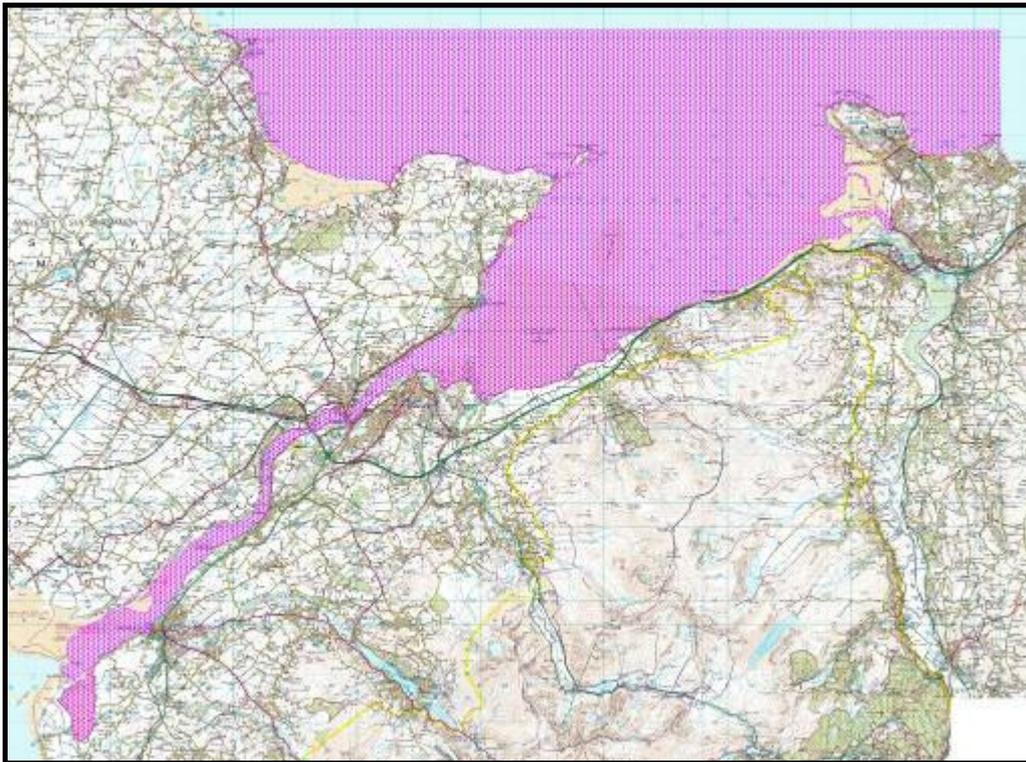


- 2.1.105 The conservation objectives of the Bae Cemlyn/ Cemlyn Bay SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the coastal lagoon habitat, which has a current condition status for the site of **Favourable, Maintained**.
- 2.1.106 The site is owned by the National Trust and managed by North Wales Wildlife Trust for its breeding tern colony. Lagoon conditions are controlled by a sluice which determines salinity levels. Public access to the shingle ridge is controlled during the breeding season.

Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC

- 2.1.107 The Site (see **Figure 2.38**) comprises Annex I habitats that are a primary reason for selection of the site, include sandbanks which are slightly covered by sea water all the time; mudflats and sandflats not covered by seawater at low tide; and reefs. Qualifying habitats present but not primary reason for selection of this site are large shallow inlets and bays, submerged or partially submerged sea caves.

Figure 2.36 Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC Boundary

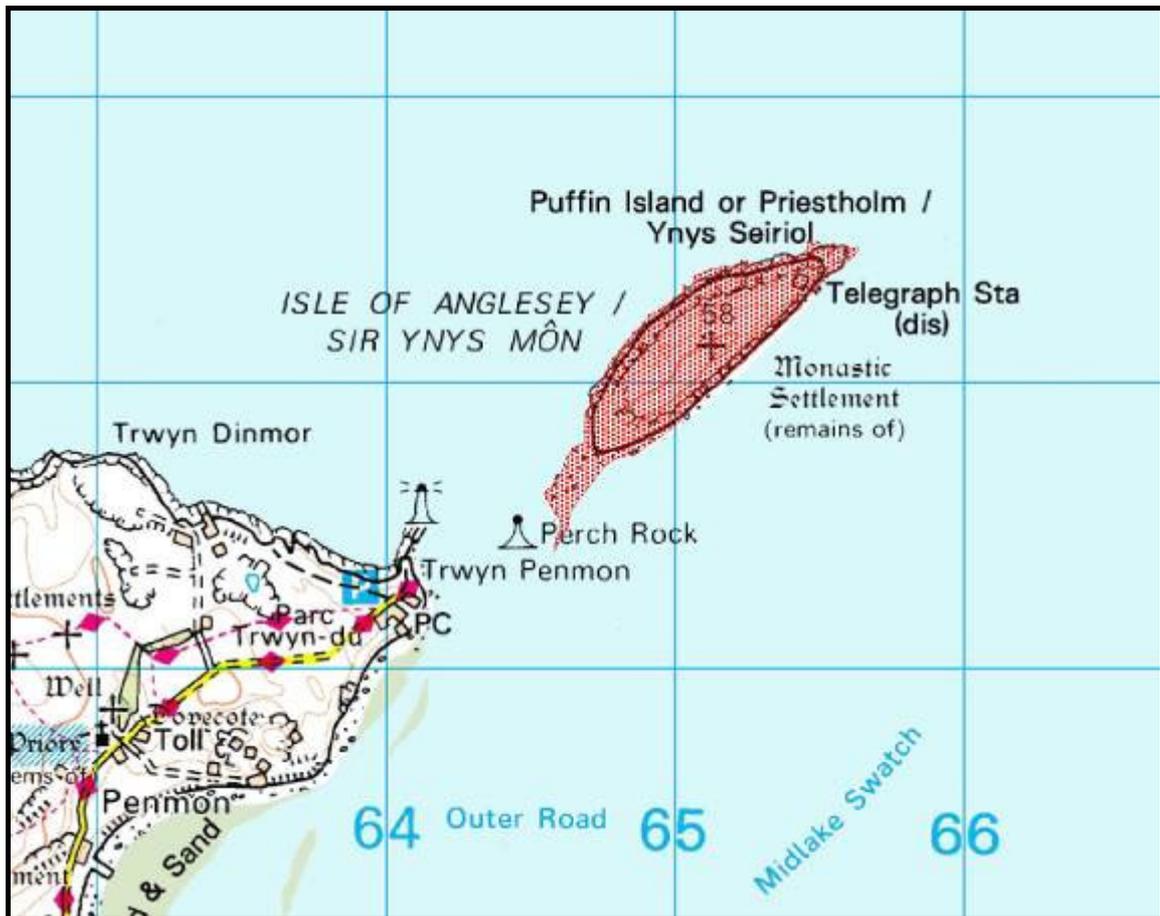


- 2.1.108 The conservation objectives of the Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of mudflats and sandflats not covered by seawater at low tide, reefs, sandbanks which are slightly covered by seawater all the time, large shallow inlets and bays, submerged or partially submerged sea caves.
- 2.1.109 The potential factors or sensitivities influencing the condition of the SAC site include: construction, e.g. of slipways, coastal defence and marinas/harbours could cause disturbance to the European habitats and disrupt physical processes essential for the maintenance of these habitats. Although the level of commercial fishing (excluding shellfish) is relatively low, trawling occurs in some areas. The potential impacts of heavy bottom-fishing gear on the subtidal sandbank and shallow inlet and bay habitats need to be assessed. There are many boat moorings present in the Menai Strait and a demand for additional facilities (moorings and marina developments) to accommodate more craft. Disposal of dredged material may be contributing to increasing turbidity, which affects the distribution and composition of subtidal algal communities. Many of the marine wildlife communities in the cSAC are sensitive to oil pollution, and the development of oil wells and frequent boat traffic in Liverpool Bay present potential pollution sources. CCW is a member of the North Wales Standing Environment Group, which is preparing a regional contingency plan to help coordinate response to try and minimise environmental impacts in the event of a pollution incident.

Ynys Seiriol / Puffin Island SPA

- 2.1.110 The Site (see **Figure 2.36**) qualifies under Article 4.2 of the Birds Directive (79/409/EEC) by supporting populations of European species of importance, which for this site breeding cormorant (*Phalacrocorax carbo*). Key supporting habitats include under-boulders, soft piddock bored substrata, *fucus serratus* and piddocks on lower littoral soft rock and laminaria digitata, and piddocks on sublittoral fringe soft rock.

Figure 2.37 Ynys Seiriol / Puffin Island SPA Boundary

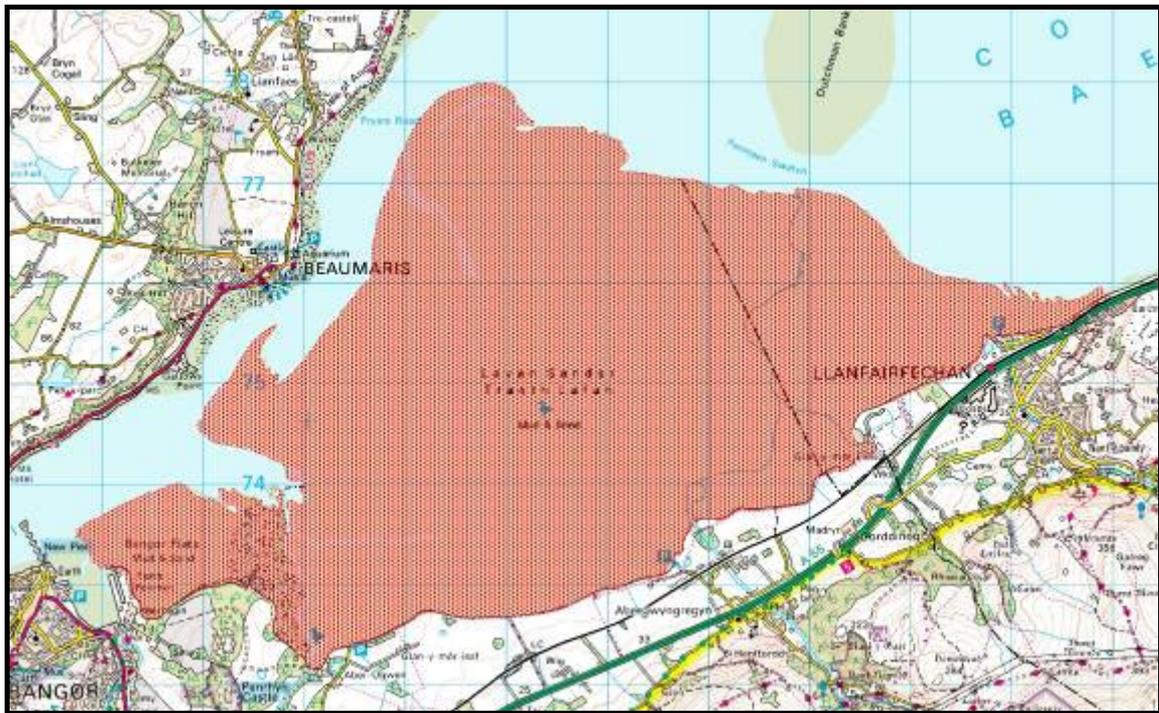


- 2.1.111 The conservation objectives of the Ynys Seiriol / Puffin Island SPA are to maintain in 'favourable condition', taking account of natural change, the cormorant population and the extent and characteristics of its supporting habitats. The cormorant population is believed to be in **Favourable** condition, based on current monitoring records for the Site in relation to the overall European population.
- 2.1.112 Potential factors or sensitivities influencing the condition of the SPA (and cormorant population) include tourists and passing vessels, which may cause disruption to the breeding / nesting requirements of the cormorant.

Traeth Lafan / Lavan Sands, Conway Bay SPA

- 2.1.113 The Site (see **Figure 2.37**) qualifies under Article 4.2 of the Birds Directive (79/409/EEC) by supporting populations of European species of importance, including wintering populations of oystercatcher (*Haematopus ostralegus*), curlew (*Numenius arquata*) and great crested grebe (*Podiceps cristatus*). Key supporting habitats include tidal rivers, estuaries, mud flats, sand flats and lagoons (including saltwork basins), and salt marshes.

Figure 2.38 Traeth Lafan / Lavan Sands, Conway Bay SPA Boundary

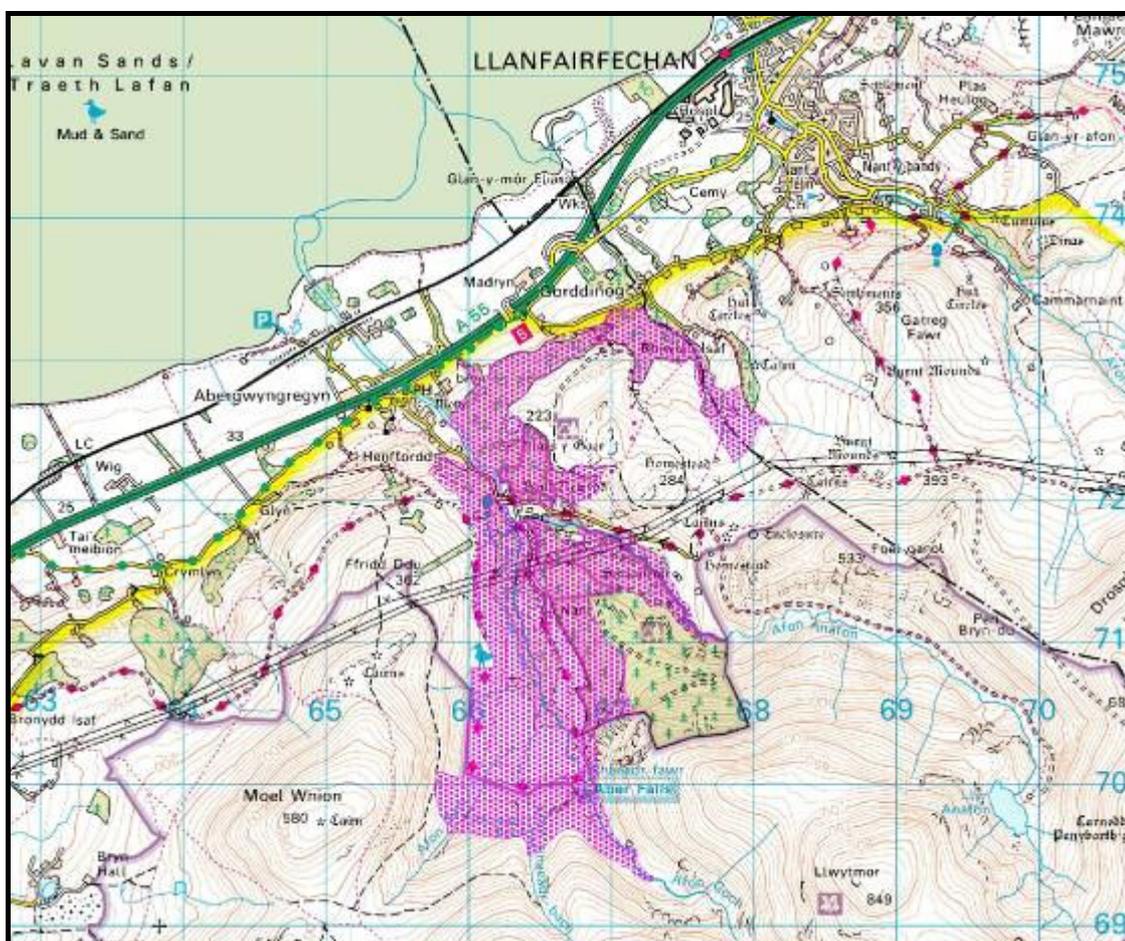


- 2.1.114 The conservation objectives of the Traeth Lafan / Lavan Sands, Conway Bay SPA are to maintain in 'favourable condition', taking account of natural change, the oystercatcher, curlew, and great-crested grebe populations, through maintaining the extent and characteristics of the supporting habitats. The current site condition assessment of the oystercatcher is **Favourable**.
- 2.1.115 Key factors or sensitivities influencing the condition of the SPA site (and oystercatcher, curlew, and great-crested grebe populations) include: concerns relating to sporadic cockle suction-dredging, which may deplete oystercatchers' food source. CCW have developed a protocol with the North Wales Sea Fisheries Committee (NWSFC) to allow an assessment of applications for licences to harvest cockles. NWSFC will now only invite applications for licences if cockle stocks are considered to be relatively high. CCW is commissioning research to quantify cockle stocks in relation to their depletion by foraging oystercatchers.

Coedydd Aber SAC

- 2.1.116 The Site (see **Figure 2.39**) comprises Annex I habitat that is a primary reason for selection of the site, namely old sessile oak woods with *Ilex* and *Blechnum* in the British Isles. Annex I habitat present as a qualifying feature is alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*), whilst other Annex I habitat present is water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitriche-Batrachion* vegetation. Annex II species present within the Site are Atlantic salmon and otter.
- 2.1.117 The conservation objectives of the Coedydd Aber SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the old sessile oak woods, as well as that of the alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior*. Both old sessile oak woods and alluvial forests are in **Unfavourable** condition.

Figure 2.39 Coedydd Aber SAC Boundary

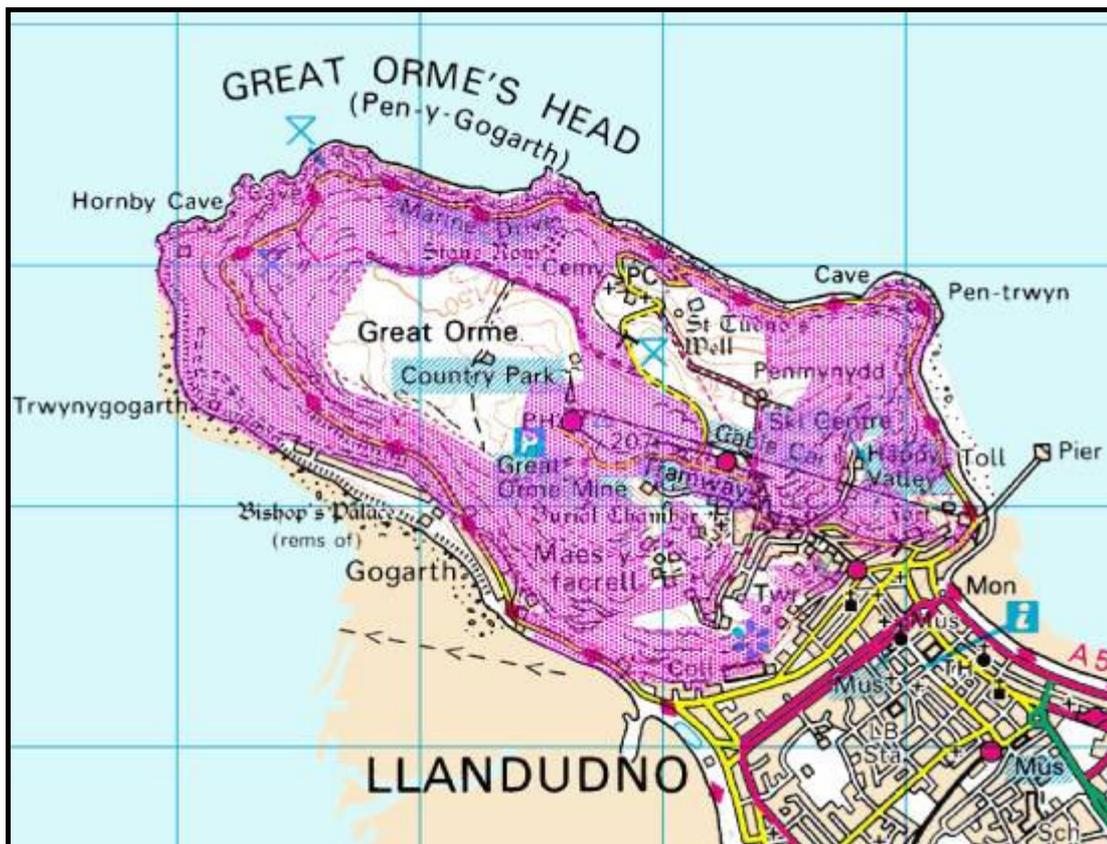


- 2.1.118 The Site consists of the existing Coedydd Aber NNR with extensions to take in an additional area of mainly broadleaved woodland lying on slopes above the coastal plain and along an adjacent valley to the east. The woodland habitat is relatively robust, but there is scope for its enhancement through removal of conifers and other invasive species. Part of the Site, within the existing NNR, has recently been entered into a Tir Gofal agreement. The involvement of Forest Enterprise is necessary to ensure improved conservation management and better integration of existing and restored woodland on the higher slopes above Aber valley, and to ensure the current integrity of the NNR is maintained.

Great Orme`s Head/ Pen y Gogarth SAC

- 2.1.119 The Site (see **Figure 2.40**) comprises Annex I habitats that are a primary reason for selection of the site, include European dry heaths, and semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*). Vegetated sea cliffs of the Atlantic and Baltic coasts are present as qualifying habitats, whilst other Annex I habitats present include Calaminarian grasslands of the *Violetalia calaminariae*, *Molinia* meadows on calcareous, peaty or clayey-silt laden soils (*Molinion caeruleae*), limestone pavements, caves not open to the public, and *Tilio-Acerion* forests of slopes, screes and ravines. Annex II species present in the Site includes lesser horseshoe bat.

Figure 2.40 Great Orme`s Head/ Pen y Gogarth SAC Boundary

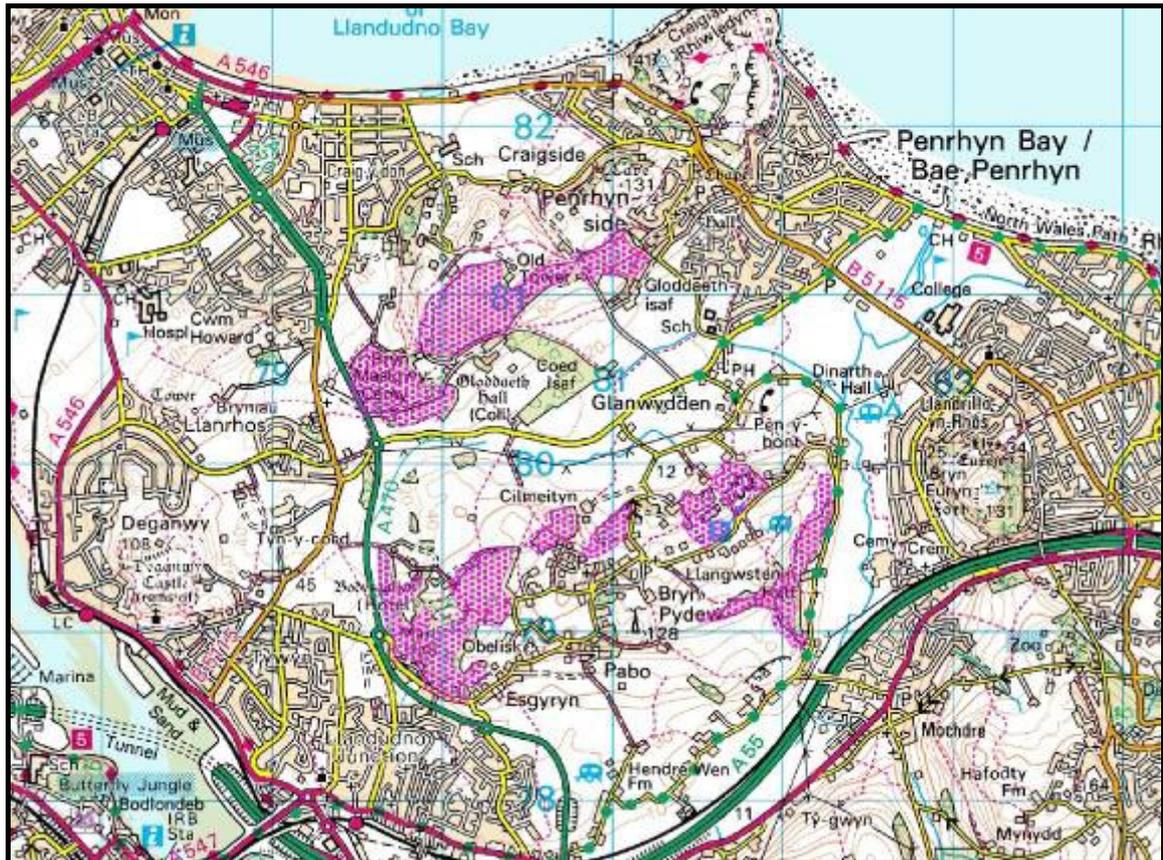


- 2.1.120 The conservation objectives of the Great Orme`s Head/ Pen y Gogarth SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the dry heaths and grasslands, and the vegetated cliffs. The current site condition assessment for these features is **Unfavourable, Unclassified** (dry heath and grasslands) and **Favourable** (vegetated sea cliffs).
- 2.1.121 Key factors or sensitivities influencing the condition of the SAC habitats include, grazing, which produces short cropped turf. On the steeper slopes there are areas which are undergrazed, due to difficult livestock access. Invasion by native and non-native shrub species is occurring in these areas. These problems are being addressed by a management plan agreed upon by CCW and the Local Authority. Recreational pressure on the Great Orme is substantial, as it is immediately adjacent to Llandudno, a major tourist centre. The site is managed as a Country Park and Local Nature Reserve by the Local Authority in close consultation with CCW. A joint management plan has been agreed upon and is being implemented, which should ensure maintenance of the special features.

Coedwigoedd Penrhyn Creuddyn/ Creuddyn Peninsula Woods SAC

- 2.1.122 The Site (see **Figure 2.41**) comprises Annex I habitat that is a primary reason for selection of the Site is *Tillio-acerion* forest of slopes, screes and ravines. Semi-natural dry grasslands and scrubland facies on calcareous substrates (*Festuco-Brometalia*), and *Taxus baccata* woods of the British Isles (a priority feature) are qualifying features. Other Annex I habitats present in the Site are limestone pavements, caves not open to the public, and *Asperulo-Fagetum* beech forests. Annex II species present are lesser horseshoe bat.

Figure 2.41 Coedwigoedd Penrhyn Creuddyn/ Creuddyn Peninsula Woods SAC Boundary



- 2.1.123 The conservation objectives of the Coedwigoedd Penrhyn Creuddyn/ Creuddyn Peninsula Woods SAC are to maintain in 'favourable condition', taking account of natural change, the extent and characteristics of the *Tillio-acerion* forests of slopes and ravines, semi-natural dry grasslands and scrubland facies, and *Taxus baccata* woods. The current site condition assessment for these features is **Unfavourable, Recovering** (*Tillio-acerion* forests, dry grassland and scrubland) and **Favourable, Maintained** (*Taxus baccata* woods).
- 2.1.124 Key factors or sensitivities influencing the condition of the SAC habitats include undergrazing of woodlands. Small sections are grazed by livestock, chiefly cattle and ponies but also some sheep, whilst some areas are used for timber production and game shooting which may impact on woodland structure and ground flora. These issues are being addressed through management agreements. About 20% of the woodland is managed as nature reserves by voluntary conservation bodies. Recreational pressure associated with public access can also lead to damage.

2.3 New Sites Within or Adjacent to SMP2 Management Units

2.1.1 Potential new designations or extensions to existing designated sites that are currently being reviewed by Natural England include Liverpool Bay / Bae Lerpwl pSPA to be designated for the following key interest features:

- **Interest feature 1:** Internationally important population of regularly occurring Annex 1 species - red-throated diver (*Gavia stellata*);
- **Interest feature 2:** Internationally important population of regularly occurring migratory species - common scoter; and
- **Interest feature 3:** Area being used by over 20,000 waterfowl or 20,000 seabirds in any season.

2.4 Sites Outside the SMP Boundary

2.1.2 A number of SACs and SPAs have been listed within the West of Wales SMP Strategic Environmental Assessment (SEA) Scoping Report that are in excess of 30km outside the SMP Boundary. As such these sites have been screened out of the HRA due to the distance and the extremely unlikely extent of physical disturbance to coastal processes from beyond the headlands (Great Orme and St Ann's Head) that could be expected as a result of the implications of the SMP policies. The sites are:

- Burry Inlet SAC (in excess of 70km away);
- Dee Estuary SAC (in excess of 30km away);
- Dee Estuary SPA (in excess of 36km away); and
- River Dee and Bala Lake SAC (in excess of 60km away).

2.5 Consultation

2.1.3 Consultation with the Countryside Council for Wales and the Environment Agency Wales during the SEA Scoping has identified a number of key issues experienced by or affecting the West of Wales SAC, SPA, and Ramsar sites. A summary of the consultation is presented in **Table 2.2**. Detailed consultation on the Appropriate Assessment will be undertaken with both of these bodies using this Scoping Report as the discussion document.

Table 2.1 Summary of Existing Consultation Responses

Consultee	Key Comments
Environment Agency Wales	<p>The Environment Agency consider that:</p> <ul style="list-style-type: none"> • The requirements of the Water Framework Directive (WFD) to be an integral part of the long term management of water bodies associated with the <i>Natura 2000</i> sites. • Loss of BAP habitats associated with the <i>Natura 2000</i> sites in response to arrange of pressures such as seal level rise, coastal squeeze and agricultural activities are key issues, for which measures should be undertaken where possible to protect and enhance the quality of designated habitats. This is also an issue with WAG. • Erosion lines associated with scenario assessments of the SMP may need better explaining in future reports for planners. • Flood zones to be kept separate and not subdivided for the assessment of the SMP. • Material assets and potential impacts need to be highlighted in environmental assessments (mainly SEA). • Threats to landscape need to be taken into consideration. In the environmental assessments (mainly SEA).
CCW (Pembroke Dock Office)	<ul style="list-style-type: none"> • Broad Haven – Possible conflict between geological guidelines and properties on the cliff. • Newgale Marsh – Although not SSSI is close to (brackish) and potential for transition. • Solva – Coastal geomorphology site. Most of the interest is associated with relict landforms rather than processes. • Dinas Head – Valley soon to be geologically notified as new designated site. • Fewer seal pupping sites with SLR. • National Trust – Encourage NAI around Newgale and Abereddy.
CCW (Ceredigion Office)	<ul style="list-style-type: none"> • Uncertainty regarding SLR estimates. • Llansantffraid is a difficult area to defend. • Landfill sites.
CCW (General and Swansea Office)	<ul style="list-style-type: none"> • Issues related to nature conservation should be at policy unit level as depicted by the Features and Objectives Table for the SMP, as the impacts to processes need detailing (e.g. changes to sediment transport/deposition and associated impacts on habitat creation/maintenance). • HRA requires to be more ridged than SEA (i.e. site specific). • HRA should not emphasis bad points but enhance the good points regarding discussion of impacts on the environment in repose to the selected policies, and suggest what can be done to mitigate loss. • HRA should look at specific issues and narrow down the uncertainty and identify what needs to be compensated (with out really suggesting where and how it is to be compensated).

Consultee	Key Comments
	<ul style="list-style-type: none"> • HRA should flag up when timescales of the impacts predicted and when it needs to be compensated. • Rather than uncertainty CCW would like to be involved in the screening in/out of issues associated with the HRA. • Consider loss of scientific interest if defences need upgrading: including loss due to erosion; happy for natural processes to continue. • Identify in the SMP the need to mitigate loss (e.g. Tenby Cliff). • Guidance will be required from the CCW in regards the management and mitigation of key sites including the Borth Bog and potential saline impacts. • Tourism and development impacts on SACs. • The issue of Sea Level Rise (SLR), policy options and compensatory habitats along the upper estuaries will need detailed consideration.
CCW (Aberystwyth Office)	<ul style="list-style-type: none"> • Biosphere Reserves – Dyfi has been established since 70`s and only one in Wales. Combines social, environmental, cultural and ecological aspects. • CCW manage and own Borth Bog. Key issues include impacts of drainage. Reintegration of bog and estuary would like to be implemented. The Environment Agency are undertaking the Water Management Plan for the Borth Bog. • A key vision for Borth bog and estuary habitats are to ensure they function naturally. • Borth Scheme – Concern that it's going to prevent supply of shingle and sand to Dyfi Estuary. • SMP should make suggestions about the management of the spit near Poppit, as if breach was to occur then potential for expansion of the spit. • Cardigan – Potential for the installation of a sluice to control tidal limits, impacts on natural conservation need to be taken into consideration in particular <i>Natura 2000</i> sites.

3 METHODOLOGY

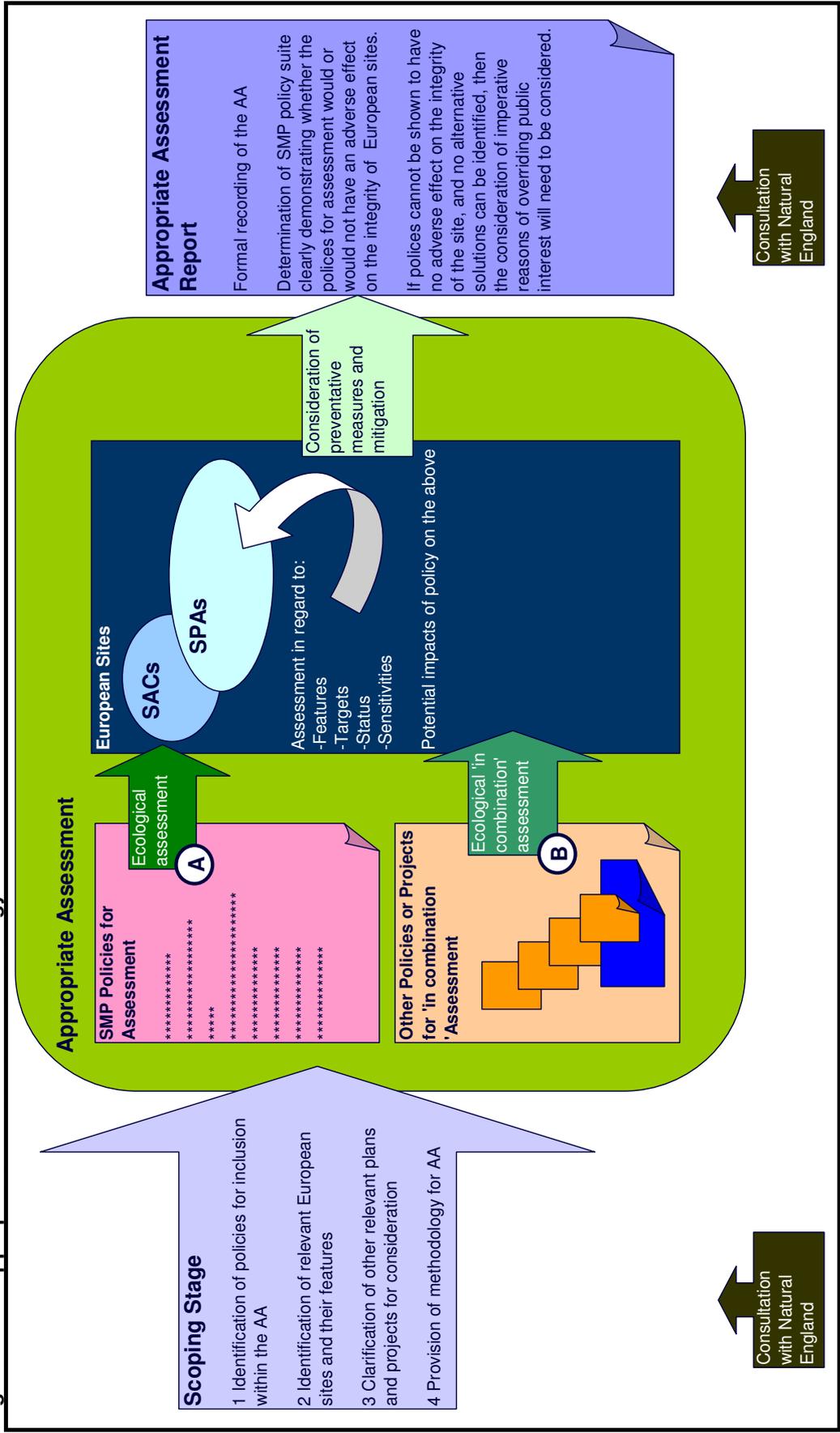
3.1 Introduction to Appropriate Assessment

3.1.1 The methodology for the detailed assessment of the effects of the proposed SMP policies on *Natura 2000* sites has been developed in accordance with the guidance identified in **paragraph 1.2.1**. The Appropriate Assessment methodologies devised for large scale developments have been evaluated to ensure that the approach provided here is based on actual practical implementation of the Habitats Regulations. The approach developed has also been tailored to ensure that the requirements of the Habitats Regulations and supporting guidance are met. The need to ensure that the assessment is actually 'appropriate' to the evaluation of policies relating to shoreline management activities has also been recognised. Appropriate Assessment is a four stage process, as outlined in **Table 3.1**. A summary of the methodology is illustrated in **Figure 3.1**, which shows the manner in which the overall assessment progresses, and how key tasks relate to one another.

Table 3.1 Stages in the Appropriate Assessment Process

Stage	Description	Comments
Screening	The initial evaluation of a plan's effects on a European Site. If it cannot be concluded that there will be no significant effect upon any European Site an Appropriate Assessment will be required. At the end of this process a screening decision is made by the Competent Authority as to whether Appropriate Assessment is triggered.	It has been determined that an Appropriate Assessment is required for the West of Wales of SMP2.
Scoping	Preparation for the Appropriate Assessment where screening has shown that likely significant effects could occur to a European Site. It identifies what impacts the AA should cover and should address any gaps in knowledge to ensure the AA is complete and accurate.	This report comprises the scoping stage. It determines which policy options of the West of Wales SMP2 will have a likely significant effect and which, therefore, will be subject to Appropriate Assessment (Environmental Report).
Appropriate Assessment	Evaluating the evidence gathered on impacts and considering whether changes to the plan are need to ensure that it will not have an adverse effect on a European Site. Normally the AA process will stop here and the plan can be adopted.	The methodology for this stage is set out in Section 3.3 .
Consideration of alternatives	The plan-making authority must demonstrate that its policy or allocation is the least damaging way of meeting the need identified in the plan.	This stage may not be required. Further details are set out in Sections 3.3.15/16 .

Figure 3.1 Appropriate Assessment Methodology



3.1.2 Significant effects have been screened using the “*The Assessment Development Plans in Wales under the provisions of Habitats Regulation*” (WAG, 2006), “*TAN 5 - Nature Conservation Planning*” (WAG, 2009), and “*Assessing Projects Under the Habitats Directive – Guidance for Competent Authorities*” (CCW, 2008) which states that a significant effect is triggered when:

- There is the **probability or a risk** of a plan or project having a significant effect on a European Site;
- The plan is **likely to undermine** the site’s conservation objectives; and
- A significant effect **cannot be excluded** on the basis of objective information.

3.2 Existing Policy Suite

3.2.1 SMPs are policy setting documents that determine how a Competent Authority will manage ‘their’ shoreline and its coastal defences over the next 100 years. The policy options available are:

1. Hold the Line.
2. Advance the Line.
3. Managed Realignment.
4. No Active Intervention.

3.2.2 In the context of the Appropriate Assessment, it is considered that all options (1-4) should be considered to determine whether they may have a likely significant effect on International sites. Although Option 4 may not constitute ‘development’ in the context of the guidance which is emerging, it is considered that in the application of this guidance to the provisions of an SMP, this option should be considered (this accords with CCW’s position on this matter). Options relating to no actual development remain pertinent to the assessment since they have the potential to have significant effects on Site features (for example the loss of habitat due to coastal squeeze or inundation). Accordingly, all Options have been considered for inclusion within the Habitats Regulations Assessment.

3.3 Appropriate Assessment of SMP2 Policies

3.3.1 The assessment of the SMP policies will be supported by a tabulated account based on the interest features for the Natura 2000 Sites, linked to any specific conservation objectives. Tables will be provided to show the key features of each Site, the attributes relevant to the designated Site’s features, the identified management targets for the Site and known sensitivities or management issues. The preferred policy for each SMP unit will then be evaluated and assessed against each feature with regard to the potential impacts of the policy, and within the tables, preventative measures that could be taken, mitigation measures, and a commentary on the impacts of the policy on the Site features and targets will be identified. On the basis of this exercise, the assessment will be undertaken based on the overall impacts of each SMP unit and preferred policy on the overall integrity of the international site. Units have been devised to provide discreet, spatial areas for policy application, however, if a policy may affect a neighbouring unit, this will be included in the assessment.



Appropriate Assessment using the methodology described here will only be applied to preferred policy options. This does not preclude consideration of other policy options in terms of the Regulations and it is anticipated that preferred options will be developed with the likely acceptability of these in terms of the Regulations as a key consideration and as part of the consultation process.

3.3.2 An illustrative table is provided below (see **Table 3.2**), which will form the basis of how the assessment is recorded. It is understood that the favourable condition tables will need to be refined to the extent that they relate solely to the features relevant to the specific European Sites within the study area, but also to ensure that they do not include features that are not covered by the Habitats or Birds Directives, and are therefore irrelevant for the HRA (e.g. geological features).

Table 3.2 Suggested Table to Record the Appropriate Assessment

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance Measures or Mitigation	Residual Impact	Conclude no adverse affect on integrity?
<i>Intertidal mudflat</i>		<i>Habitat extent and physical characteristics</i>	<i>No decrease in mudflat and sandflat extent.</i>	<i>NAI would, in the medium to long term, reduce the effects of unnatural coastal squeeze by providing area for habitats to retreat with changing sea levels.</i>	<i>Measures to increase the rate of deposition and thus maintain saltmarsh elevations could be incorporated.</i>	<i>An adverse affect would remain as the intensity and success of the measure is not known at this stage.</i>	NO
<i>Vegetated sea cliffs</i>							

3.3.3 Although Ramsar features and sites do not have favourable condition tables, it should be stressed that conservation objectives set out in the Regulation 33 package, or features identified in the SAC and SPA site designation forms, have been produced to broadly protect the underlying habitat and environmental conditions required by Annex 1 and 2 habitats and species. Given the close correlation between Ramsar and European features, the conservation objectives within the Regulation 33 package or the SAC and SPA interest features, are generally adequate to protect Ramsar features. Nonetheless, where Ramsar features need consideration over and above those of European features, the high level generic conservation objective for international sites will be applied to Ramsar sites and their features, that is; Subject to natural change to maintain in favourable condition the Ramsar features and their supporting habitats.

3.3.4 The provision of the tables to record and summarise the Appropriate Assessment will be underpinned by any ecological assessment, survey or analysis which supports the assessment process.

- 3.3.5 Tables will be provided for each Policy Development Zone under consideration, with supporting analysis and commentary on how the assessment accords with guidance and is compliant with the regulations.
- 3.3.6 For each Policy Development Zone, a commentary and determination will be provided which will clearly express the likely impacts of the preferred policy on each international site and illustrate the measures which could be taken to avoid any adverse impacts identified. The level of assessment will be provided at an 'appropriate' level commensurate with a policy based assessment and in recognition of the fact that further assessment would be provided when the actual proposal for works arises in the future.

Information to Support the Appropriate Assessment

- 3.3.7 In order to provide detailed information for the Appropriate Assessment of the preferred SMP2 policies, coastal engineers and geomorphologists will calculate and prepare the Mean High Water Spring (MHWS) tide level, Mean Low Water Spring (MLWS) tide level for the 3 epochs to be covered by the SMP2. Alongside this, the shoreline position from the present to the future will be calculated and mapped. The results will provide information regarding the change in area of intertidal habitats within the MLWS – MHWS, as well as the change due to erosion, thus allowing the likely change in area of intertidal or terrestrial habitats to be identified. Coupled with discussions regarding the results, the data and information will be used to inform the assessment of effects on the habitats and species within the sites.

Assessment of Impacts over Different SMP Epochs

- 3.3.8 The complications of applying the Habitats Regulations at the policy level are further enhanced by the different timescales or epochs over which they apply (20 years, 50 years and 100 years). The epochs extend from 2009 to 2025, then to 2055, then to 2105.
- 3.3.9 The possibility exists whereby SMPs or their policies will result in short-term adverse impacts, but that in the longer-term the SMP will enable site integrity to be maintained. Agreement with Countryside Council of Wales will have to be reached on the degree and duration of unfavourable shoreline management which can be tolerated in anticipation of longer-term achievement of site integrity.

Provision of an 'in combination' Assessment

- 3.3.10 The 'in combination' assessment will build on the assessment of policy and the summary tables provided in the previous stage and will then consider the impacts of SMP policy in combination with all other policies or approved projects yet to be implemented. The specific focus of this stage will relate to the consideration of those plans and projects which are likely to have the same effect as the policies of the SMP2. In the context of the SMP2, this is likely to relate to other plans or projects which may have effects of coastal habitat or processes which support habitat or species. The plans and projects which are considered most relevant to this study are discussed in Section 5 of this document. An assessment for each SMP2 Management Unit will be provided which accounts for the 'in combination' effects of other plans or projects (from the list provided in Section 5) that have similar impacts to that of the specific policy within the Management Unit. An accompanying rationale will be provided to support this.

- 3.3.11 The ‘in combination’ assessment will be summarised in regard to the overall conclusions which can be drawn to provide a clear summary for each SMP2 Policy Development Zone so that the impacts of the policies within the unit alone, and ‘in combination’ with other plans and projects is clearly expressed.

Consideration of Preventative Measures and Mitigation

- 3.3.12 If it has been concluded that all of the SMP policies alone or ‘in combination’ with other plans or projects, would not have an adverse effect on the international sites in question, then the assessment would be concluded at this stage, with a recommendation that the SMP be implemented in its current form. If at the conclusion of the above stages, policies remain, where it cannot be shown that the impacts of policy would have an adverse effect on the integrity of any of the international sites, consideration will then need to be given to how such effects could be avoided in regard to preventative measures and mitigation.
- 3.3.13 Guidance, case studies and examples of best practice would form the basis of the assessment to suggest measures which would need to be taken, to enable policy adoption which would not affect site integrity. At this stage, the determination of feasible measures would be refined in consultation with the SMP2 Client Steering Group; to ensure that suggested measures are acceptable in the shoreline management context and in regard to the impacts of policy. Following this collaborative process, a series of measures would be specified which would clearly demonstrate how adverse impacts have been mitigated or avoided for each relevant policy. It should be recognised at this stage, that at a policy level, preventative measures could be provided simply, by the provision of additional supporting policy to offset adverse impacts. If policies remain for which preventative measures or mitigation cannot be established, then such policies will be identified and taken forward for further consideration.

At this stage it is suggested that mitigation could involve identification of habitat creation sites either within the International site concerned, or elsewhere. Identification of acceptable mitigation sites would enable no adverse effect on integrity to be determined at the SMP2 (land use plan level), but at the plan implementation stage, the ultimate Appropriate Assessment would need to determine adverse effect on integrity, no alternative solutions, IROPI, and formally identify the offset land as compensatory habitat under Regulation 53. **The extent to which mitigation¹ measures need to be secured at the SMP2 stage, in order to enable determination of no adverse effect on site integrity is currently unclear. This issue will need to be resolved in consultation with Countryside Council of Wales and Welsh Government Assembly (WAG).**

- 3.3.14 Where mitigation and preventative measures are identified as being necessary for determining no adverse effect on site integrity, these measures will need to be incorporated as part of the SMP2.

¹ The term *mitigation* habitat is used at the SMP level, as this would not be identified via Regulation 53. However, the SMP and the AA would make it explicit, that at the proposal stage, unless the mitigation measures identified in the SMP and its AA were adopted, it would not be possible to determine no adverse impact on site integrity for the implementation of that SMP policy.

Determination of Alternative Solutions and Imperative Reasons of Overriding Public Interest

- 3.3.15 As outlined above, if policies have been identified for which preventive measures or mitigation do not avoid their adverse impacts on the integrity of the site(s), such policies will then need to be assessed to determine how these policies are addressed within the Appropriate Assessment and within the SMP2. This consideration follows a two stage process. Firstly, the assessment of alternative solutions needs to be considered. Can the policy in question be replaced by a policy that will meet the requirements of the wider SMP2 and yet avoid any impacts on international sites? The consideration of policy alternatives will require the combined efforts of the Appropriate Assessment project team and the policy officers within the SMP2 Client Steering Group. If policies are then found to lack any viable alternative, the matter of whether the policy is required in the interests of overriding public interest will need to be considered.
- 3.3.16 Claims for policy adoption on the grounds of imperative reasons of overriding public interest (IROPI) need to be carefully considered. The procedure for pursuing policy on the grounds of IROPI is well defined in the Regulations and in guidance. The particulars will depend on the actual reasons for the IROPI claim (for example is the policy required on the grounds of social or economic factors, or is it a public health and safety issue?) and the priority attached to the species or habitat in question. Finally claims for IROPI need to be submitted to the Welsh Assembly Government with a clear reasoning provided.
- 3.3.17 Provision of compensatory measures is a necessary element in undertaking policies on the basis of IROPI, and the availability of acceptable compensatory measures may need to be provided alongside presentation of the case for IROPI, such that the case can be fully considered.

3.4 Provision of an Habitats Regulations Assessment Report

- 3.4.1 At the conclusion of the Appropriate Assessment a full account of the analysis for each SMP unit and the preferred policy will be presented in an Environmental Report. In addition to the analysis, the report will also include records of consultation with CCW and Environment Agency Wales, their response and any actions subsequent to this. The Environmental Report will then be provided to CCW and Environment Agency Wales for formal consultation. Following this formal consultation, any required amendments will be discussed and agreed, and a finalised report including recommendations will be provided to Pembrokeshire County Council (the SMP2 client). Within this report, agreed actions for policy amendment, replacement or modification (if required) will be presented.
- 3.4.2 The likely contents list for the Environmental Report will include:
- Introduction;
 - Methodology;
 - Consultation – anticipated to be CCW and the Environment Agency Wales;
 - Assessment of Impacts (direct, indirect, secondary and cumulative);
 - Consideration of Mitigation, Alternative Solutions, IROPI and Compensatory Habitat; and
 - Conclusions.

4 OTHER PLANS AND PROJECTS

4.1 Introduction

4.1.1 A range of envisaged or ongoing plans or projects must be considered in combination with Shoreline Management Plan policies. Any plan or project which has yet to be implemented will need to be considered within an in-combination assessment. Accordingly, the following activities, and any specific proposals (such as wind farms etc) will need to be considered (within this context) during the assessment.

4.2 Land Use Plans

4.2.1 Land use plans are produced by local authorities, and set out the broad framework for planning and development in the local authority area. The area potentially affected by the West Wales SMP2 policies is covered by several authorities including:

- Isle of Anglesey Council;
- Ceredigion County Council;
- Conwy County Council;
- Gwynedd County Council;
- Pembrokeshire County Council; and
- Powys County Council.

4.2.2 The main issue for land use plans in the context of shoreline management plans and their compatibility with the Habitats Regulations is where land is allocated for housing, employment or other uses, development of which may prejudice SMP2 policies. For example, housing allocations in areas currently prevented from flooding by flood defence structures or practices would make it more difficult to undertake managed retreat or abandon existing defences. Managed realignment or no active intervention options may be preferred, or necessary in response to coastal squeeze, which may be adversely affecting international sites.

4.2.3 TAN 15 Development and Flood Risk (2004) describes the Environment Agency's (EA) role in exercising a general supervision of flood defence matters. Local authorities are expected to use their powers to guide development away from areas that may be affected by flooding, and to restrict development that would itself increase the risk of flooding or would interfere in the ability of the EA or other bodies to carry out flood control works or maintenance. Flood risk considerations should always be taken into account by local planning authorities in preparing plans and in determining planning applications. Guidance is given on flooding as a material consideration in development control decisions, runoff and increasing the risk of flooding on or off site, coastal protection works and flood defence works.

4.2.4 Adherence to Tan 15 guidance will ensure that the likelihood of development occurring which will prejudice SMP2 policies, is minimised. It does not however completely preclude all possibilities, and individual local plans thus need to be examined to identify any constraints which may act "in combination" with SMP2 policies.

4.2.5 The site specific allocations of the local authority (or the existing allocations of the former Local Authorities) will be used for the assessment of in-combination impacts of local development policy.

5 HRA STAGE 2 - ASSESSMENT OF LIKELY SIGNIFICANT EFFECT AND SCOPING IN / OUT OF NATURA 2000 SITES

5.1 Introduction

5.1.1 The key focus of the Appropriate Assessment for each policy option of the West of Wales SMP2 is presented in **Table 5.1**, which scopes in or out the potential issues associated with the various policy options on the SPA, SAC and Ramsar sites of the study area based on the information in **Section 2, Appendix A**, and from the Natura 2000 Site data and management plans. The various reports and management plans used for this included the following which will also be used in the Stage 3 appropriate assessment:

- Abermenai to Aberffraw Dunes SAC (CCW, 2008b).
- Afon Gwyrfai a Llyn Cwellyn SAC (CCW, 2008c).
- Afon Teifi SAC (CCW, 2008d).
- Afonydd Cleddau / Cleddau Rivers SAC (CCW, 2008e).
- Anglesey and Llyn Fens Ramsar (CCW, 2008k).
- Cardigan Bay/ Bae Ceredigion SAC (CCW, 2009d).
- Carmarthen Bay and Estuaries (CCW, 2009b).
- Carmarthen Bay Dunes / Twyni Bae Caerfyrddin SAC (CCW, 2008f).
- Carmarthen Bay SPA (CCW, 2009b).
- Castlemartin Coast SPA (CCW, 2008q).
- Cemlyn Bay SAC (CCW, 2008g).
- Clogwyni Pen Llyn / Seacliffs of Llyn SAC (CCW, 2008h).
- Coedydd Aber SAC (CCW, 2008i).
- Cors Fochno SAC (CCW, 2008j).
- Corsydd Llyn / Llyn Fens SAC (CCW, 2008k).
- Coedwigoedd Penrhyn Creuddyn / Creuddyn Peninsula Woods SAC (CCW, 2008l).
- Dyfi Estuary / Aber Dyfi SPA (CCW, 2008x).
- Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island SPA (CCW, 2008h).
- Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC (CCW, 2008b).
- Glannau Ynys Gybi/ Holy Island Coast SAC (CCW, 2008m).
- Glannau Ynys Gybi / Holy Island Coast SPA (CCW, 2008m).
- Glan-traeth SAC (CCW, 2008n).
- Glynllifon SAC (CCW, 2008o).
- Great Orme`s Head / Pen y Gogarth SAC (CCW, 2008p).
- Limestone Coast of South West Wales / Arfordir Calchfaen de Orllewin Cymru SAC (CCW, 2008q).
- Meirionnydd Oakwoods and Bat Sites SAC (CCW, 2008s).
- Morfa Harlech a Morfa Dyffryn SAC (CCW, 2008t).
- Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA (CCW, 2008h).
- North West Pembrokeshire Commons SAC (CCW, 2008u).
- Pembrokeshire Bat Sites and Bosherton Lakes SAC (CCW, 2008v).
- Pembrokeshire Marine / Sir Benfro Forol SAC (CCW, 2009f).
- Pen Llyn a`r Sarnau / Llyn Peninsula and the Sarnau SAC (CCW, 2009e).
- Skokholm and Skomer SPA (CCW, 2008y).
- St David`s SAC (CCW, 2008w).
- Traeth Lafan / Lavan Sands, Conway Bay SPA (CCW, 2009c).
- Y Fenai a Bae Conwy / Menai Strait and Conwy Bay SAC (CCW, 2009c).
- Ynys Feurig, Cemlyn Bay and The Skerries SPA (CCW, 2008g).
- Ynys Seiriol / Puffin Island SPA (CCW, 2008z).

Table 5.1 Scoping the Appropriate Assessment

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC	Likely significant detrimental effect due to the loss of estuary, intertidal mudflat and sandflat, and saltmarsh habitats from the advanced line, as well as coastal squeeze of intertidal habitats and changes in coastal processes. Loss of dune habitat resulting from advanced defence line and the prevention of dune development.	Likely significant detrimental effect on intertidal mudflat and sandflat, and saltmarsh habitats due to coastal squeeze. Loss of dune habitat due to the prevention of dune development.	Likely significant detrimental effect resulting in loss of saltmarsh and dunes; though a beneficial gain in other habitats such as intertidal mudflats and sandflats.	No significant effect on intertidal mudflat and sandflat, and saltmarsh; could have a beneficial effect by creating new intertidal and subtidal habitat and delivering new sediment to sand and dune habitats.
Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion and succession of vegetation. Loss of intertidal mudflat and sandflat due to prevention of tidal inundation and coastal squeeze. Loss of dune habitats and dune development which could affect petalwort populations. Loss of caves due to advanced defence line. Both changes to the coastal processes and the advanced line of coastal defences could affect nearshore cave habitats.	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion and succession of vegetation. Loss of intertidal mudflat and sandflat as a result of coastal squeeze. Loss of dune habitats and dune development which could affect petalwort populations. Changes to coastal processes could affect dune development and could affect nearshore cave habitats.	Likely significant detriment effect if the vegetated sea cliffs are stabilised and not allowed to erode naturally. Loss of heathland habitat and semi-natural dry grassland due to managed realignment. Loss of intertidal mudflat and sandflat, and saltmarsh due to changes in coastal processes.	No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation, and response of intertidal mudflat and sandflat, and dune habitats to sea level rise.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Carmarthen Bay Dunes/ Twyni Bae Caerfyrddin SAC	Likely significant detrimental effect on dune habitats due to advance the line, and alteration to the coastal processes preventing dune development, which could affect populations of narrow-mouthed whorl snail, petalwort, and fen orchid.	Likely significant detrimental effect on dune habitats due to alteration to the coastal processes preventing dune development, which could affect populations of narrow-mouthed whorl snail, petalwort, and fen orchid.	Likely significant detriment effect due to the potential loss or disturbance to the physical characteristics of habitat that supports narrow-mouthed whorl snail, petalwort, and fen orchid. Prevention of natural movement of dune habitats landward of the realigned defences.	No significant effect in the long term as the dune habitats can respond to sea level rise, which would allow natural succession of dune habitats.
Bae Caerfyrddin / Carmarthen Bay SPA	Likely significant detrimental effect on common scoter populations due to reduction in area and extent of shallow inlet and bay habitat due to advanced line of defence.	Likely significant detrimental effect on common scoter populations due to possible reduction in area and extent of shallow inlet and bay habitat due to coastal squeeze.	No significant effect as the extent of shallow inlet and bay habitat would not decrease.	No significant effect as the extent of shallow inlet and bay habitat would not decrease.
Pembrokeshire Marine/ Sir Benfro Forol SAC	Likely significant detrimental effect on intertidal mudflat and sandflat due to prevention of tidal inundation and coastal squeeze resulting in their loss. Loss of caves due to advanced defence line. Both changes to the coastal processes and the advanced line of coastal defences could affect nearshore reef and cave habitats. However, coastal lagoons protected.	Likely significant detrimental effect on intertidal mudflat and sandflat as a result of coastal squeeze resulting in their loss. Changes to coastal processes could affect dune development and could affect nearshore reef and cave habitats. However, coastal lagoons protected.	Likely significant detriment effect on coastal lagoons due to realigned defences, and loss of intertidal mudflat and sandflat, and saltmarsh due to changes in coastal processes. Possible alteration to shore dock habitat.	No significant effect in the long term as the intertidal mudflat and sandflat, and dune habitats (as well as shore dock supporting habitat) can respond to sea level rise.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Afonydd Cleddau/ Cleddau Rivers SAC	Likely significant detrimental effect on watercourse habitat due to loss as a result of encroachment of defences. Potential obstruction to sea lamprey movement, and loss of habitat for brook lamprey, river lamprey, bullhead and otter.	No significant effect in the long term as the area of watercourse habitat would not change or be obstructed.	No significant effect in the long term as the area of watercourse habitat would not change (may increase) or be obstructed.	No significant effect in the long term as the area of watercourse habitat would not change (may increase) or be obstructed.
Castlemartin Coast SPA	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion of vegetation consequently reducing supporting sea cliff ledges habitat for the chough population.	Likely significant detriment effect on population due to possible loss of supporting habitat (sea cliff ledges and caves) due to presence of manmade structures and reduced cliff erosion resulting in vegetation growth.	Likely significant detriment effect on population due to possible mechanical loss of supporting habitat (sea cliff ledges and caves).	No significant effect in the long term as the supporting habitat of rocky ledges would naturally develop during erosion.
Pembrokeshire Bat Sites and Bosherton Lakes/ Safleoedd Ystum Sir Benfro a Llynno SAC	No significant effect in the long term as the defence line would not encroach on the site or affect the physical characteristics of the site.	No significant effect in the long term as the defence line is not present within the site nor does the defence affect the physical characteristics of the site.	Likely significant detriment effect on the lake habitats if managed realignment extends into the site, and could also significantly disturb the hydrological characteristics of the lake habitat, and subsequently affect the population of greater horseshoe bat and otter. Loss of habitat extent at Carew site would affect the population of greater horseshoe bat.	No significant effect in the long term as sea level rise or erosion would not extent into the site or result in any alteration to the physical characteristics of the site.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Skokholm and Skomer SPA	Likely significant detrimental effect on the bird populations where encroachment of defences affects supporting intertidal habitats.	Likely significant detrimental effect on the bird populations where defences affect supporting intertidal and cliff habitats.	Likely significant detriment effect on population due to mechanical loss of supporting habitat (sea cliff ledges, coastal grassland and coastal heathland).	No significant effect in the long term as the supporting habitat of rocky ledges would naturally develop during erosion. Though loss of coastal grassland and coastal heathland habitat may occur this is a result of natural processes.
Grassholm SPA	Likely significant detrimental effect on the gannet population where encroachment of defences results in the loss of shallow sea and inlet, and shingle beach supporting habitats.	Likely significant detrimental effect on the gannet population where defences affect supporting cliff habitats, and where shingle beach habitat is lost as a result of coastal squeeze.	Likely significant detriment effect on gannet population due to mechanical loss of supporting habitat (sea cliff).	No significant effect in the long term as the supporting habitat of sea cliff and shingle beaches would naturally develop during erosion.
Ramsey and St David's Peninsula Coast SPA	No significant effect in the long term as the supporting habitat would not be lost.	Likely significant detriment effect on population due to possible loss of supporting habitat (sea cliff ledges and caves) due to presence of manmade structures.	Likely significant detriment effect on population due to possible mechanical loss of supporting habitat (sea cliff ledges and caves).	No significant effect in the long term as the supporting habitat of rocky ledges would naturally develop during erosion.
St David`s / Ty Ddewi SAC	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion and succession of vegetation.	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion and succession of vegetation.	Likely significant detriment effect due to mechanical removal of vegetated sea cliffs, and loss of heathland habitat due to managed realignment.	No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro SAC	No significant effect as the site and features are inland and would not be affected.	No significant effect as the site and features are inland and would not be affected.	No significant effect as the site and features are inland and would not be affected.	No significant effect as the site and features are inland and would not be affected.
Afon Teifi/ River Teifi SAC	Likely significant detrimental effect on watercourse habitat due to loss as a result of encroachment of defences. Loss of intertidal mudflat and sandflat due to prevention of tidal inundation and coastal squeeze. Loss of dune habitats and dune development. Potential obstruction to sea lamprey and salmon movement/migration, and loss of habitat for brook lamprey, river lamprey, bullhead, otter, and floating water-plantain.	Likely significant detrimental effect on intertidal mudflat and sandflat as a result of coastal squeeze. Loss of dune habitats and dune development. Changes to coastal processes could affect dune development.	Likely significant detrimental effect on intertidal mudflat and sandflat, and saltmarsh due to changes in coastal processes.	No significant effect in the long term as the area of watercourse habitat would not change (or may increase) or be obstructed. Would allow natural response of intertidal mudflat and sandflat, and dune habitats to sea level rise.
Cardigan Bay/ Bae Ceredigion SAC	Likely significant detrimental effect on sandbanks due to prevention of tidal inundation, and intertidal mudflat and sandflat due to coastal squeeze resulting in loss. Loss of caves due to advanced defence line. Changes to the coastal processes and the advanced line of coastal defences could affect reef and cave habitats.	Likely significant detrimental effect on intertidal mudflat and sandflat as a result of coastal squeeze resulting in their loss. Changes to coastal processes could affect nearshore reef and cave habitats.	Likely significant detriment effect on intertidal mudflat and sandflat due to changes in coastal processes.	No significant effect in the long term as the intertidal and subtidal habitats can respond to sea level rise.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Pen Llyn a'r Sarnau/ Lley Peninsula and the Sarnau SAC	Likely significant detrimental effect on intertidal mudflat and sandflat due to prevention of tidal inundation and coastal squeeze resulting in their loss. Loss of caves due to advanced defence line. Both changes to the coastal processes and the advanced line of coastal defences could affect nearshore reef and cave habitats. However, coastal lagoons protected.	Likely significant detrimental effect on intertidal mudflat and sandflat as a result of coastal squeeze resulting in their loss. Changes to coastal processes could affect dune development and could affect nearshore reef and cave habitats. However, coastal lagoons protected.	Likely significant detriment effect on coastal lagoons due to realigned defences, and loss of intertidal mudflat and sandflat, and saltmarsh due to changes in coastal processes. Possible alteration to shore dock habitat.	No significant effect in the long term as the intertidal mudflat and sandflat, and dune habitats (as well as shore dock supporting habitat) can respond to sea level rise.
Cors Fochno SAC	No significant effect as there would be no direct physical disturbance to habitats. Hydrologically, ATL could inhibit drainage of the bog habitats which would potentially benefit the key habitats.	No significant effect as there would be no direct physical disturbance to habitats. Hydrologically, in the long-term HTL could inhibit drainage of the bog habitats which would potentially benefit the key habitats.	No significant effect as managing the tidal inundation of the site would enable the habitats within the site to adapt to the change in hydrology and reduced drainage could improve the habitats that form a buffer around the key site features.	Likely significant detriment effect on bog habitats from potential inundation resulting in erosion and loss of bog features.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Dyfi Estuary / Aber Dyfi SPA	Likely significant detrimental effect due to the loss of estuary, mudflat and sandflat, and saltmarsh habitats from the advanced line, as well as coastal squeeze of intertidal mudflat, sandflat and saltmarsh and changes in coastal processes. These habitats support the wintering Greenland white-fronted goose population. A beneficial gain in bog, marsh and fen habitats as a result of inhibited discharge of freshwater from drains behind defences. However, this could result in increased, though this could be at the detriment of grassland.	Likely significant detrimental effect on intertidal mudflat and sandflat, and saltmarsh habitats due to coastal squeeze. Some of these habitats are areas that support the overwintering Greenland white-fronted goose population. A beneficial gain in bog, marsh and fen habitats as a result of inhibited discharge of freshwater from drains behind defences. However, this could result in increased, though this could be at the detriment of grassland.	Likely significant detrimental effect due to the possible loss of grassland areas (Units 4.2, 4.3, and 5.2) which support the overwintering Greenland white-fronted goose population. A beneficial gain in intertidal mudflats and sandflats and saltmarsh could occur, along with possible increase in bog, marsh and fen habitat due to restructuring and closure of drains.	Likely significant detrimental effect due to loss of grassland habitat where this would be restrained from developing inland, and potential for loss of bog, marsh and fen habitat from increased erosion. A beneficial gain in intertidal mudflat and sandflat, and saltmarsh could occur due to the natural development of these from unobstructed inland areas.
Cors Fochno and Dyfi Ramsar	Likely significant detrimental effect , as Cors Fochno SAC and Dyfi Estuary / Aber Dyfi SPA above.	Likely significant detrimental effect , as Cors Fochno SAC and Dyfi Estuary / Aber Dyfi SPA above.	Likely significant detrimental effect , as Cors Fochno SAC and Dyfi Estuary / Aber Dyfi SPA above.	Likely significant detrimental effect , as Cors Fochno SAC and Dyfi Estuary / Aber Dyfi SPA above.
Morfa Harlech a Morfa Dyffryn SAC	Likely significant detrimental effect on dune habitats due to advance the line, and alteration to the coastal processes preventing dune development, which could affect populations of petalwort.	Likely significant detrimental effect on dune habitats due to alteration to the coastal processes preventing dune development, which could affect populations of petalwort.	Likely significant detriment effect due to the potential loss or disturbance to the physical characteristics of habitat that supports petalwort. Prevention of development of dune habitats landward of the realigned defences.	No significant effect in the long term as the dune habitats can respond to sea level rise, which would allow natural succession of dune habitats.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC	No significant effect as the sites are elevated and would not be directly affected by ATL defence footprint. Indirect impacts are unlikely.	No significant effect as the sites are elevated and would not be directly affected by HTL defence footprint. Indirect impacts are unlikely.	Likely significant detriment effect due to the possible encroachment of defences into site in the area of downstream Afon Glaslyn. Potential tidal influence within the Afon Glaslyn could affect the Annex I watercourse habitats.	Likely significant detriment effect due to the possible encroachment of tidal influence in the lower Afon Glaslyn affecting the Annex I watercourse habitats. It is unlikely that woodland habitats will be affected.
Afon Eden – Cors Goch Trawsfynydd SAC	No significant effect as the site is upstream of the any likely ATL position and no direct or indirect effects are expected.	No significant effect as the site is upstream of any existing defences and no direct or indirect effects are expected.	No significant effect as the site is upstream of any defence requirement and at an elevation above existing or future tidal influence, and no direct or indirect effects are expected.	No significant effect as the site is upstream of existing or future tidal influence, and no direct or indirect effects are expected.
Corsydd Llyn/ Llyn Fens SAC	No significant effect as the site nearest to the coast is inland and elevated, consequently it will not be directly affected by ATL defence footprint. Indirect impacts are unlikely.	No significant effect , although unit 2 at Abergeirch could potentially be affected by direct footprint impact, this unit does not support key features for which the site is designated.	Likely significant detriment effect due to the possible encroachment into unit 1 at Abergeirch and disturbance to hydrology of the alkaline fen.	No significant effect as natural erosion of the coastline and alteration to hydrology of the alkaline fen would develop naturally provided no indirect land use constraints are present.
Anglesey and Llyn Fens Ramsar	No significant effect as the site nearest to the coast is far inland and elevated at least 20m above MHWS; as such it will not be directly affected by ATL defence footprint. No impact to hydrology due to the sites' elevation.	No significant effect as the site nearest to the coast is far inland and elevated at least 20m above MHWS; as such it will not be directly affected by HTL of existing coastal defences. No impact to hydrology due to the sites' elevation.	No significant effect as the site nearest to the coast is far inland and elevated at least 20m above MHWS; consequently it will not be directly affected by MR policy. No impact to hydrology due to the sites' elevation.	No significant effect as the site nearest to the coast is far inland and elevated at least 20m above MHWS; consequently it will not be directly affected by erosion or by tidal influence affecting hydrology.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Clogwyni Pen Llyn/ Seacliffs of Llyn SAC	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion and succession of vegetation.	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion and succession of vegetation.	Likely significant detriment effect if the vegetated sea cliff habitat is stabilised and not allowed to erode naturally.	No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation.
Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA	Likely significant detrimental effect due to loss from encroachment of defences and alteration to natural processes in the intertidal, dune, beach, and machair habitat, which are supporting habitats, that could adversely affect the chough population.	Likely significant detriment effect on population due to possible loss of supporting habitat (intertidal habitats, loss of dune, beach, and machair) due to presence of manmade structures and coastal squeeze reducing habitat extent as well as inhibition of dune development.	Likely significant detriment effect on population due to loss of supporting habitat (grassland, heath, dune) from MR. Also changes to coastal processes could affect intertidal and beach and dune habitats.	No significant effect in the long term as the supporting habitats (particularly intertidal and dune, beach, machair, heath and grassland) would naturally develop as a result of sea level rise, provided no indirect land use constraints are present.
Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island SPA	Likely significant detrimental effect due to loss from encroachment of defences and alteration to natural processes in the marine and inlets, which could affect populations of chough and manx shearwater.	Likely significant detriment effect on population due to possible loss of supporting habitat (sea cliff) due to presence of manmade structures, which could affect populations of chough and manx shearwater.	Likely significant detriment effect on population due to possible mechanical loss of supporting habitat (sea cliff) and loss of heathland and grassland habitat inland, which could affect populations of chough and manx shearwater.	No significant effect in the long term as the supporting habitats (sea cliff, heathland and grassland) would naturally develop provided no indirect land use constraints are present.
Glynllifon SAC	No significant effect as the site is over 1.5km inland and 20m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 1.5km inland and 20m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 1.5km inland and 20m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 1.5km inland and 20m above MHWS, and no direct or indirect effects would arise.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Afon Gwyrfai a Llyn Cwellyn SAC	Likely significant detrimental effect on watercourse habitat due to loss as a result of encroachment of defences. Potential obstruction to salmon movement/migration, and loss of habitat for brook lamprey, river lamprey, otter, and floating water-plantain.	No significant effect in the long term as the area of watercourse habitat would not change or be obstructed.	No significant effect in the long term as the area of watercourse habitat would not change (may increase) or be obstructed.	No significant effect in the long term as the area of watercourse habitat would not change (may increase) or be obstructed.
Y Twyni o Abermenai I Aberffraw/ Abermenai to Aberffraw Dunes SAC	Likely significant detrimental effect on dune habitats due to advance the line, and alteration to the coastal processes preventing dune development, which could affect populations of petalwort and shore dock. A beneficial gain through protection of the eutrophic lake habitat at Abermenai Point and Llyn Coron.	Likely significant detrimental effect on dune habitats due to alteration to the coastal processes preventing dune development, which could affect populations of petalwort and shore dock. A beneficial gain through protection of the eutrophic lake habitat at Abermenai Point and Llyn Coron.	Likely significant detriment effect due to the potential loss or disturbance to the eutrophic lake habitat at Abermenai Point and Llyn Coron. Prevention of development of dune habitats landward of the realigned defences.	No significant effect in the long term as the dune habitats can respond to sea level rise, which would allow natural succession of dune habitats, provided no indirect land use constraints are present.
Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC	Likely significant detrimental effect due to the loss of saltmarsh, intertidal mudflat and sandflat, and estuary habitat from the advanced line, as well as coastal squeeze of intertidal habitats and changes in coastal processes.	Likely significant detrimental effect on saltmarsh, intertidal mudflat and sandflat, and estuary habitat due to coastal squeeze.	Likely significant detrimental effect resulting in loss of saltmarsh; though a beneficial gain in other habitats such as intertidal mudflats and sandflats.	No significant effect on saltmarsh and intertidal mudflat and sandflat as the habitats can respond to sea level rise provided no indirect land use constraints are present; could have a beneficial effect by creating intertidal and subtidal habitat.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Glan-traeth SAC	No significant effect as the site is over 0.75km inland and >5m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 0.75km inland and >5m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 0.75km inland and >5m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 0.75km inland and >5m above MHWS, and no direct or indirect effects would arise.
Llyn Dinam SAC	No significant effect as the site is over 1.2km inland and 15m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 1.2km inland and 15m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 1.2km inland and 15m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 1.2km inland and 15m above MHWS, and no direct or indirect effects would arise.
Glannau Ynys Gybi/ Holy Island Coast SAC	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion and succession of vegetation. Loss of nearshore reefs and caves due to advanced defence line. Both changes to the coastal processes and the advanced footprint of coastal defences could affect nearshore reefs and cave habitats.	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion and succession of vegetation. Changes to coastal processes could affect nearshore reefs and cave habitats.	Likely significant detrimental effect if the vegetated sea cliffs are stabilised and not allowed to erode naturally. Loss of heathland habitat due to managed realignment.	No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation, and response of heathland habitat provided no indirect land use constraints are present.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Glannau Ynys Gybi / Holy Island Coast SPA	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion of vegetation consequently reducing supporting sea cliff ledges habitat for the chough population.	Likely significant detrimental effect on chough population due to possible loss of supporting habitat (sea cliff ledges and caves) due to presence of manmade structures and reduced cliff erosion resulting in vegetation growth.	Likely significant detrimental effect on population due to possible mechanical loss of supporting habitat (sea cliff ledges and caves).	No significant effect in the long term as the supporting habitat of rocky ledges would naturally develop during erosion.
Ynys Feurig, Cemlyn Bay and The Skerries SPA	No significant effect as the shingle, sandflat and heathland would be protected from erosion, protecting nesting sites.	Likely significant detrimental effect from direct disturbance due to HTL activities, though lagoon, sandflat, shingle and heathland that provide nesting habitats behind the current HWM would be protected.	Likely significant detriment effect lagoon, sandflat, shingle and heathland that provide nesting habitats behind the current HWM would be protected.	No significant effect in the long term as the natural development of shingle, sandflat, lagoon and other habitats suitable for nesting would occur in response to sea level rise provided no indirect land use constraints are present.
Bae Cemlyn/ Cemlyn Bay SAC	No significant effect as the lagoon would remain protected from breach if this is likely to occur. No expected impact on perennial vegetation.	Likely significant detrimental effect on the perennial vegetation on stony banks as this could lose habitat extent due to HTL defences. The lagoon however would remain protected from breach if this is likely to occur.	Likely significant detrimental effect on the perennial vegetation on stony banks as this would result in the loss of habitat extent due to HTL defences. The lagoon could be reduced in extent due to MR.	No significant effect if the lagoon development naturally, which may result in a breach of the shingle ride in the long term and alteration of the brackish lagoon habitats to tidal lagoon habitat.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC	Likely significant detrimental effect due to the loss of extent of shallow inlet and bays, nearshore reefs, submerged or partially submerged caves, shallow sandbanks, and intertidal mudflat and sandflat habitats from the advanced line, as well as coastal squeeze of intertidal habitats and changes in coastal processes.	Likely significant detrimental effect on intertidal mudflat and sandflat habitats due to coastal squeeze.	No significant effect on intertidal mudflat and sandflat habitats due to creation of new intertidal habitat.	No significant effect on intertidal mudflat and sandflat habitats as natural development landward of the site can occur provided no indirect land use constraints are present.
Ynys Seiriol / Puffin Island SPA	Likely significant detrimental effect on the cormorant population where encroachment of defences results in the loss of shingle beach supporting habitats.	Likely significant detrimental effect on the cormorant population where encroachment of defences results in the loss of shingle beach and sea cliff supporting habitats.	Likely significant detriment effect on cormorant population due to mechanical loss of supporting habitat (sea cliff, grassland and heathland).	No significant effect in the long term as the supporting habitat of sea cliff, shingle, grassland and heathland would naturally develop in response to erosion.
Traeth Lafan / Lavan Sands, Conway Bay SPA	Likely significant detrimental effect due to the loss of supporting habitat (estuary, mudflats and sandflats) for oystercatcher, curlew and great-crested grebe, which could affect their populations.	Likely significant detrimental effect due to the loss of supporting habitat (mudflats and sandflats) for oystercatcher and curlew, which could affect their populations.	No significant effect on oystercatcher, curlew and great-crested grebe populations as the extent and character of available supporting habitat would remain the same for the site and immediate area.	No significant effect on oystercatcher, curlew and great-crested grebe populations as the intertidal habitats could naturally develop in response to sea level rise provided no indirect land use constraints are present.

Site	SMP Policy Option			
	Advance the Line	Hold the Line	Managed Realignment	No Active Intervention
Coedydd Aber SAC	No significant effect as the site is over 0.85km inland and >50m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 0.85km inland and >50m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 0.85km inland and >50m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 0.85km inland and >50m above MHWS, and no direct or indirect effects would arise.
Great Orme's Head/ Pen y Gogarth SAC	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion and succession of vegetation.	Likely significant detrimental effect on vegetated sea cliffs where the cliffs are stabilised, thus preventing natural erosion and succession of vegetation.	Likely significant detriment effect from mechanical removal of vegetated sea cliffs, and loss of heathland and grassland habitat due to managed realignment.	No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation.
Coedwigoedd Penrhyn Creuddyn/ Creuddyn Peninsula Woods SAC	No significant effect as the site is over 1.15km inland and >20m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 1.15km inland and >20m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 1.15km inland and >20m above MHWS, and no direct or indirect effects would arise.	No significant effect as the site is over 1.15km inland and >20m above MHWS, and no direct or indirect effects would arise.

5.2 Findings

- 5.2.1 The findings of the LSE test examining the four policy options against each Natura 2000 and Ramsar Site within the SMP boundary is summarised in **Table 5.2**.

Table 5.2 West of Wales SMP2 Natura 2000 and Ramsar Sites Scoped In or Out of SMP Policy Options

Key

	The Site or features present are likely to be directly or indirectly affected as a result of this option
	The Site or features present are unlikely to be affected as a result of this option

Site / Designation	Management Option			
	Hold the line	Advance the line	Managed realignment	No active intervention
Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd SAC				
Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC				
Carmarthen Bay Dunes/ Twyni Bae Caerfyrddin SAC				
Bae Caerfyrddin / Carmarthen Bay SPA				
Pembrokeshire Marine/ Sir Benfro Forol SAC				
Afonydd Cleddau/ Cleddau Rivers SAC				
Castlemartin Coast SPA				
Pembrokeshire Bat Sites and Bosherton Lakes/ Safleoedd Ystlum Sir Benfro a Llynno SAC				
Skokholm and Skomer SPA				
Grassholm SPA				
Ramsey and St David's Peninsula Coast SPA				
St David's / Ty Ddewi SAC				
North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro SAC				
Afon Teifi/ River Teifi SAC				
Cardigan Bay/ Bae Ceredigion SAC				
Pen Llyn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC				
Cors Fochno SAC				
Dyfi Estuary / Aber Dyfi SPA				
Cors Fochno (and Dyfi) Ramsar				

Site / Designation	Management Option			
	Hold the line	Advance the line	Managed realignment	No active intervention
Morfa Harlech a Morfa Dyffryn SAC				
Coedydd Derw a Safleoedd Ystumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC				
Afon Eden – Cors Goch Trawsfynydd SAC				
Corsydd Llyn/ Lleyn Fens SAC				
Anglesey and Lleyn Fens Ramsar				
Clogwyni Pen Llyn/ Seacliffs of Lleyn SAC				
Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA				
Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island SPA				
Glynllifon SAC				
Afon Gwyrfaï a Llyn Cwellyn SAC				
Y Twyni o Abermenai i Aberffraw/ Abermenai to Aberffraw Dunes SAC				
Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC				
Glan-traeth SAC				
Llyn Dinam SAC				
Glannau Ynys Gybi/ Holy Island Coast SAC				
Glannau Ynys Gybi/ Holy Island Coast SPA				
Ynys Feurig, Cemlyn Bay and The Skerries SPA				
Bae Cemlyn/ Cemlyn Bay SAC				
Ynys Seiriol / Puffin Island SPA				
Traeth Lafan / Lavan Sands, Conway Bay SPA				
Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC				
Coedydd Aber SAC				
Great Orme`s Head/ Pen y Gogarth SAC				
Coedwigoedd Penrhyn Creuddyn/ Creuddyn Peninsula Woods SAC				

5.2.2 Based on the assessment in **Table 5.1** as summarised in **Table 5.2**, the following sites have been completely scoped out of the Stage 3 Appropriate Assessment:

- North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro SAC.
- Afon Eden – Cors Goch Trawsfynydd SAC.
- Anglesey and Lleyn Fens Ramsar.
- Glynllifon SAC.
- Glan-traeth SAC.
- Llyn Dinam SAC.
- Coedydd Aber SAC.
- Coedwigoedd Penrhyn Creuddyn/ Creuddyn Peninsula Woods SAC.

5.2.3 The following sites were screened out in Section 3:

- Burry Inlet SAC (in excess of 70km away).
- Dee Estuary SAC (in excess of 30km away).
- Dee Estuary SPA (in excess of 36km away).
- River Dee and Bala Lake SAC (in excess of 60km away).

5.2.4 The remaining sites presented in **Table 5.2** have been scoped in for the Stage 3 Appropriate Assessment.

6 CONCLUSIONS

6.1 Introduction

6.1.1 This report has provided four basic tasks to determine the scope of the assessment:

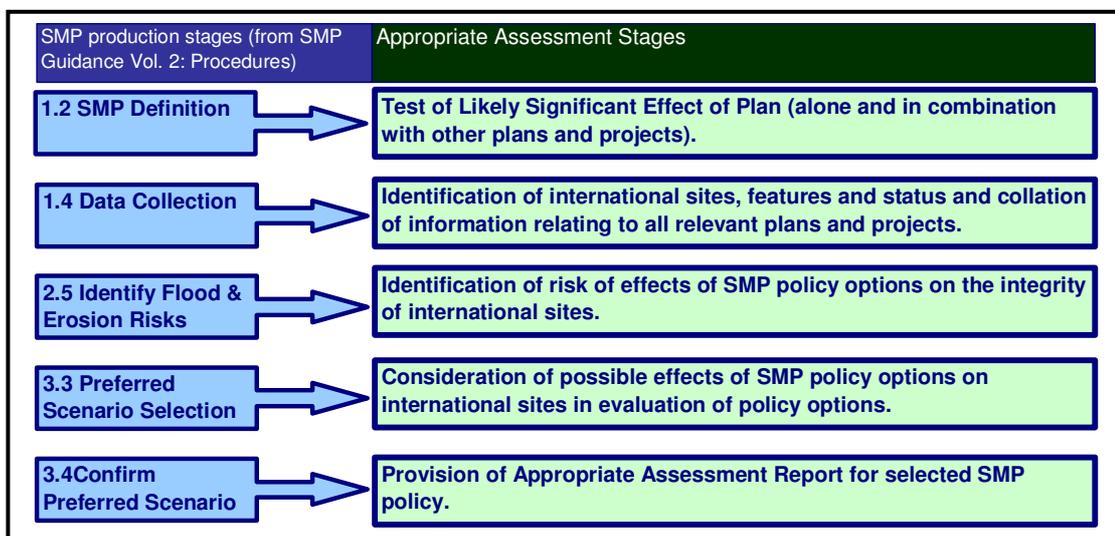
- An account of the SPA, SAC and Ramsar designated sites of the study area including reasons for their designations, factors influencing the condition of the sites and the sites conservation objectives and sensitivities (see **Section 2** and **Appendix A**);
- Sensitivity of the designated sites and their features and the likely significant effects from shoreline management policy options (see **Section 2**);
- Identification of key plans and projects which need to be considered within the Appropriate Assessment (see **Section 4**); and
- Summarised the potential issues associated with the various policy options on the SPA, SAC and Ramsar sites which require consideration (based on **Section 2**, **Appendix A**, and presented in **Table 5.1**).

6.1 Next Stage: Where to From Here?

6.1.1 Task 1.2 in **Figure 6.1** has already been undertaken as part of this significance assessment document (**Section 2** and **Appendix A** and **Section 5**), with the conclusion that the SMP2 as a whole has a likely significant effect on the majority of *Natura 2000* sites. Task 1.4 has also been undertaken, in that key plans and projects with potential to act “in combination” with the SMP2 have been identified albeit that these have not been scrutinised in detail at this stage.

6.1.2 Further development of the Habitats Regulations Assessment will be in accordance with **Figure 6.1**, and will re-commence once SMP2 policy development of the SMP2 is at a more advanced stage. This significance assessment document is therefore offered in an attempt to define the overall approach and specific detail of the Appropriate Assessment. It will thus enable any outstanding issues to be identified such that they can be incorporated within the Habitats Regulations Assessment when it is ultimately undertaken for the West of Wales SMP2.

Figure 6.1 Integration of the Habitats Regulations Assessment Process into SMP2



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7 REFERENCES

CCW (2008a). *Assessing Projects Under the Habitats Directive – Guidance for Competent Authorities.*

CCW (2008b). Core Management Plan including Conservation Objectives for Y Twyni o Abermenai I Aberffraw / Abermenai to Aberffraw Dunes SAC; Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC; Newborough Warren - Ynys Llanddwyn SSSI; Tywyn Aberffraw SSSI; Morfa Dinlle SSSI.

CCW (2008c). Core Management Plan including Conservation Objectives for Afon Gwyrfai a Llyn Cwellyn SAC.

CCW (2008d). Core Management Plan including Conservation Objectives for Afon Teifi/ River Teifi SAC.

CCW (2008e). Core Management Plan including Conservation Objectives for Afonydd Cleddau/ Cleddau Rivers SAC.

CCW (2008f). Core Management Plan including Conservation Objectives for Carmarthen Bay Dunes/ Twyni Bae Caerfyrddin SAC.

CCW (2008g). Core Management Plan including Conservation Objectives for Ynys Feurig, Cemlyn Bay and The Skerries SPA, Cemlyn Bay SAC, Ynys Feurig SSSI, The Skerries SSSI, Cemlyn Bay SSSI.

CCW (2008h). Core Management Plan including Conservation Objectives for Clogwyni Pen Llyn/ Seacliffs of Llyn SAC, including part of Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA and part of Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island SPA.

CCW (2008i). Core Management Plan including Conservation Objectives for Coedydd Aber SAC,

CCW (2008j). Core Management Plan including Conservation Objectives for Cors Fochno SAC.

CCW (2008k). Core Management Plan including Conservation Objectives for Corsydd Llyn: Corsydd Môn a Llyn/ Anglesey and Llyn Fens Ramsar site (Llyn sites only), Cors Hirdre SSSI, Cors Geirch SSSI/NNR/part Ramsar site, Rhyllech Uchaf SSSI, Abergeirch SSSI.

CCW (2008l). Core Management Plan including Conservation Objectives for Coedwigoedd Penrhyn Creuddyn/Creuddyn Peninsula Woods SAC.

CCW (2008m). Core Management Plan including Conservation Objectives for Glannau Ynys Gybi SAC & Glannau Ynys Gybi SPA.

CCW (2008n). Core Management Plan including Conservation Objectives for Glan-traeth SAC and SSSI.

CCW (2008o). Core Management Plan including Conservation Objectives for Glynllifon SAC.

CCW (2008p). Core Management Plan including Conservation Objectives for Great Orme's Head / Pen y Gogarth SAC.

CCW (2008q). Core Management Plan including Conservation Objectives for Limestone Coast of South West Wales / Arfordir Calchfaen de Orllewin Cymru SAC (incorporating Castlemartin Coast SPA).

CCW (2008r). Core Management Plan including Conservation Objectives for Llyn Dinam SAC: Llynai Y Falie SSSI.

CCW (2008s). Core Management Plan including Conservation Objectives for Meirionnydd Oakwoods and Bat Sites SAC.

CCW (2008t). Core Management Plan including Conservation Objectives for Morfa Harlech a Morfa Dyffryn Special Area of Conservation.

CCW (2008u). Core Management Plan including Conservation Objectives for North West Pembrokeshire Commons SAC.

CCW (2008v). Core Management Plan including Conservation Objectives for Pembrokeshire Bat Sites and Bosherton Lakes SAC

CCW (2008w). Core Management Plan including Conservation Objectives for St David's SAC.

CCW (2008x). Core Management Plan including Conservation Objectives for Dyfi Estuary / Aber Dyfi SPA.

CCW (2008y). Core Management Plan including Conservation Objectives for Skokholm and Skomer SPA.

CCW (2008z). Core Management Plan including Conservation Objectives for Ynys Seiriol / Puffin Island SPA.

CCW (2009a). Carmarthen Bay and Estuaries/Bae Caerfyrddin ac Aberoedd European Marine Site comprising: Carmarthen Bay and Estuaries/Bae Caerfyrddin ac Aberoedd Special Area of Conservation, Carmarthen Bay/Bae Caerfyrddin Special Protection Area, Burry Inlet Protection Area & Ramsar Site: Advice provided by the Countryside Council for Wales in fulfilment of Regulation 33 of the Conservation (Natural Habitats, &c) Regulations 1994.

CCW (2009b). Y Fenai a Bae Conwy / Menai Strait and Conwy Bay European Marine Site comprising: Y Fenai a Bae Conwy / Menai Strait and Conwy Bay Special Area of Conservation, Traeth Lafan Special Protection Area, Ynys Seiriol / Puffin Island Special Protection Area: Advice provided by the Countryside Council for Wales in fulfilment of Regulation 33 of the Conservation (Natural Habitats, &c) Regulations 1994.

CCW (2009c). Cardigan Bay European Marine Site: Advice provided by the Countryside Council for Wales in fulfilment of Regulation 33 of the Conservation (Natural Habitats, &c) Regulations 1994.

CCW (2009d). Pen Llŷn a'r Sarnau /Lleyn Peninsula and the Sarnau European Marine Site comprising: Pen Llŷn a'r Sarnau /Lleyn Peninsula and the Sarnau Special Area of

Conservation: Advice provided by the Countryside Council for Wales in fulfilment of Regulation 33 of the Conservation (Natural Habitats, &c) Regulations 1994.

CCW (2009e). Pembrokeshire Marine European Marine Site: Advice provided by the Countryside Council for Wales in fulfilment of Regulation 33 of the Conservation (Natural Habitats, &c) Regulations 1994.

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8 GLOSSARY OF TERMS

Appropriate Assessment (AA): An appropriate assessment determines whether a likely significant effect will occur as a result of a proposed plan, policy or project. Also referred to as a Habitats Regulations Assessment (HRA).

Birds Directive: European Community Directive (79/409/EEC) on the conservation of wild birds. Implemented in the UK as the Conservation (Natural Habitats, etc.) Regulations (1994). For further information consult Her Majesties Stationary Office website: http://www.hmso.gov.uk/si/si1994/Uksi_19942716_en_1.htm

Candidate Special Area for Conservation (cSAC): SACs are internationally important sites for habitats and/or species, designated as required under the EC Habitats Directive. A candidate SAC is currently under consideration for its inclusion under the EC Habitats Directive. SACs are protected for their internationally important habitat and non-bird species. They also receive SSSI designation under The Countryside and Rights of Way (CRoW) Act 2000; and The Wildlife and Countryside Act 1981 (as amended). For further details refer to the following The Joint Nature Conservation Committee website <http://www.jncc.gov.uk>

Competent Authority: The organisation which prepares a plan or programme subject to the Directive and is responsible for the AA.

Department for Communities and Local Government (DCLG): The department that is responsible for local communities and social issues. For further information please view the website: <http://www.communities.gov.uk/corporate/>

Habitats Directive: The Habitats Directive (Council Directive 92/43/EEC of 21 May 1992) requires EU Member States to create a network of protected wildlife areas, known as Natura 2000, across the European Union. This network consists of Special Areas of Conservation (SACs) and Special Protection Areas (SPAs), established to protect wild birds under the Birds Directive (Council Directive 79/409/EEC of 2 April 1979). These sites are part of a range of measures aimed at conserving important or threatened habitats and species.

Habitats Regulations Assessment (HRA): An assessment to determine whether a likely significant effect will occur as a result of a proposed plan, policy or project. Also referred to as an Appropriate Assessment (AA).

Indicator: A measure of variables over time often used to measure achievement of objectives.

Local Development Plans: Part 6 of the Planning and Compulsory Purchase Act 2004 requires each authority in Wales to prepare a local development plan (LDP) for its area (section 62 of the 2004 Act). This requirement will build upon the substantive work that many authorities have undertaken in developing their unitary development plans (UDPs) since 1996, including consultative processes, gathered evidence and policy development. The LDP will be the development plan for each county or county borough council and each National Park, superseding the UDP or any other existing development plan.

Mitigation: Used in this Guide to refer to measures to avoid, reduce or offset significant adverse effects on the environment.

Objective: A statement of what is intended, specifying the desired direction of change in trends.

Plan or Programme: For the purposes of this Guide, the term “plan or programme” covers any plans or programmes to which the Directive applies.

Ramsar Site: The Ramsar Convention on Wetlands of International Importance, especially as Waterfowl Habitat (1971) requires the UK Government to promote using wetlands wisely and to protect wetlands of international importance. This includes designating certain areas as Ramsar sites, where their importance for nature conservation (especially with respect to waterfowl) and environmental sustainability meet certain criteria. Ramsar sites receive SSSI designation under The Countryside and Rights of Way (CRoW) Act 2000 and The Wildlife and Countryside Act 1981 (as amended). Further information can be located on the Ramsar convention on wetlands website: <http://www.ramsar.org/>

Regional Spatial Strategy (RSS): This will replace the RPG. It sets out a regional framework that addresses the ‘spatial’ implications of broad issues like healthcare, education, crime, housing, investment, transport, the economy and environment.

Scoping: The process of deciding the scope and level of detail of an AA, including the environmental effects and alternatives which need to be considered, the assessment methods to be used, and the structure and contents of the Appropriate Assessment Report.

Shoreline Management Plan (SMP): Non-statutory plans to provide sustainable coastal defence policies (to prevent erosion by the sea and flooding of low-lying coastal land) and to set objectives for managing the shoreline in the future. They are prepared by us or maritime local authorities, acting individually or as part of coastal defence groups.

Site of Special Scientific Interest (SSSI): Sites of Special Scientific Interest (SSSIs) are notified under the Wildlife and Countryside Act 1981 (as amended) and the Countryside and Rights of Way (CRoW) Act 2000 for their flora, fauna, geological or physiographical features. Notification of a SSSI includes a list of work that may harm the special interest of the site. The Wildlife and Countryside Act 1981 (provisions relating to SSSIs) has been replaced by a new Section 28 in Schedule 9 of the CROW Act. The new Section 28 provides much better protection for SSSIs. All cSACs, SPAs and Ramsar sites are designated as SSSIs. For further information refer to English Nature’s website: <http://www.english-nature.com>

Special Protection Area (SPA): A site of international importance for birds, designated as required by the EC Birds Directive. SPAs are designated for their international importance as breeding, feeding and roosting habitat for bird species. The Government must consider the conservation of SPAs in all its planning decisions. SPAs receive SSSI designation under The Countryside and Rights of Way (CRoW) Act 2000 and The Wildlife and Countryside Act 1981 (as amended). For further details refer to the European Commission: website: <http://europa.eu.int/> and the Joint Nature Conservation Committee website.

Technical Advisory Notes (TAN): Changes or updates to planning policy are issued in Ministerial Interim Planning Policy Statements (MIPPS). Planning Policy Wales is supplemented by a series of topic-based Technical Advice Notes (TANs). Circular letters also provide national advice and guidance on specific topics.

9 LIST OF ABBREVIATIONS

AA	Appropriate Assessment
BAP	Biodiversity Action Plan
CCW	Countryside Council for Wales
HRA	Habitats Regulations Assessment
IROPI	Imperative Reasons of Overriding Public Interest
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LDF	Local Development Framework
RSPB	Royal Society for the Protection of Birds
Ramsar	The Ramsar Convention on Wetlands of International Importance
RPG	Regional Planning Guidance
RSS	Regional Spatial Strategy
TAN	Technical Advice Note
SAC	Special Area for Conservation
SMP	Shoreline Management Plan
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
WAG	Welsh Assembly Government

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10 APPENDIX A

International Designation	Site Name	Description of interest	Area (Ha)
Special Areas of Conservation			
SAC	Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Sandbanks which are slightly covered by sea water all the time • Estuaries • Mudflats and sandflats not covered by seawater at low tide • Large shallow inlets and bays • Salicornia and other annuals colonising mud and sand • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Twaite shad <i>Alosa fallax</i> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> • Sea lamprey <i>Petromyzon marinus</i> • River lamprey <i>Lampetra fluviatilis</i> • Allis shad <i>Alosa alosa</i> • Otter <i>Lutra lutra</i> 	66101
SAC	Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Vegetated sea cliffs of the Atlantic and Baltic coasts • Fixed dunes with herbaceous vegetation ('grey dunes'): * Priority feature <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • European dry heaths • Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) • Caves not open to the public • Submerged or partially submerged sea caves • Mudflats and sandflats not covered by seawater at low tide • Embryonic shifting dunes • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes") • Humid dune slacks <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Greater horseshoe bat <i>Rhinolophus ferrumequinum</i> • Early gentian <i>Gentianella anglica</i> <p>Annex II species also present within the site</p> <ul style="list-style-type: none"> • Petalwort <i>Petalophyllum ralfsii</i> 	1595

International Designation	Site Name	Description of interest	Area (Ha)
SAC	Carmarthen Bay Dunes/ Twyni Bae Caerfyrddin	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Embryonic shifting dunes • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') • Fixed dunes with herbaceous vegetation ('grey dunes') * Priority feature - • Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) • Humid dune slacks <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Narrow-mouthed whorl snail <i>Vertigo angustior</i> • Petalwort <i>Petalophyllum ralfsi</i> • Fen orchid <i>Liparis loeselii</i> 	1206
SAC	Pembrokeshire Marine/ Sir Benfro Forol	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Estuaries • Large shallow inlets and bays • Reefs <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Sandbanks which are slightly covered by sea water all the time • Mudflats and sandflats not covered by seawater at low tide • Coastal lagoons * Priority feature • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) • Submerged or partially submerged sea caves <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Grey seal <i>Halichoerus grypus</i> • Shore dock <i>Rumex rupestris</i> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> • Sea lamprey <i>Petromyzon marinus</i> • River lamprey <i>Lampetra fluviatilis</i> • Allis shad <i>Alosa alosa</i> • Twait shad <i>Alosa fallax</i> • Otter <i>Lutra lutra</i> 	138069

International Designation	Site Name	Description of interest	Area (Ha)
SAC	Afonydd Cleddau/ Cleddau Rivers	<p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation • Active raised bogs * Priority feature • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) * Priority feature <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Brook lamprey <i>Lampetra planeri</i> • River lamprey <i>Lampetra fluviatilis</i> • Bullhead <i>Cottus gobio</i> • Otter <i>Lutra lutra</i> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> • Sea lamprey <i>Petromyzon marinus</i> 	751
SAC	Pembrokeshire Bat Sites and Bosherton Lakes/ Safleoedd Ystlum Sir Benfro a Llynno	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara spp</i> <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Greater horseshoe bat <i>Rhinolophus ferrumequinum</i> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> • Lesser horseshoe bat <i>Rhinolophus hipposideros</i> • Otter <i>Lutra lutra</i> 	122
SAC	St David's / Ty Ddewi	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Vegetated sea cliffs of the Atlantic and Baltic coasts • European dry heaths <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Floating water-plantain <i>Luronium natans</i> 	935
SAC	North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • European dry heaths • Transition mires and quaking bogs <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Northern Atlantic wet heaths with <i>Erica tetralix</i> • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Floating water-plantain <i>Luronium natans</i> 	289

International Designation	Site Name	Description of interest	Area (Ha)
SAC	Afon Teifi/ River Teifi	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> <p>Annex I habitats also present within the site</p> <ul style="list-style-type: none"> Mudflats and sandflats not covered by seawater at low tide <i>Salicornia</i> and other annuals colonising mud and sand Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) Embryonic shifting dunes <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> Brook lamprey <i>Lampetra planeri</i> River lamprey <i>Lampetra fluviatilis</i> Atlantic salmon <i>Salmo salar</i> Bullhead <i>Cottus gobio</i> Otter <i>Lutra lutra</i> Floating water-plantain <i>Luronium natans</i> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> Sea lamprey <i>Petromyzon marinus</i> 	716
SAC	Cardigan Bay/ Bae Ceredigion	<p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> Sandbanks which are slightly covered by sea water all the time Reefs Submerged or partially submerged sea caves <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> Mudflats and sandflats not covered by seawater at low tide <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> Bottlenose dolphin <i>Tursiops truncatus</i> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> Sea lamprey <i>Petromyzon marinus</i> River lamprey <i>Lampetra fluviatilis</i> Grey seal <i>Halichoerus grypus</i> 	95860

International Designation	Site Name	Description of interest	Area (Ha)
SAC	Pen Llyn a`r Sarnau/ Lley Peninsula and the Sarnau	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> Sandbanks which are slightly covered by sea water all the time Estuaries Coastal lagoons * Priority feature Large shallow inlets and bays Reefs <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> Mudflats and sandflats not covered by seawater at low tide Salicornia and other annuals colonising mud and sand Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>) Submerged or partially submerged sea caves <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> Bottlenose dolphin <i>Tursiops truncatus</i> Otter <i>Lutra lutra</i> Grey seal <i>Halichoerus grypus</i> 	146023
SAC	Cors Fochno	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> Active raised bogs: * Priority feature Degraded raised bogs still capable of natural regeneration <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> Depressions on peat substrates of the <i>Rhynchosporion</i> Bog woodland * Priority feature <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> Otter <i>Lutra lutra</i> 	653
SAC	Morfa Harlech a Morfa Dyffryn	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> Embryonic shifting dunes Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>) Humid dune slacks <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> Petalwort <i>Petalophyllum ralfsii</i> <p>Annex II species that are present in this site</p> <ul style="list-style-type: none"> Great-crested newt <i>Triturus cristatus</i> 	1063

International Designation	Site Name	Description of interest	Area (Ha)
SAC	Coedydd Derw a Safleoedd Ystlumod Meirion/ Meirionnydd Oakwoods and Bat Sites	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) * Priority feature <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation • Northern Atlantic wet heaths with <i>Erica tetralix</i> • European dry heaths • <i>Tilio-Acerion</i> forests of slopes, screes and ravines * Priority feature • Bog woodland: * Priority feature <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Lesser horseshoe bat <i>Rhinolophus hipposideros</i> <p>Annex II species that are present in this site</p> <ul style="list-style-type: none"> • Atlantic salmon <i>Salmo salar</i> • Otter <i>Lutra lutra</i> 	2814
SAC	Afon Eden	<p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Active raised bogs * Priority feature <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Freshwater pearl mussel <i>Margaritifera margaritifera</i> • Floating water-plantain <i>Luronium natans</i> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> • Sea lamprey <i>Petromyzon marinus</i> • Otter <i>Lutra lutra</i> 	284
SAC	Corsydd Llyn/ Lleyrn Fens	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Alkaline fens <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davalliana</i> * Priority feature <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Desmoulin's whorl snail <i>Vertigo moulinsiana</i> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> • Geyer's whorl snail <i>Vertigo geyeri</i> 	284
SAC	Clogwyni Pen Llyn/ Seacliffs of Lleyrn	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Vegetated sea cliffs of the Atlantic and Baltic coasts 	1048

International Designation	Site Name	Description of interest	Area (Ha)
SAC	Glynllifon	<p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Lesser horseshoe bat <i>Rhinolophus hipposide</i> <p>Annex II species that are present in this site</p> <ul style="list-style-type: none"> • Otter <i>Lutra lutra</i> 	189
SAC	Afon Gwyrfai a Llyn Cwellyn	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the Isoëto-Nanojuncetea • Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Atlantic salmon <i>Salmo salar</i> • Floating water-plantain <i>Luronium natans</i> <p>Annex II species present as a qualifying feature, but not a primary reason for site selection</p> <ul style="list-style-type: none"> • Otter <i>Lutra lutra</i> <p>Annex II species that are present in this site</p> <ul style="list-style-type: none"> • Brook lamprey <i>Lampetra planeri</i> • River lamprey <i>Lampetra fluviatilis</i> 	114
SAC	Y Twyni o Abermenai i Aberffraw/ Abermenai to Aberffraw Dunes	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Embryonic shifting dunes • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes') • Fixed dunes with herbaceous vegetation ('grey dunes') * Priority feature • Atlantic decalcified fixed dunes (<i>Calluno-Ulicetea</i>) • Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>) • Humid dune slacks <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i>-type vegetation • Transition mires and quaking bogs <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Petalwort <i>Petalophyllum ralfsii</i> • Shore dock <i>Rumex rupestris</i> <p>Annex II species that are present in this site</p> <ul style="list-style-type: none"> • Great-crested newt <i>Triturus cristatus</i> 	1871

International Designation	Site Name	Description of interest	Area (Ha)
SAC	Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Salicornia and other annuals colonising mud and sand • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Estuaries • Mudflats and sandflats not covered by seawater at low tide <p>Annex I habitats also present in this site</p> <ul style="list-style-type: none"> • Vegetated sea cliffs of the Atlantic and Baltic coasts • Spartina swards (<i>Spartinion maritimae</i>) 	1058
SAC	Glan-traeth	<p>Annex I habitats present in this site</p> <ul style="list-style-type: none"> • Fixed dunes with herbaceous vegetation ('grey dunes') * Priority feature <p>Annex II species that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Great crested newt <i>Triturus cristatus</i> 	14
SAC	Llyn Dinam	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i>-type vegetation 	37
SAC	Glannau Ynys Gybi/ Holy Island Coast	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Vegetated sea cliffs of the Atlantic and Baltic coasts • European dry heaths <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Northern Atlantic wet heaths with <i>Erica tetralix</i> <p>Annex I habitats also present in this site</p> <ul style="list-style-type: none"> • Reefs • Submerged or partially submerged sea caves <p>Annex II species that are present within this site</p> <ul style="list-style-type: none"> • Gray seal <i>Halichoerus grypus</i> 	464
SAC	Bae Cemlyn/ Cemlyn Bay	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Coastal lagoons * Priority feature <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Perennial vegetation of stony banks 	43

International Designation	Site Name	Description of interest	Area (Ha)
SAC	Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> Sandbanks which are slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide Reefs <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> Large shallow inlets and bays Submerged or partially submerged sea caves <p>Annex I habitats also present in this site</p> <ul style="list-style-type: none"> Estuaries 	26483
SAC	Coedydd Aber	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) * Priority feature <p>Annex I habitats also present in this site</p> <ul style="list-style-type: none"> Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation <p>Annex II species that are present within this site</p> <ul style="list-style-type: none"> Atlantic salmon <i>Salmo salar</i> Otter <i>Lutra lutra</i> 	346
SAC	Great Orme`s Head/ Pen y Gogarth	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> European dry heaths Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> Vegetated sea cliffs of the Atlantic and Baltic coasts <p>Annex I habitats also present in this site</p> <ul style="list-style-type: none"> Calaminarian grasslands of the <i>Violetalia calaminariae</i> <i>Molinia</i> meadows on calcareous, peaty or clayey-silt laden soils (<i>Molinion caeruleae</i>) Limestone pavements Caves not open to the public <i>Tilio-Acerion</i> forests of slopes, screes and ravines <p>Annex II species that are present within this site</p> <ul style="list-style-type: none"> Lesser horseshoe bat <i>Rhinolophus hipposideros</i> 	303

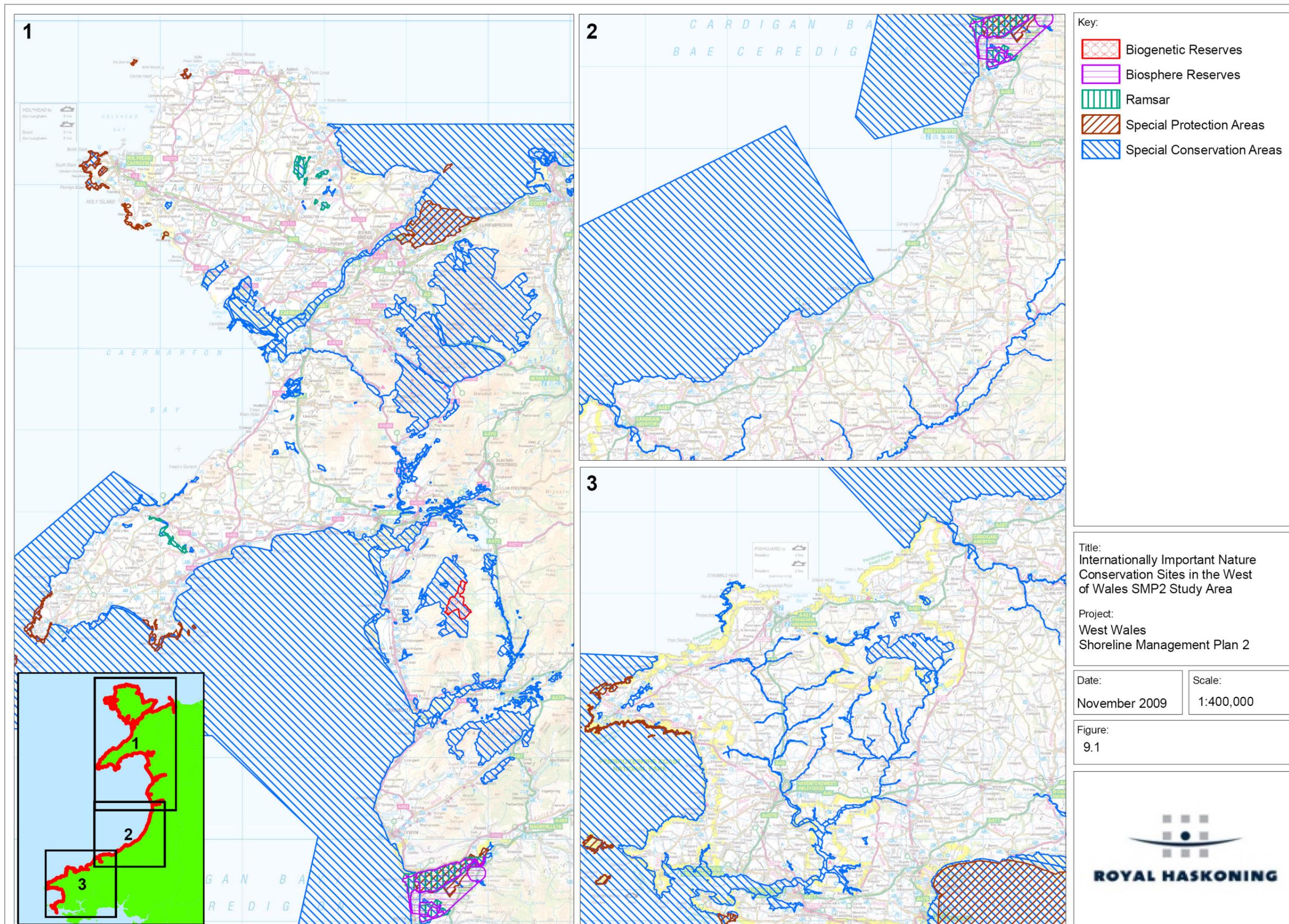
International Designation	Site Name	Description of interest	Area (Ha)
SAC	Coedwigoedd Penrhyn Creuddyn/ Creuddyn Peninsula Woods	<p>Annex I habitats that are a primary reason for selection of this site</p> <ul style="list-style-type: none"> • <i>Tilio-Acerion</i> forests of slopes, screes and ravines * Priority feature <p>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</p> <ul style="list-style-type: none"> • Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>) • <i>Taxus baccata</i> woods of the British Isles * Priority feature <p>Annex I habitats also present in this site</p> <ul style="list-style-type: none"> • Limestone pavements • Caves not open to the public • <i>Asperulo-Fagetum</i> beech forests <p>Annex II species that are present within this site</p> <p>Lesser horseshoe bat <i>Rhinolophus hipposideros</i></p>	119
Special Protection Areas			
SPA	Bae Caerfyrddin / Carmarthen Bay	<p>Article 4.2 Qualification (79/409/EEC)</p> <ul style="list-style-type: none"> • Common scoter <i>Melanitta nigra</i>, (Western Siberia/Western & Northern Europe/North-western Africa) 1.0% of the wintering population 5 year peak mean 1997/98 - 2001/02 	33410
SPA	Castlemartin Coast	<p>Article 4.1 Qualification (79/409/EEC)</p> <ul style="list-style-type: none"> • Chough <i>Pyrrhocorax pyrrhocorax</i> 3.5% of the GB breeding population (Count as at 1998) • Chough <i>Pyrrhocorax pyrrhocorax</i>, 3.5% of the wintering population in Great Britain (Count as at 1998) 	1122
SPA	Skokholm and Skomer	<p>Article 4.1 Qualification (79/409/EEC)</p> <ul style="list-style-type: none"> • Chough <i>Pyrrhocorax pyrrhocorax</i> at least 1.2% of the breeding population in Great Britain • Short-eared Owl <i>Asio flammeus</i> at least 0.6% of the breeding population in Great Britain (Count as at 1998) • Storm Petrel <i>Hydrobates pelagicus</i> at least 4.1% of the breeding population in Great Britain (Count as at 1995) <p>Article 4.2 Qualification (79/409/EEC)</p> <ul style="list-style-type: none"> • Lesser Black-backed Gull <i>Larus fuscus</i> at least 16.4% of the breeding Western Europe /Mediterranean /Western Africa population (Mean 1993 to 1997) • Manx Shearwater <i>Puffinus puffinus</i> at least 56.9% of the breeding population (Count, as at late 1990s) • Puffin <i>Fratercula arctica</i>, 9,500 pairs representing at least 1.1% of the breeding population (Count, as at mid-1980s) <p>Assemblage qualification: A seabird assemblage of international importance</p> <p>During the breeding season, the area regularly supports 67,278 individual seabirds (Count period ongoing) including: Razorbill <i>Alca torda</i>, Guillemot <i>Uria aalge</i>, Kittiwake <i>Rissa tridactyla</i>, Puffin <i>Fratercula arctica</i>, Lesser Black-backed Gull <i>Larus fuscus</i>, Manx Shearwater <i>Puffinus puffinus</i>, Storm Petrel <i>Hydrobates pelagicus</i>.</p>	428

International Designation	Site Name	Description of interest	Area (Ha)
SPA	Grassholm	Article 4.2 Qualification (79/409/EEC) <ul style="list-style-type: none"> Gannet <i>Morus bassanus</i> 12.5% of the North Atlantic population (Count as at 1994/5) 	10
SPA	Ramsey and St David's Peninsula Coast	Article 4.1 Qualification (79/409/EEC) <ul style="list-style-type: none"> Chough <i>Pyrrhocorax pyrrhocorax</i> at least 3.2% of the GB breeding population (No count period specified) 	846
SPA	Dyfi Estuary / Aber Dyfi	Article 4.1 Qualification (79/409/EEC) <ul style="list-style-type: none"> Greenland white-fronted goose <i>Anser albifrons flavirostris</i> (Greenland /Ireland /UK) 1% of the wintering population in Great Britain 5 year peak mean for 1993/94 - 1997/98 	Area to be confirmed
SPA	Mynydd Cilan, Trwyn y Wylfa ac Ynsoedd Sant Tudwal	Article 4.1 Qualification (79/409/EEC) <ul style="list-style-type: none"> Chough <i>Pyrrhocorax pyrrhocorax</i> at least 2.6% of the wintering population in Great Britain (RSPB 2000) Chough <i>Pyrrhocorax pyrrhocorax</i> at least 2.6% of the GB breeding population (RSPB 2000) 	372
SPA	Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island	Article 4.1 Qualification (79/409/EEC) <ul style="list-style-type: none"> Chough <i>Pyrrhocorax pyrrhocorax</i> 3.5% of the GB breeding population (Count, as at late 1990s) Chough <i>Pyrrhocorax pyrrhocorax</i>, 3.5% of the wintering population in Great Britain (RSPB) Article 4.2 Qualification (79/409/EEC) <ul style="list-style-type: none"> Manx shearwater <i>Puffinus puffinus</i> 3.2% of the population in Great Britain during breeding season (Count, as at 1996) 	505
SPA	Glannau Ynys Gybi / Holy Island Coast	Article 4.1 Qualification (79/409/EEC) <ul style="list-style-type: none"> Chough <i>Pyrrhocorax pyrrhocorax</i> 6.4% of the GB breeding population (Count: RSPB 2001) Chough <i>Pyrrhocorax pyrrhocorax</i> 7% of the GB wintering population (Count: RSPB 2001) 	353
SPA	Ynys Feurig, Cemlyn Bay and The Skerries	Article 4.1 Qualification (79/409/EEC) <ul style="list-style-type: none"> Roseate Tern <i>Sterna dougallii</i> (Europe - breeding) 4.7% of the GB breeding population 5 year mean, 1992-1996 Common Tern <i>Sterna hirundo</i> (Northern/Eastern Europe - breeding) at least 1.5% of the GB breeding population 5 year mean, 1992-1996 Arctic Tern <i>Sterna paradisaea</i> (Arctic - breeding/Southern Oceans - wintering) at least 2.9% of the GB breeding population 5 year mean, 1992-1996 Sandwich Tern <i>Sterna sandvicensis</i> (Western Europe/Western Africa) 3.3% of the GB breeding population 5 year mean, 1993-1997 	86
SPA	Ynys Seiriol / Puffin Island	Article 4.2 Qualification (79/409/EEC) <ul style="list-style-type: none"> Cormorant <i>Phalacrocorax carbo</i> (North-western Europe) 1.35% of the breeding population 5 year mean for 1996 - 2000 	Area to be confirmed

International Designation	Site Name	Description of interest	Area (Ha)
SPA	Traeth Lafan / Lavan Sands, Conway Bay	<p>Article 4.2 Qualification (79/409/EEC)</p> <ul style="list-style-type: none"> Oystercatcher <i>Haematopus ostralegus</i> (Europe & Northern/Western Africa) 1.4% of the wintering population in Great Britain 5 year peak mean 1991/92-1995/96 Curlew <i>Numenius arquata</i> (Europe - breeding) 1.1% of the wintering population in Great Britain 5 year peak mean 1991/92-1995/96 <p>On passage the area regularly supports:</p> <ul style="list-style-type: none"> Great-crested grebe <i>Podiceps cristatus</i> (North-western Europe - wintering) Unknown % of the population in Great Britain (No count period specified) 	2643
Ramsar Sites			
Ramsar	Cors Fochno and Dyfi	<p>Ramsar criterion 1</p> <p>The site contains the largest expanse of primary raised mire in lowland Britain; the largest estuarine raised mire, and third-largest `active` raised mire in Britain.</p> <p>Habitats Directive Annex I habitats present include:</p> <p>Active raised bogs Degraded raised bogs still capable of natural regeneration Depressions on peat substrates of the <i>Rhynchosporion</i></p>	2492

International Designation	Site Name	Description of interest	Area (Ha)
Ramsar	Angelsey and Llyn Fens	<p>Ramsar criterion 1 The site supports a suite of base-rich, calcareous fens which is a rare habitat type within the United Kingdom's biogeographical zone.</p> <p>Habitats Directive Annex I habitats present on the SAC include:</p> <ul style="list-style-type: none"> • Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp. • Northern Atlantic wet heaths with <i>Erica tetralix</i> • <i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>) • Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> • Alkaline fens <p>Ramsar criterion 3 The site supports a diverse flora and fauna with associated rare species and is of special value for maintaining the genetic and ecological diversity of the region, including:</p> <ul style="list-style-type: none"> • Dwarf stonewort <i>Nitella tenuissima</i> • Slender cotton-grass <i>Eriophorum gracile</i> • Narrow-leaved marsh-orchid <i>Dactylorhiza traunsteineri</i> • Geyer's whorl snail <i>Vertigo geyeri</i> • Desmoulin's whorl-snail <i>Vertigo moulinsiana</i> • Southern damselfly <i>Coenagrion mercuriale</i> • Marsh fritillary butterfly <i>Euphydryas (Eurodryas, Hypodryas) aurinia</i> • Black night runner (a ground beetle) <i>Chlaenius tristis</i> • Hornet robberfly <i>Asilus crabroniformis</i> • The clubbed general (a soldier fly) <i>Stratiomys chamaeleon</i> • <i>Acrometopia wahlbergi</i> (a true fly) • The medicinal leech <i>Hirudo medicinalis</i> • Otter <i>Lutra lutra</i> 	467

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Annex III: Scoping Responses

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Page No.	Paragraph	Comment
	1.1.1	Please note that the 'The Conservation (Natural Habitats, & c.) (Amendment) (England and Wales) Regulations 2007' were consolidated in March 2010 and reference from now on should be to the Conservation of Habitats and Species Regulations 2010.
	1.1.5	It should be noted that "Managing Natura 2000 Sites – The Provisions of Article 6 of the Habitats Directive 92/43/EEC" recommends that where it is not possible to determine that a plan or project under consideration will not have an adverse effect on a European or Ramsar site, then alternative solutions which "better respect the integrity of the site in question" should be explored. Ideally, such alternatives would avoid the (potential) adverse effect identified, but consideration should also be given to options which are "less damaging" than that proposed.
	1.1.6	Please note that Conservation Objectives for non-marine sites in Wales are set out in the relevant Core Management Plans available on the CCW website at: http://www.ccw.gov.uk/landscape--wildlife/protecting-our-landscape/special-sites-project.aspx
	Section 2	This is a useful and straightforward summary of the European and international sites covered by this HRA. However, while we appreciate that further information is included in appendix 1, clear reference should be made to all the site feature conservation objectives (as detailed in the Regulation 33 packages and core management plans). It should not be necessary to reproduce the complete objectives, or the Plans themselves, within the HRA report itself, but a slightly more comprehensive appendix 1 with clear cross-reference to the relevant plan would help to avoid confusion. It should also be noted that the Habitats Regulation Appraisal process is not the same as the 'appropriate assessment'. The HRA refers to the whole process of assessment as set out in the Regulations, including the identification of sites potentially affected by the Plan, the test for likely significant effects, more detailed appropriate assessment (if required) and potentially, should the assessment fail to show that the plan would not have any adverse effects, the process of testing for alternative options, making a case for imperative reasons of over-riding public interest and the development of compensation measures. The appropriate assessment is only one stage of this process and to avoid confusion the various stages should be clearly defined.
	2.1.2	Carmarthen Bay and Estuaries SAC It would be useful to include feature condition information where available, as has been done with other sites in this section.
	2.1.5	Limestone Coast of South West Wales SAC See comments on section 2 – all qualifying features for the site should be identified in this section as should an indication of their conservation objectives and condition assessments. As it is currently set out the lesser horseshoe bat feature does not appear to have a conservation objective.

Page No.	Paragraph	Comment
	2.1.8	Carmarthen Bay Dunes SAC coastal lagoons are not a qualifying feature of the Carmarthen Bay Dunes SAC.
	2.1.9	While it is useful to focus in this section on the key management factors which are influencing feature condition, the elements of the conservation objectives which are directly relevant to the Shoreline Management Plan should also be noted, for example, the importance of maintaining natural coastal processes and sediment supply set out in the performance indicators for the embryonic dune features.
	2.1.14	Pembrokeshire Marine SAC See comments on section 2 – all qualifying features for the site should be identified in this section as should an indication of their conservation objectives and condition assessments
	2.1.15	While it is useful to focus in this section on the key management factors which are influencing feature condition, the elements of the conservation objectives which are directly relevant to the Shoreline Management Plan should also be noted, for example, the importance of maintaining natural estuarine processes. It would also be useful to include feature condition information where available, as has been done with other sites in this section
	2.1.16	Cleddau Rivers SAC Note that sea lamprey <i>Petromyzon marinus</i> is also a qualifying feature of the site.
	2.1.28	Grassholm SPA Please use the correct reference to Skokholm and Skomer SPA. Cardigan bay SAC
	2.1.44	While it is useful to focus in this section on the key management factors which are influencing feature condition, the elements of the conservation objectives which are directly relevant to the Shoreline Management Plan should also be noted, for example, the importance of maintaining natural coastal processes and sediment supply. It would also be useful to include feature condition information where available, as has been done with other sites in this section
	2.1.47	Pen Llyn a`r Sarnau SAC It would also be useful to include feature condition information where available, as has been done with other sites in this section.
	2.1.48	Cors Fochno SAC Otter is not a qualifying feature on the Cors Fochno SAC.
	2.1.57	Morfa Harlech a Morfa Dyffryn SAC It would help if it could be made clear that otter, although present on the site, is not a qualifying feature of the SAC.
	2.1.58	It would also be useful to include feature condition information where available, as has been done with other sites in this section

Page No.	Paragraph	Comment
	2.1.59	We welcome the recognition of the importance of maintaining natural coastal processes and sediment supply to keep the features of this SAC in favourable condition. However, to secure favourable condition in the medium to long term will require that an active dune system is also maintained. Ultimately, this will require integrated management of the site as a whole and not just the coastal margins so that the body of sand which forms the dune complex can migrate landward and so maintain the area of dune habitats and their relevant position to the tidal frame.
	2.1.60	Meirionnydd oak woods and bat sites SAC It would help if it could be made clear that otter and salmon, although present on the site, are not a qualifying features of the SAC
	2.1.66	Afon Eden SAC The key factors and sensitivities influencing the features of the Afon Eden SAC are set out in the Core Site Management Plan (for example, section 4.1 – performance indicators), therefore, we are unclear why it is stated that they are “unknown”.
	2.1.67	Corsydd Llyn SAC Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i> is also a qualifying feature of this site.
	2.1.69	It is worth noting that part of the site, Aber Geirch SSSI, includes a coastal element and while the sensitivities identified in the HRA reflect the key issues for the majority of the site, there are additional factors for this element of the SAC which may be specifically relevant to the SMP2. We note that this has been identified in the assessment in section 5.
	2.1.86	Abermenai to Aberffraw Dunes SAC We are unclear as to the reference to “Atlantic decalcified fixed dunes” in this section as this are not a feature of this site.
	2.1.88	Note that grazing is maintained by close-herded cattle on this site and cattle grids are no longer an issue.
	2.1.92	Glan-traeth SAC It would help if it could be made clear that the fixed dunes with herbaceous vegetation (grey dunes) feature, although present on the site, is not a qualifying feature of the SAC
	2.1.98	Holy Island coast SAC/SPA It would help if it could be made clear that the grey seal feature, although present on the site, is not a qualifying features of the SAC.
	2.1.106	Cemlyn Bay SAC While it is useful to focus in this section on the key management factors which are influencing feature condition, the elements of the conservation objectives which are directly relevant to the Shoreline Management Plan should also be noted, for example, the importance of maintaining the shingle ridge which is central to the integrity of the site.
	2.1.108	Menai Strait and Conwy Bay SAC It would be useful to include feature condition information where available, as has been done with other sites in this section.

Page No.	Paragraph	Comment
	2.1.116	Coedydd Aber SAC It would help if it could be made clear that water courses of plain to montane levels with the Ranunculion fluitantis and Callitriche-Batrachion vegetation and the Atlantic salmon and otter features, although present on the site, are not a qualifying features of the SAC
	2.1.119	Great Orme's Head SAC It would help if it could be made clear that Calaminarian grasslands of the Violetalia calaminariae, Molinia meadows on calcareous, peaty or clayey-silt laden soils (Molinion caeruleae), limestone pavements, caves not open to the public, and Tilio-Acerion forests of slopes, screes and ravines and the lesser horseshoe bat features, although present on the site, are not a qualifying features of the SAC
	2.1.122	Creuddyn peninsula woods SAC It would help if it could be made clear that limestone pavements, caves not open to the public, and Asperulo-Fagetum beech forests and the lesser horseshoe bat features, although present on the site, are not a qualifying features of the SAC
	2.1.2	We note and accept that the Burry inlet SAC, Dee Estuary SAC and SPA and the River Dee and Bala lake SAC have been screened out of this assessment on the basis of distance and lack of impact pathways.
	Table 2.1	Summary of existing consultation responses While CCW welcomes the inclusion of our comments on the HRA as an aid to clearly demonstrate how our specific issues and concerns have been addressed it should be noted that the comments listed in Table 2.1 are taken from un-confirmed notes of meetings with CCW staff prior to the submission of any draft assessment. Therefore, they should not be taken to represent formal responses or guidance from CCW to this appraisal.
	Table 3.1	It should be noted that, as set out in Regulations 61, 62 & 66 and Regulations 103 – 105, there are potentially three stages following the completion of the appropriate assessment; the test for alternatives, the case for imperative reasons of over-riding public interest (IROPI), and the consideration of compensation measures.
	3.2.2	We welcome the inclusion of all four potential policy options in this assessment.
	3.3.1	While is accurate to state that only the selected (preferred) policy option requires assessment by this HRA, it may be worth noting that, should the assessment conclude that adverse effects can not be ruled out, then the other policy options may need to be considered to meet the test of alternatives. Should this be the case, we would anticipate that the policy evaluation and selection process that forms the basis of the SMP2 production would largely meet the requirements of this test but it may be useful to keep this in mind when undertaking the assessment of the preferred policy options.
	3.3.7	Calculating the potential impact of SMP2 policies on coastal habitats and species (marine, sub-tidal, inter-tidal and terrestrial) over time can be difficult in the absence of detailed modelling information (such as would inform a CHaMP). We welcome, therefore, the intention to carry out additional mapping and modelling work to inform this assessment.

Page No.	Paragraph	Comment
	3.3.13	It is important to note that there is a clear distinction between the use of the terms “mitigation” and “compensation” in relation to the Habitats Directive. If the assessment concludes that it can not be shown that the Plan’s policies will not have any adverse effects, and there may be loss or damage to features, then the plan maker should seek to change the plan or implement measures so that these effects do not occur (avoidance or cancellation measures) or are reduced to point where they are no longer significant, alone or in combination with other plans and projects (reduction measures). This is carried out in light of the sites’ conservation objectives and is often termed mitigation. If it is not possible to avoid, cancel or reduce the potential adverse effects identified by implementing such measures, then the Plan can only proceed if there are no less damaging alternatives and a case for IROPI is made and accepted. At that point there is a requirement to consider compensation measures, ie those actions necessary to maintain the site integrity despite the adverse effects. Given this definition, it is difficult to see how any habitat creation identified as a replacement for potential losses or damage to features within the site, but is undertaken outside the site boundary, could meet the requirements of the conservation objectives and be regarded as mitigation. Therefore, if such measures are identified as necessary as a result of the assessment, then they should be discounted as mitigation and only considered if and when the plan passes the test for IROPI.
	3.3.15-3.3.17	Providing the distinction between ‘mitigation’ and ‘compensation’ (as outlined above) is born in mind, this is a very clear and concise description of the process of determining alternative solutions and IROPI.
	3.4.2	Other than where consideration of mitigation measures takes place (See comments on 3.3.13) this is a reasonable structure for the HRA report.
	4.2.2	we agree the main potential ‘in combination’ effects from local authority Local Development Plans (LDPs) will relate to allocations for housing, employment etc., but it should also be noted the potential effects associated with infrastructure, particularly transport, minerals policies and recreational activities.
	4.2.3	While we accept that LDPs and TAN 15 Development and Flood Risk, are key documents when assessing the potential ‘in combination’ effects of the SMP2 with other plans and projects you should also consider potential effects of specific plans such as regional and national transport plans, waste plans, minerals strategies and energy plans and proposals, particularly the National Policy Statements relating to new nuclear power stations and renewable energy.
	Table 5.1	Carmarthen Bay and Estuaries SAC. While we commend the precautionary approach taken to this assessment in relation to the Carmarthen Bay and Estuaries SAC and welcome the acknowledgement that SMP2 policies can impact on a number of features of the site, particularly the form and function of the Estuaries feature, given the distance of this site away from the SMP2 area and the lack of obvious impact pathways we would not expect the effects of any of the West of Wales SMP2 policy options to be likely or, if they occurred, to be significant in this instance
	Table 5.1	Carmarthen Bay SPA. See comments on Carmarthen Bay SAC.

Page No.	Paragraph	Comment
	Table 5.1	Pembrokeshire Marine SAC. While we appreciate that a No Active Intervention (NAI) policy option would not necessarily result in adverse effects as a result of the Plan, it should be noted that as the Coastal Lagoon feature is maintained, at least in part, by upkeep of existing coastal defences, then the abandonment of these defences could lead to adverse effects on this feature. We would recommend, therefore, that a similar approach to that taken for the Managed Realignment (MR) option is applied in this case.
	Table 5.1	Cleddau Rivers SAC. There is potential for HTL policies along the lower Cleddau Rivers SAC to lead to disturbance and barrier effects on the SAC features as a result, for example, maintenance works of existing structures. While we appreciate that this will largely depend on the detail of any proposals and should be dealt with at the Flood Risk Management Strategy (FRMS) level, including any mitigation measures that will be necessary to avoid, cancel or reduce any likely significant effects, it should be acknowledged within this assessment.
	Table 5.1	Pembrokeshire Bat Sites and Bosherton lakes SAC. While there may be issues with the Bosherton lakes element of this site in terms of management of the coastal margins, particularly in relation to MR and NAI policy options, given the West of Wales SMP2 does not cover this section of the site, we are unsure whether it is particularly relevant to this assessment.
	Table 5.1	Afon Teifi SAC. Both HTL and MR options may also have disturbance impacts on the migratory fish and otter features. While we appreciate that the potential effects of these options are dependant on the detailed proposals for these cells, and would anticipate that these would be assessed as part of the FRMS and Project level HRA's, we would also expect these issues to be considered within the SMP2 HRA to ensure that any potential impacts can be adequately mitigated by the lower tier plans/projects.
	Table 5.1	Pen Llyn a'r Sarnau SAC. While we appreciate that a No Active Intervention (NAI) policy option would not necessarily result in adverse effects as a result of the Plan, it should be noted that as the Coastal Lagoon features are often maintained, at least in part, by upkeep of existing coastal defences, then the abandonment of these defences could lead to adverse effects on this features. We would recommend, therefore, that where coastal lagoon features relay on such defences a similar approach is taken to that used for the Managed Realignment (MR) options.
	Table 5.1	Cors Fochno. While it would be hoped that a sensitively applied MR option would not lead to significant effects on the Cors Fochno site, this would very much depend on the details of the local FRMS and scheme proposals. Consequently, if this policy option is applied to any of the cells with the potential to impact on the Cors Fochno site, they should be considered as having the potential to have a likely significant effect and be covered in more detail by this HRA.
	Table 5.1	Afon Gwyrfaï a Llyn Cwellyn SAC. Both HTL and MR options may also have potential disturbance impacts on the migratory fish and otter features. While we appreciate that the potential effects of these options are dependant on the detailed proposals for these cells, and would anticipate that these would be assessed as part of the FRMS and Project level HRA's, we would also expect these issues to be considered within the SMP2 HRA to ensure that any potential impacts can be adequately mitigated by the lower tier plans/projects.
	Table 5.1	Abermenai to Aberffraw Dunes SAC. Please note that there is no lake at Abermenai point and that, given Llyn Rhos Du and Llyn Coron are a considerable distance inland, any of the potential policies are unlikely to have any significant effect (positive or negative) on these features.

Page No.	Paragraph	Comment
	Table 5.1	Cemlyn Bay SAC and Ynys Feurig, Cemlyn Bay and The Skerries SPA. While we appreciate that a No Active Intervention (NAI) policy option would not necessarily result in adverse effects as a result of the Plan, it should be noted that as the lagoon feature is at least in part maintained by the upkeep of existing coastal defences, then the abandonment of these defences could lead to adverse effects on this features. We would recommend, therefore, that in the case of the lagoon feature and the bird features is supports a similar approach is taken is taken for the NAI to that used for the Managed Realignment (MR) options (ie 'likely significant effect'). The National Trust have recently completed a detailed study of future for this site which should inform any further assessment.
	Table 5.1	Menai Stait and Conwy Bay SAC. While we appreciate that the MR option is likely to lead to creation of new inter-tidal habitat, we feel a similar approach to that taken on the other marine sites should also be applied here and the impacts of MR policy options due to possible changes to coastal process should also be considered as having a likely significant effect.
	5.2.2	We note and accept that the North West Pembrokeshire Commons SAC, Afon Eden – Cors Goch Trawsfynydd SAC, Anglesey and Llyn Fens Ramsar, Glynllifon SAC, Glan-traeth SAC, Llyn Dinam SAC, Coedydd Aber SAC and Creuddyn Peninsula Woods SAC have been screened out of this assessment on the basis of distance and lack of impact pathways in addition to the Burry inlet SAC, Dee Estuary SAC and SPA and the River Dee and Bala lake SAC. We would also suggest that the Carmarthen Bay SPA, Carmarthen Bay and Estuaries SAC and Carmarthen Bay Dunes SAC could also be screened out using similar criteria.
	6	We note the intention to carry forward the remaining sites from this assessment for more detailed appraisal when more information is available on the preferred policy options for each unit. Welook forward to commenting on this appropriate assessment element in due course.

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Annex IV: Assessment Tables

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 1: PDZ 1 – Marloes and St Bride’s Peninsula: St Anne’s Head to Borough Head (including the Islands of Skokholm and Skomer)

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Limestone Coast of South West Wales/ Arfordir Calchfaen de Orllewin Cymru SAC – Outside the SMP2 boundary (ca. 8.5km) but has the potential to be affected by any changes in coastal processes as a result of the SMP.							
Vegetated sea cliffs of the Atlantic and Baltic coasts	NA	<ul style="list-style-type: none"> Habitat extent and distribution. Habitat condition. Population size and distribution of rare and scarce plants. 	<ul style="list-style-type: none"> Cliff and crevice vegetation continues to form a very open cover of deep-rooted crevice dwelling species forming a narrow band along the steep cliff edges. On their seaward edges the cliff and crevice communities grade into the supralittoral lichen zone. Landwards they meet the maritime grassland and thereophyte communities which themselves intermingle with the maritime heaths. Both golden samphire and rock sea lavenders are typically associated with crevices and ledges and continue to be generally widespread where open and exposed conditions prevail. The maritime grasslands range from short open swards with occasional areas of bare ground to taller, more closed swards where Red Fescue (<i>Festuca rubra</i>) forms tussocks and “mattresses”. The more strongly maritime influenced grassland communities on this site, for the most part, occur on the exposed south and south westerly facing slopes. Elsewhere, in less exposed situations the grasslands show less maritime influence with species such as Cowslips (<i>Primula veris</i>) and Bluebells (<i>Hyacinthoides non-scripta</i>) occurring. The grasslands also support important populations of typical invertebrates such as ants and butterflies as well as insects associated with open soils, grass roots or dung such as various cranefly and beetle larvae. Maritime heath occurs in exposed locations as stands of low, wind-pruned heath dominated by heather (<i>Calluna vulgaris</i>) and bell heather (<i>Erica cinerea</i>). Species such as spring squill (<i>Scilla verna</i>), milkworts (<i>Polygala</i> spp.) pale dog violet (<i>Viola lactea</i>) and sedges (<i>Carex</i> spp.) are present in stands. This gives way to gorse-dominated dry heath (feature 3) in more sheltered areas. Cliff and crevice vegetation occurs naturally on suitably exposed rocky ledges and crevices throughout the site. The variety of vegetation types reflecting the degree of exposure to maritime influences - including communities with thrift, rock and golden samphires, sea lavenders, sea-beet and sea plantain. Maritime Grassland occupies approximately 15% of the total site area. The following plants are common in the maritime grassland: thrift <i>Armeria maritima</i>; spring squill <i>Scilla verna</i> and sea plantain <i>Plantago maritime</i>. Maritime heathland occupies approximately 10% of the total site area. The following plants are common in the maritime heathland: heather; bell heather and spring squill. Populations of nationally rare and nationally scarce vascular and lower plant species, associated with cliff-crevice, maritime grassland and related calcareous grassland swards are maintained. Competitive species indicative of under-grazing, particularly cocksfoot <i>Dactylis glomerata</i>, tor grass <i>Brachypodium pinnatum</i>, bracken <i>Pteridium aquilinum</i> and western gorse <i>Ulex gallii</i> are kept in check. Non-native plants such as Hottentot fig <i>Carpobotus edulis</i> are absent or rare. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann’s Head.</p> <p>No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Fixed dunes with herbaceous vegetation ('grey dunes')	NA	<ul style="list-style-type: none"> Habitat extent and distribution. Habitat condition. Population size and distribution of <i>Fulgensia fulgens</i> lichen sites. Condition of <i>Fulgensia</i> sites. 	<ul style="list-style-type: none"> Fixed dunes occupy approximately 20% of the total site area. The following plants will be common in a short, open sward: <i>Asperula cyanchica</i>, <i>Carlina vulgaris</i>, <i>Euphrasia</i> spp., <i>Gentianella amarella</i>, <i>Linum catharticum</i>, <i>Lotus corniculatus</i>, <i>Pilosella officinarum</i>, <i>Plantago coronopus</i>, <i>Sedum acre</i>, <i>Thymus polytrichus</i>, <i>Viola</i> spp., <i>Anacamptis pyramidalis</i>. Distinct patches of open, lichen-rich turf, supporting <i>Fulgensia fulgens</i> on <i>Trichosporum</i> moss will occur in several mapped locations in management units 2a, 2b, 3b and 3c. Alien species will be absent, and other negative indicator species (such as bracken) will be under control in fixed dune grassland. Sea Buckthorn <i>Hippophae rhamnoides</i> will be absent from all dunes systems within the SAC. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p> <p>No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation, and response of intertidal mudflat and sandflat and dune habitats to sea level rise.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
European dry heaths	NA	<ul style="list-style-type: none"> Habitat extent and distribution. Habitat condition. 	<ul style="list-style-type: none"> The current extent of Dry heath will be maintained. Dry heath will occupy areas of the site where heathland extends beyond the zone of maritime influence. As a result dry heath may lack the species characteristic of maritime heath. Much of the dry heath will have a short and open structure. The dry heaths will support typical species such as the dark green fritillary (<i>Argynnis aglaja</i>) and the silver studded blue butterfly <i>Plebeius argus</i>. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p>	None required	No adverse effect expected	Yes
Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>)	NA	<ul style="list-style-type: none"> Habitat extent and distribution. Habitat quality. 	<ul style="list-style-type: none"> The Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) / Dry grasslands and scrublands on chalk or limestone will be referable to the NVC communities <i>Festuca – Avenula</i> grassland (CG2) and <i>Festuca – Hieracium – Thymus</i> grasslands (CG7). The communities making up this feature will cover at least 14ha within Castlemartin Cliffs and Dunes SSSI and 10ha within Stackpole and Stackpole Quay to Trewent Point SSSI, and 18ha within the Gower Coast SSSI (which also includes NVC community CG1) occurring as small patches along coastal cliff-tops, among the fixed dune grasslands, mainly on shallow soils overlying areas of limestone bedrock. The feature will support a range of typical plant and invertebrate species. 	<p>Loss of habitat may occur as a result of saline intrusion as a result of sea level rise; however, this is due to natural process rather than the SMP policy. The flooding extent over the 3 epochs does not appear to impact this habitat.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Caves not open to the public	NA	<ul style="list-style-type: none"> Extent and distribution of bats. Extent and distribution of chough nest sites in caves. Condition of caves. 	<ul style="list-style-type: none"> There is minimal disturbance to the caves by the public. The caves remain suitable as bat roost/hibernation sites. Caves utilised by breeding choughs remain undisturbed for choughs. The geological interest of the caves will be unconcealed. Natural processes such as small rock falls will be tolerated. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p> <p>The Bat roosts will not be impacted by the SMP2 policy.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Submerged or partially submerged sea caves	NA	<ul style="list-style-type: none"> Extent and distribution. Condition of caves. 	<ul style="list-style-type: none"> There should be minimal disturbance to the caves and they should remain closed to the public. The caves should remain suitable as bat roost/hibernation sites. The caves used by grey seal should remain free of human disturbance. The geological interest of the caves will be unconcealed. Natural processes such as small rock falls will be tolerated. The affects of tidal activity in partially submerged caves should have a minimal effect on the internal environment of the cave (where the cave is a bat roost). 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Mudflats and sandflats not covered by seawater at low tide	NA		No conservation objectives identified in Core Management Plan.	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p> <p>No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation, and response of intertidal mudflat and sandflat and dune habitats to sea level rise.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Embryonic shifting dunes	NA		No conservation objectives identified in Core Management Plan.	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ("white dunes")	NA		No conservation objectives identified in Core Management Plan.	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p> <p>No significant effect in the long term as vegetated cliffs within this PDZ would be allowed to erode naturally, which would ensure the continued supply of sediments for these dune habitats to respond naturally to sea level rise.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Humid dune slacks	NA		No conservation objectives identified in Core Management Plan.	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Greater horseshoe bat <i>Rhinolophus ferrumequinum</i>	Caves not open to the public	<ul style="list-style-type: none"> Extent and distribution of greater horseshoe bats. Population in the core area 	<ul style="list-style-type: none"> Greater horseshoe bats will continue to utilise known caves roosts undisturbed by the public. Distinctive droppings indicate presence at any time of year but largest numbers of bats are likely to be found in the period November to March. The peak winter population in the main Castlemartin Cave is equivalent to approximately 20% of the Pembrokeshire Bat Sites and Bosherton lakes SAC greater horseshoe bat population. The greater horseshoe bat population within the caves being monitored is stable or increasing. Natural processes such as rock falls will be tolerated but other factors affecting the achievement of these conditions are under control. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p> <p>Rocky cliffs would be allowed to erode naturally which would ensure the continued erosion (hollowing) of the caves.</p> <p>Loss of habitat may occur as a result increasing sea levels reducing the sizes of the caves, through this is a natural response to sea level rise and not as a result of the SMP2 policy.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Early gentian <i>Gentianella anglica</i>	<ul style="list-style-type: none"> Fixed dunes with herbaceous vegetation ('grey dunes') Semi-natural dry grasslands and scrubland facies: on calcareous substrates (Festuco-Brometalia) 	<ul style="list-style-type: none"> Species extent and distribution. Habitat extent and quality 	<ul style="list-style-type: none"> The feature will be present at Stackpole. Dune gentians with three or fewer internodes and a long terminal internode, which contributes between 40-100% of the height of the stem (corresponding to the current definition/description of Early gentian) occur within at least 4 open dry dune slacks on Stackpole Warren and in other open, herb-rich calcareous grassland areas. Further survey/research will confirm that these forms are definitely separable from <i>Gentianella amarella</i>. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Petalwort <i>Petalophyllum ralfsii</i>	Fixed dunes with herbaceous vegetation ('grey dunes')	<ul style="list-style-type: none"> Distribution and population size. Habitat condition. 	<ul style="list-style-type: none"> <i>P. ralfsii</i> has a continued presence at Broomhill Burrows SSSI. <i>P. ralfsii</i> occurs at high densities in suitable dune slacks at Brownslade Burrows SSSI. At both sites there are areas of open, damp, calcareous dune slacks with patches of suitable and optimal habitat present. Suitable dune slacks have patches of bare ground that is being colonised by jelly lichens (<i>Collema</i> spp.) and <i>Barbula</i> mosses. Brownslade Burrows continues to be winter grazed by cattle and sheep, which is helping to maintain the short sward and open conditions required by <i>P. ralfsii</i>. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no indirect effects as a result of coastal management policy is expected since the designation is ca. 8.5km from the start of the PDZ 1 boundary at St. Ann's Head.</p> <p>No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation, and response of intertidal mudflat and sandflat and dune habitats to sea level rise.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Pembrokeshire Marine/ Sir Benfro Forol SAC							
Estuaries	NA	<ul style="list-style-type: none"> Range. Structure and function. Typical species. 	<ul style="list-style-type: none"> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the inlets and bays feature these include; the embayment of St. Brides Bay, the ria of Milford Haven, peripheral embayments and inlets. For the coastal lagoons feature this is subject to the requirements for maintenance of the artificial impoundment structure and maintenance of the lagoons for the original purpose or subsequent purpose that pre-dates classification of the site. The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include; geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, biological interactions. This includes a need for nutrient levels in the water column and sediments to be: at or below existing statutory guideline concentrations, within ranges that are not potentially detrimental to the long term maintenance of the features, species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: at or below existing statutory guideline concentrations, below levels that would potentially result in increase in contaminant concentrations within sediments or biota, below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. The presence, abundance, condition and diversity of typical species are such that habitat quality is not degraded. Important elements include: species richness, population structure and dynamics, physiological health, reproductive capacity, recruitment, mobility, and range. 	No estuaries present in PDZ 1.	None required	No adverse effect expected	Yes
Large shallow inlets and bays	NA			No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected. No significant effect in the long term as the intertidal mudflat and dune habitats (as well as shore dock supporting habitat) can respond to sea level rise. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.	None required	No adverse effect expected	Yes
Reefs	NA			<i>[A total of 3.2ha of the Pembrokeshire Marine SAC will be lost in epoch 1, with a total of 5.9ha lost in epoch 2 and a total of 10.2ha lost in epoch 3 as a result of the NAI policy option.</i> <i>Given that the coast within PDZ 1 comprises natural cliffs and banks and has no man made defences – the loss of habitat is a result of natural processes.]</i>	None required	No adverse effect expected	Yes
Sandbanks slightly covered by sea water all the time	NA			Not present in PDZ 1.	None required	No adverse effect expected	Yes
Mudflats and sandflats not covered by sea water at low tide	NA			No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected. No significant effect in the long term as the intertidal mudflat and dune habitats (as well as shore dock supporting habitat) can respond to sea level rise. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.	None required	No adverse effect expected	Yes
				<i>[A total of 3.2ha of the Pembrokeshire Marine SAC will be lost in epoch 1, with a total of 5.9ha lost in epoch 2 and a total of 10.2ha lost in epoch 3 as a result of the NAI policy option.</i> <i>Given that the coast within PDZ 1 comprises natural cliffs and banks and has no man made defences – the loss of habitat is a result of natural processes not the SMP2 policy.]</i>			
Coastal lagoons	NA	Not present in PDZ 1.	None required	No adverse effect expected	Yes		

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>)	NA			No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.	None required	No adverse effect expected	Yes
Submerged or partially submerged sea caves	NA			No significant effect in the long term as the intertidal mudflat and dune habitats (as well as shore dock supporting habitat) can respond to sea level rise. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1. [A total of 3.2ha of the Pembrokeshire Marine SAC will be lost in epoch 1, with a total of 5.9ha lost in epoch 2 and a total of 10.2ha lost in epoch 3 as a result of the NAI policy option. Given that the coast within PDZ 1 comprises natural cliffs and banks and has no man made defences – the loss of habitat is a result of natural processes and not the SMP2 policy.]	None required	No adverse effect expected	Yes
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 		<ul style="list-style-type: none"> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that for otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. For grey seal, populations should not be reduced as a consequence of human activity. The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for otter and grey seal: their range within the SAC and adjacent inter-connected areas is not constrained or hindered, there are appropriate and sufficient food resources within the SAC and beyond, and the sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. 	No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected. No significant effect in the long term as the intertidal mudflat and dune habitats (as well as shore dock supporting habitat) can respond to sea level rise. Grey seals occur along discreet areas of coastline within PDZ 1. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.	None required	No adverse effect expected	Yes
Shore dock <i>Rumex rupestris</i>	<ul style="list-style-type: none"> Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) 	<ul style="list-style-type: none"> Populations. Range. Supporting habitat and species. 	<ul style="list-style-type: none"> The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected. No significant effect in the long term as the intertidal mudflat and dune habitats (as well as shore dock supporting habitat) can respond to sea level rise. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.	None required	No adverse effect expected	Yes
Sea lamprey <i>Petromyzon marinus</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 			No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected. No significant effect in the long term as the intertidal mudflat and dune habitats can respond to sea level rise. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
River lamprey <i>Lampetra fluviatilis</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 		<ul style="list-style-type: none"> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that for otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. For grey seal, populations should not be reduced as a consequence of human activity. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the intertidal mudflat and dune habitats can respond to sea level rise.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Allis shad <i>Alosa alosa</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 		<ul style="list-style-type: none"> The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for otter and grey seal: their range within the SAC and adjacent inter-connected areas is not constrained or hindered, there are appropriate and sufficient food resources within the SAC and beyond, and the sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the intertidal mudflat and dune habitats can respond to sea level rise.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Twaite shad <i>Alosa fallax</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 		<ul style="list-style-type: none"> The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the intertidal mudflat and dune habitats can respond to sea level rise.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Estuaries Reefs. Sandbanks slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide. Coastal lagoons. Atlantic salt meadows. 		<ul style="list-style-type: none"> The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the intertidal mudflat and dune habitats can respond to sea level rise.</p> <p>Otters occur along a very limited length of coastline within PDZ 1. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Castlemartin Coast SPA							
Internationally important Article 4.1 Species (breeding): Chough <i>Pyrrhocorax pyrrhocorax</i>	Maritime grassland and heaths	<ul style="list-style-type: none"> Population distribution. Population size. Annual productivity. Feeding habitat extent. Feeding habitat quality. 	<ul style="list-style-type: none"> Breeding chough population will occur along the limestone coast, between Freshwater West and Barafundle Bay. This population will be maintained at a minimum of 12 breeding pairs (representing 3.5% of the GB population, at the 1993 SPA designation level). Choughs will continue to, feed, roost and breed successfully, unhindered by human recreational activities (e.g. climbing). The majority of pairs will rear young each year, with an annual average productivity of at least two young per occupied territory. Choughs will continue to have access to large amounts of optimal feeding habitat (open areas with very short grassland and heath vegetation <1cm to <3cm in height) within all cliff-top management units and within dune grassland management units at Broomhill Burrows, Brownslade and Linney Burrows and on Stackpole Warren. Yellow ant-hills, an important summer food resource, will occur in coastal turf, throughout the SPA, at densities up to approximately 550 ant-hills per ha. A non-breeding chough population (variable in number between 10 and 50 birds) made up largely of juvenile and sub-adult birds will occur at any season. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
	Sand dune			<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the dune can naturally respond to sea level rise.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
	Maritime cliff and crevice			<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect as the supporting habitat of rocky ledges would naturally develop during erosion.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
	Sea caves			<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect as the supporting habitat of rocky ledges would naturally develop during erosion.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
	Vegetated sea cliffs of the Atlantic and Baltic coasts			<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect as the supporting habitat of rocky ledges would naturally develop during erosion.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Pembrokeshire Bat Sites and Bosherton Lakes/ Safleoedd Ystlum Sir Benfro a Llynno SAC							
Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara</i> spp.	NA	<ul style="list-style-type: none"> Extent of standing water. Extent of <i>Chara hispida</i> beds. Vegetation composition: macrophyte community composition. Macrophyte community structure. Vegetation composition (negative indicator). 	<ul style="list-style-type: none"> Submerged <i>Chara</i> beds (mainly <i>Chara hispida</i> in places up to a metre long) will form the predominant submerged macrophyte vegetation throughout most of Central and Western Arms and Central Lake of Bosherton Lakes (unit 1a) and may be present in the Eastern Arm (unit 1b). <i>Chara</i> will occur at more than 50% frequency along regular surveillance transects within the Western and Central arms. <i>Chara</i> species (not necessarily <i>hispida</i>) will be present in other embayments and pools, including the Eastern Arm of Bosherton Lakes (unit 1b) and pools in the Mere Pool Valley (unit 1d). The Western and Central Arms are spring-fed, so nutrient levels here remain low. One of the main nutrients (phosphorous) will reach no more than 25 micrograms per litre in regular sampling areas. Nitrogen levels in the water will be low (less than 1 milligram per litre) and declining or stable. The Western Arm, Central Arm and Central Lake water will be fairly clear, but well vegetated with submerged and marginal plants. In natural openings (e.g. over springs) within otherwise dense <i>Chara</i> beds, a sechii disk will be viewable on the lakebed. Water depth will vary from about 3.5 metres OD (winter maximum) to about 0.5 metres or less in places in summer. Fringing the <i>Chara</i> beds, are beds of white water lilies <i>Nymphaea alba</i>. They will remain fairly abundant in the Western and Central Arms, with smaller populations in Central Lake. Reed and swamp and fringing burr-reed will be restricted to shallow zones – covering not more than 10 % of the site. All factors affecting the achievement of these conditions are under control. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect long term as sea level rise or erosion would not extend into the site or result in any alteration to the physical characteristics of the site.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Greater horseshoe bat <i>Rhinolophus ferrumequinum</i>	Roost sites	<ul style="list-style-type: none"> Breeding population roost distribution. Winter and intermediate roost population distribution. Maternity roost adult population size. Maternity roost productivity. Intermediate roost and hibernacula population. 	<ul style="list-style-type: none"> The greater horseshoe bat population will be capable of maintaining itself on a long-term basis as a viable component of its natural habitats. The natural range of greater horseshoe bats will neither be reduced nor will be likely to be reduced for the foreseeable future. There will be sufficient habitat to maintain its populations on a long-term basis. At least three SSSI maternity roosts will be occupied annually by adult greater horseshoe bats and their babies: Stackpole Courtyard Flats and Walled Garden, Slebech Stable Yard Loft, Cellars and Tunnels, and Felin Llwyngwair. Carew Castle SSSI will continue to be used as an intermediate greater horseshoe bat roost, during the spring and autumn, as a male summer roost and an autumn/spring mating roost. The greater horseshoe bat population at the component SSSI's will be stable or increasing. There will be a sufficiently large area of suitable habitat surrounding these roosts to support the bat population, including continuous networks of sheltered, broadleaved woodland, tree lines and hedgerows connecting the various types of roosts with areas of insect-rich grassland and open water. All factors affecting the achievement of these conditions are under control. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect long term as sea level rise or erosion would not extend into the site or result in any alteration to the physical characteristics of the site.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>	Roost sites	<ul style="list-style-type: none"> Breeding population roost distribution. Winter and intermediate roost population distribution. Maternity roost adult population size. 	<ul style="list-style-type: none"> The Lesser horseshoe bat population will be capable of maintaining itself on a long-term basis as a viable component of its natural habitats. The natural range of lesser horseshoe bats will be neither being reduced nor will be likely to be reduced for the foreseeable future. There will be sufficient habitat to maintain its populations on a long-term basis. At least four SSSI maternity roosts will be occupied annually by adult lesser horseshoe bats and their babies: Beech Cottage, Waterwynch SSSI, Orielson Stable Block and Cellars SSSI, Park House Outbuildings SSSI, and Stackpole Courtyard Flats and Walled Garden SSSI. Lesser horseshoe population at component SSSIs stable or increasing. There will be a sufficiently large area of suitable habitat surrounding these roosts to support the bat population, including continuous networks of sheltered, broadleaved woodland, tree lines and hedgerows connecting the various types of roosts with areas of insect-rich grassland and open water. All factors affecting the achievement of these conditions are under control. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect long term as sea level rise or erosion would not extend into the site or result in any alteration to the physical characteristics of the site.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Otter <i>Lutra lutra</i>	Hard oligo-mesotrophic waters with benthic vegetation of <i>Chara spp.</i>	<ul style="list-style-type: none"> Otter population extent. Otter breeding activity. 	<ul style="list-style-type: none"> The Otter population will be capable of maintaining itself on a long-term basis as a viable component of its natural habitats. The natural range of otters will neither be reduced nor will be likely to be reduced for the foreseeable future. There will be sufficient habitat to maintain its populations on a long-term basis. The otter population will be stable or increasing. There will be a sufficiently large area of suitable habitat to support an otter breeding population, including: open water with sufficient food resources (notably eels and other fish species) and a continuous network of undisturbed sheltered resting places along the lake shoreline – including swamp, broadleaved woodland and calcareous scrub. All factors affecting the achievement of these conditions are under control. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect long term as sea level rise or erosion would not extend into the site or result in any alteration to the physical characteristics of the site.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Skokholm and Skomer SPA							
Internationally important Article 4.1 Species: Chough <i>Pyrhocorax pyrrhocorax</i>	Shingle. Sea cliffs. Islets	<ul style="list-style-type: none"> Breeding population. Breeding productivity. 	<ul style="list-style-type: none"> The Skomer breeding population will be at least 3 pairs. The Skokholm breeding population will be at least 1 pair. The SPA breeding population will be 4 pairs, (this currently represents around 5 % of the Pembrokeshire chough population and 1.2% of the GB population). Breeding success will be 1.5 chicks/pair. Sufficient suitable habitat will be present to support the populations. The factors affecting the feature are under control. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect long term as the supporting habitat of sea cliff and shingle beaches would naturally develop during erosion. Through loss of coastal heathland habitat may occur this is a result of natural processes.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Internationally important Article 4.1 Species: short-eared Owl <i>Asio flammeus</i>	Shingle. Sea cliffs. Islets	<ul style="list-style-type: none"> Breeding population size. Availability of nest sites. 	<ul style="list-style-type: none"> The breeding population will be at least 6 pairs. Breeding success will be at least 1 chicks/pair. Sufficient suitable habitat will be present to support the populations. The factors affecting the feature are under control. 	<p>No HTL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect long term as the supporting habitat of sea cliff and shingle beaches would naturally develop during erosion. Through loss of coastal heathland habitat may occur this is a result of natural processes.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Internationally important Article 4.1 Species (breeding): storm petrel <i>Hydrobates pelagicus</i> .	Shingle. Sea cliffs. Islets	<ul style="list-style-type: none"> Breeding population size. Breeding productivity. Availability of nest sites. 	<ul style="list-style-type: none"> The population of storm petrel will be at least 3500 pairs within the SPA. Sufficient suitable nesting sites will be present to support at least the current populations. The factors affecting the feature are under control. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the supporting habitat of sea cliff and shingle beaches would naturally develop during erosion. Though loss of coastal heathland habitat may occur this is a result of natural processes.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Article 4.2 Species: lesser black-backed gull <i>Larus fuscus</i>	Shingle. Sea cliffs. Islets	<ul style="list-style-type: none"> Population size. Adult survival rate. Breeding productivity. Availability of nest sites. 	<ul style="list-style-type: none"> During the breeding season the population of lesser black-backed gull will be at least 20,300 pairs within the SPA. This represents around 16.4% of the current breeding Western European/Mediterranean/western African population. Breeding success will be at least 0.4 chicks/pair. Sufficient suitable nesting sites will be present to support at least the current populations. The factors affecting the feature are under control. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the supporting habitat of sea cliff and shingle beaches would naturally develop during erosion. Though loss of coastal heathland habitat may occur this is a result of natural processes.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Article 4.2 Species (breeding): Manx shearwater <i>Puffinus puffinus</i>	Shingle. Sea cliffs. Islets	<ul style="list-style-type: none"> Population size. Adult survival rate. Breeding productivity. 	<ul style="list-style-type: none"> During the breeding season the population of Manx shearwater will be at least 150,000 pairs within the SPA (this represents around half of the current breeding population). Breeding success will be at least 0.5 chicks per egg laid. The factors affecting the feature are under control. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the supporting habitat of sea cliff and shingle beaches would naturally develop during erosion. Though loss of coastal heathland habitat may occur this is a result of natural processes.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Article 4.2 Species (breeding): Puffin <i>Fratercula arctica</i>	Shingle. Sea cliffs. Islets	<ul style="list-style-type: none"> Population size. Adult survival rate. Breeding productivity. 	<ul style="list-style-type: none"> During the breeding season the population of puffins will be at least 9,500 pairs within the SPA, (this represents at least 1.1% of the current breeding population). Breeding success will be 0.7 chicks/pair. The factors affecting the feature are under control. 	<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the supporting habitat of sea cliff and shingle beaches would naturally develop during erosion. Though loss of coastal heathland habitat may occur this is a result of natural processes.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes
Grassholm SPA							
Article 4.2 Species (breeding): Gannet <i>Morus bassanus</i>	Shingle. Sea cliffs. Islets			<p>No HTL, ATL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the supporting habitat of sea cliff and shingle beaches would naturally develop during erosion. Though loss of coastal heathland habitat may occur this is a result of natural processes.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 2: PDZ 2 – St Bride's Bay: Borough Head to St Dinas Fach

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Pembrokeshire Marine/ Sir Benfro Forol SAC							
Estuaries	NA			Not present in PDZ 2.	None required	No adverse effect expected	Yes
Large shallow inlets and bays	NA	<ul style="list-style-type: none"> Range. Structure and function. Typical species. 	<ul style="list-style-type: none"> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the inlets and bays feature these include; the embayment of St. Brides Bay, the ria of Milford Haven, peripheral embayments and inlets. The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include; geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, biological interactions. This includes a need for nutrient levels in the water column and sediments to be: at or below existing statutory guideline concentrations, within ranges that are not potentially detrimental to the long term maintenance of the features, species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: at or below existing statutory guideline concentrations, below levels that would potentially result in increase in contaminant concentrations within sediments or biota, below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. The presence, abundance, condition and diversity of typical species are such that habitat quality is not degraded. Important elements include: species richness, population structure and dynamics, physiological health, reproductive capacity, recruitment, mobility, and range. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>The SAC includes the wide, shallow, predominantly sandy embayment of St Brides Bay (PDZ 2). The wide range of environmental conditions, particularly seabed substrates, tidal streams and salinity gradients, supports high community and species diversity.</p> <p>The preferred management options within the St Bride's Bay range from NAI, HTL and MR.</p> <p>HTL policy is only planned for epochs 1 and 2 (PU 2.2, 2.4, and 2.6) with MR planned for the 3rd epoch. Coastal squeeze may be observed during epochs 1 and 2, and a change in the coastal processes may be observed as a result of MR in epoch 3. However, the extent of the shallow inlet and bay features (i.e. intertidal sand and shingle) would only be affected in the locality of the settlements, and would not reduce the total area of shallow inlet and bays features. Furthermore, MR in the 3rd epoch would ensure that development of constrained intertidal habitat would occur.</p> <p>MR realignment is the preferred option at PU2.2 (epoch 3), PU2.4 (epoch 3), PU2.5 (Epoch 2 – with NAI planned for epoch 3), PU2.6 (epoch 3), PU2.8 (Epochs 2 and 3), PU 2.10 (all 3 epochs) PU2.11 (epochs 1 and 2) and PU2.12 (epochs 1 and 2).</p> <p>NAI at Ricketts Head (PU2.9) will result in the loss of the tidal pools; however this is a result of natural processes and not the SMP.</p>	None required	No adverse effect expected	Yes
Reefs	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Small areas of intertidal and subtidal reefs occur in the St Bride's Bay within PDZ 2.</p> <p>NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease.</p>			
Sandbanks slightly covered by sea water all the time	NA			<p>Local HTL could cause habitat loss of the rocky intertidal in the long term as sea levels rise and the shore is squeezed, under such conditions the area of subtidal reefs would increase in extent. Therefore, there is likely to be an adverse effect on the integrity of the SAC. MR in the long term would ensure that coastal squeeze would not be an issue.</p> <p>The HTL policy is only intended along frontages where there are beaches or within embayments comprising only intertidal habitats, and as such would not directly impact on reef or subtidal sandbanks. The subtidal line would move up the existing intertidal sandflats but would not be expected to reach defences, and therefore the extent of subtidal sandbank would not reduce as a result of the</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				HTL policy at specific locations. In addition, any changes to coastal processes of the HTL or MR policies would be localised to the immediate area of the defences and would not extent beyond the intertidal areas or embayments.			
Mudflats and sandflats not covered by sea water at low tide	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>HTL policy at a number of smaller sections of the coast within PDZ 2 in epochs 1 and 2 may result in the loss of intertidal mud and sand flats in front of the defences as a result of coastal squeeze.</p> <p>Coastal squeeze as a result of the SMP policy will be particularly apparent in the areas where there is low lying land behind the defence. The policy units where low lying ground occurs behind the defences includes: PUs 2.5, 2.10 and 2.11.</p> <p>There is a policy of MR in each of these areas in response to coastal pressure, with the long term intent of allowing the shingle bank at the back of the beach to respond naturally. This would include losing the road to allow retreat landward in response to sea level rise. The SAC does not extend above the low water mark within PU 2.10 and 2.11; therefore there will be no impact.</p> <p>The coastal squeeze will be most significant within PUs 2.2 (epochs 1 and 2), 2.4 (epochs 1 and 2), 2.5 (epoch 1), 2.6 (epochs 1 and 2), and 2.8 (epoch 1), where intertidal sandflat habitat will be lost due to the HTL policies in epochs 1 and sometimes epoch 2. However the coastal squeeze will be alleviated under MR in epochs 2 or 3 and will be able to respond naturally in the long term with NAI in epoch 3. There will however be an adverse impact in epochs 1 and 2 from the HTL policy and this could result in a loss of sandflat habitat of 0.76ha in epoch 1, and 0.99ha in epoch 2, totalling 1.75ha of sandflat habitat in total.</p> <p>MR is the preferred policy in epoch 3 for a number of locations and the preferred policy for all 3 epochs at Newgale Sands South and North. The MR policies will allow the coastal processes to return to a more natural state through sustainable management; therefore no adverse effect can be concluded for epochs 2 and 3.</p> <p>MR at Little Haven will allow the defence line to be moved back within the constraints of the hard rock cliff forming the narrow valley, avoiding coastal squeeze.</p> <p>NAI at several locations along the coast of PDZ 2 will allow for natural erosion of the coast allowing the mud and sand flats to respond to sea level rise.</p> <p>A total of 10ha will be lost from the areas of NAI – however – the majority of this is mainly related to the cliffs which are not a feature of this SAC.</p>	None identified	Conclude adverse effect due to the loss of intertidal sandflat feature.	No
Coastal lagoons	NA			Not present in PDZ 2.	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	NA			<u>Coastal Squeeze / Coastal Processes and Saline Intrusion:</u> Not present in PDZ 2.	None required	No adverse effect expected	Yes
Submerged or partially submerged sea caves	NA			<u>Coastal Squeeze/ Coastal Processes:</u> The caves located within PDZ 2 may be lost as the sea level rises and the cliffs erode naturally – however, new caves will be created as part of the natural process.	None required	No adverse effect expected	Yes
Shore dock <i>Rumex rupestris</i>	<ul style="list-style-type: none"> Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>) 			NAI at several locations along the coast of PDZ 2 will allow for natural erosion of the coast allowing the mud and sand flats to respond to sea level rise, however, MR and HTL policies within the main settlement areas will result in a loss of habitat due to coastal squeeze.	None required	No adverse effect expected	Yes
Sea lamprey <i>Petromyzon marinus</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 			No estuaries present within this PDZ. HTL policy is only planned for epochs 1 and 2 (PU 2.2, 2.4, and 2.6) with MR planned for the 3 rd epoch. Coastal squeeze may be observed during epochs 1 and 2, and a change in the coastal processes may be observed as a result of MR in epoch 3.			
River lamprey <i>Lampetra fluviatilis</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 			MR realignment is the preferred option at PU 2.2 (epoch 3), PU 2.4 (epoch 3), PU 2.5 (Epoch 2 – with NAI planned for epoch 3), PU 2.6 (epoch 3), PU 2.8 (Epochs 2 and 3), PU 2.10 (all 3 epochs) PU 2.11 (epochs 1 and 2) and PU 2.12 (epochs 1 and 2). NAI at Ricketts Head (PU2.9) will result in the loss of the tidal pools; however this is a result of natural processes and not the SMP. It is unlikely that any obstructions will occur that will reduce access to the habitats for these species.	None required	No adverse effect expected	Yes
Allis shad <i>Alosa alosa</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 			No estuaries present within this PDZ. HTL policy is only planned for epochs 1 and 2 (PU 2.2, 2.4, and 2.6) with MR planned for the 3 rd epoch. Coastal squeeze may be observed during epochs 1 and 2, and a change in the coastal processes may be observed as a result of MR in epoch 3.			
Twaite shad <i>Alosa fallax</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 			MR policy options may change the coastal processes within the Bay as a whole as a result of the realigned defences particularly at Newgale Sands South (PU 2.10) over all 3 epochs. MR realignment is also the preferred option at PU 2.2 (epoch 3), PU 2.4 (epoch 3), PU 2.5 (Epoch 2 – with NAI planned for epoch 3), PU 2.6 (epoch 3), PU 2.8 (Epochs 2 and 3), PU 2.11 (epochs 1 and 2) and PU 2.12 (epochs 1 and 2). NAI at Ricketts Head (PU 2.9) will result in the loss of the tidal pools; however this is a result of natural processes and not the SMP.	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Estuaries Reefs. Sandbanks slightly covered by sea water all the time Mudflats and sandflats not covered by seawater at low tide. Coastal lagoons. Atlantic salt meadows. 			<p>Pembrokeshire in south-west Wales is representative of grey seal <i>Halichoerus grypus</i> colonies in the south-western part of the breeding range in the UK. It is the largest breeding colony on the west coast south of the Solway Firth, representing over 2% of annual UK pup production.</p>			
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries Mudflats and sandflats not covered by sea water at low tide 	<ul style="list-style-type: none"> Populations. Range. Supporting habitat and species. 	<ul style="list-style-type: none"> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that for otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. For grey seal, populations should not be reduced as a consequence of human activity. The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for otter and grey seal: their range within the SAC and adjacent inter-connected areas is not constrained or hindered, there are appropriate and sufficient food resources within the SAC and beyond, and the sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	<p>No estuaries present within this PDZ.</p> <p>HTL policy is only planned for epochs 1 and 2 (PU 2.2, 2.4, and 2.6) with MR planned for the 3rd epoch. Coastal squeeze may be observed during epochs 1 and 2, and a change in the coastal processes may be observed as a result of MR in epoch 3.</p> <p>MR realignment is also the preferred option at PU 2.2 (epoch 3), PU 2.4 (epoch 3), PU 2.5 (Epoch 2 – with NAI planned for epoch 3), PU 2.6 (epoch 3), PU 2.8 (Epochs 2 and 3), PU 2.10 (all 3 epochs), PU 2.11 (epochs 1 and 2) and PU 2.12 (epochs 1 and 2).</p> <p>NAI at Ricketts Head (PU 2.9) will result in the loss of the tidal pools; however this is a result of natural processes and not the SMP.</p> <p>As a result of preferred policies (not including area of NAI) a total of 0.04ha of habitat will be lost within PUs 2.2, 2.4, 2.5, 2.6 and 2.8 in epoch 1; 0.1ha in epoch 2; and 0.1ha in epoch 3.</p> <p>Grey seals and otters may occur along discreet areas of coastline within PDZ 2. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Afonydd Cleddau/ Cleddau Rivers SAC							
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	NA	<ul style="list-style-type: none"> Distribution within catchment. Typical species. 	<ul style="list-style-type: none"> The capacity for the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary. The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure. It is anticipated that in most instances these limits will concur with the standards used by the Review of Consents process. Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC. All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change. Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed. The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided. River SSSI features should be in favourable condition. Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers. The reservoir dams on the Syfynwy are excluded. Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified. Flows during the normal migration periods of sea and river lamprey will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered. Levels of nutrients, in particular phosphate, will be agreed between EA and CCW for each WFD water body in the Cleddau SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process. Levels of all other water quality parameters that could affect the distribution and abundance of all species will be agreed between EA and CCW for each WFD water body in the Cleddau SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process. Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects. Potential sources of pollution not addressed in the review of consents, such as contaminated land, will be considered in assessing plans and projects. Levels of suspended solids will be agreed between EA and CCW for each WFD water body in the Usk SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels. 	<p><u>Saline intrusion:</u></p> <p>MR policy within PU 2.10 and PU 2.11 adjacent to the Cleddau Rivers SAC will not result in an impact to the watercourses. NAI policy along the remaining coast adjacent to the SAC will result in natural erosion of the coast. The flooding extent over the 3 epochs will not encroach on the freshwater courses of this SAC.</p> <p>In the long term the water course habitat will not change or be obstructed by the planned policies.</p> <p>The MR policy may lead to short term impacts on the condition of the water course and/or obstruction of Annex II species as a result of construction or maintenance measures. However, these are likely to be short term and will be addressed at the Flood Risk Management Strategy Level.</p> <p>No interests feature will be lost or adversely affected due to the SMP2 policies in PDZ 2.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Active raised bogs	NA	<ul style="list-style-type: none"> Extent. Habitat composition. 	<ul style="list-style-type: none"> On the mire expanse there are at least 3 of <i>Calluna vulgaris</i>, <i>Erica tetralix</i>, <i>Eriophorum angustifolium</i>, <i>E.vaginatum</i> & <i>Trichophorum cespitosum</i> constant, with a combined cover not exceeding 80%. No single species > 50% cover. At least one of <i>Andromeda polifolia</i>, <i>Drosera rotundifolia</i>, <i>Empetrum nigrum</i>, <i>Nartheceum ossifragum</i> and <i>Vaccinium oxycoccos</i> occurs at least frequently. On the mire expanse only there are at least 2 of the following spp. constant, with a combined cover > 20%: <i>Sphagnum capillifolium</i>, <i>S. magellanicum</i>, <i>S. papillosum</i>, <i>S. tenellum</i>. No reduction in extent of microtopographic features (e.g. bog pools). 				
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	NA	<ul style="list-style-type: none"> Extent. Quality. Structure and processes. Regeneration. Non-native species. Ground flora. 	<ul style="list-style-type: none"> The canopy is dominated by single stands of alder <i>Alnus glutinosa</i> or willow <i>Salix</i> spp. In alluvial woods with free draining soils there may be ash or oak in the canopy, but in the wetter alluvial woodlands ash <i>Fraxinus excelsior</i> is more likely to be limited to areas of relatively drier ground. The structure of alluvial woodland is recognised as being dynamic therefore the presence of over mature trees is desirable but not essential. The river itself should be dynamic to allow for areas of outwash and deposition that trees can regenerate on. Lying or standing deadwood (> 20cm diameter and > 1m length) is present at all sites. The feature should support alluvial ground flora including two of the following: meadowsweet <i>Filipendula ulmaria</i>, yellow flag <i>Iris pseudacorus</i>, nettle <i>Urtica dioica</i>, common reed <i>Phragmites australis</i>, greater tussock sedge <i>Carex paniculata</i>, opposite-leaved golden saxifrage <i>Chrysosplenium oppositifolium</i>, rushes <i>Juncus</i> spp, tufted hair-grass <i>Deschampsia cespitosa</i>, hemlock water-dropwort <i>Onanthe crocata</i>, and wild angelica <i>Angelica sylvestris</i>. 	As above for Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation.	None required	No adverse effect expected	Yes
Brook lamprey <i>Lampetra planeri</i>	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	<ul style="list-style-type: none"> Age/size structure of ammocoete population. Distribution of ammocoetes within catchment. Ammocoete density. 	<ul style="list-style-type: none"> The conservation objective for the watercourse as defined above is met. The population of the feature in the SAC must be stable or increasing over the long term. The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Passage of the feature through the SAC is not to be hindered by artificial barriers such as weirs. The characteristic channel morphology provides the diversity of water depths, current velocities and substrate types necessary to fulfil the habitat requirements of the features. The close proximity of different habitats facilitates movement of fish to new preferred habitats with age. 				
River lamprey <i>Lampetra fluviatilis</i>							

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Bullhead <i>Cottus gobio</i>	Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	<ul style="list-style-type: none"> Adult densities. Distribution. Reproduction / age Structure. 	<ul style="list-style-type: none"> The conservation objective for the watercourse as defined above must be met. The population of the feature in the SAC must be stable or increasing over the long term. The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, water depth and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Passage of the feature through the SAC is not to be hindered by artificial barriers such as weirs. The characteristic channel morphology provides the diversity of water depths, current velocities and substrate types necessary to fulfil the habitat requirements of the features. The close proximity of different habitats facilitates movement of fish to new preferred habitats with age. 				
Otter <i>Lutra lutra</i>	•	<ul style="list-style-type: none"> Distribution. Breeding activity. Actual and potential breeding sites. 	<ul style="list-style-type: none"> The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC. The SAC will have sufficient habitat, including riparian trees and vegetation and wetlands, to support the otter population. The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The otter must be able to breed and recruit successfully in the SAC. The size of breeding territories may vary depending on prey abundance. Otter food sources must be sufficient for maintenance of the population. The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed. 	As above for Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation.	None required	No adverse effect expected	Yes
Sea lamprey <i>Petromyzon marinus</i>	•	<ul style="list-style-type: none"> Distribution within catchment. Ammocoete density. 	<ul style="list-style-type: none"> The conservation objective for the watercourse is met. The population of the feature in the SAC must be stable or increasing over the long term. The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Passage of the feature through the SAC is not to be hindered by artificial barriers such as weirs. The characteristic channel morphology provides the diversity of water depths, current velocities and substrate types necessary to fulfil the habitat requirements of the features. The close proximity of different habitats facilitates movement of fish to new preferred habitats with age. 				

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Ramsey and St David's Peninsula Coast SPA							
Internationally important Article 4.1 Species (breeding): Chough <i>Pyrrhocorax pyrrhocorax</i>	Shingle. Sea cliffs. Islets	<ul style="list-style-type: none"> Breeding population Breeding productivity Foraging habitat condition 	<ul style="list-style-type: none"> The breeding population of Chough is at least 11 pairs. Breeding success averages at least 2.5 chicks/pair. Sufficient suitable habitat is present to support the populations. The factors affecting the feature are under control. 	<u>Coastal Squeeze / Coastal Processes and Restriction of coastal erosion:</u> The SPA is located in the Northern most part of the PDZ 2 within the PU 2.13. The preferred policy within the PU is NAI for all epochs, which will allow for rocky ledges to develop naturally due to erosion of the sea cliffs in the long term. Within PU 2.13 a total of 2ha of cliff habitat will be lost to natural processes over the 3 epochs.	None required	No adverse effect expected	Yes
	Marine areas. Sea inlets			<u>Coastal Squeeze / Coastal Processes:</u> HTL policy is only planned for epochs 1 and 2 (PU 2.2, 2.4, and 2.6) with MR planned for the 3 rd epoch. Coastal squeeze may be observed during epochs 1 and 2, and a minor change in the coastal processes may be observed as a result of MR in epoch 3. MR policy options may change the coastal processes within the Bay as a whole as a result of the realigned defences particularly at Newgale Sands South (PU2.10) over all 3 epochs. MR realignment is also the preferred option at PU 2.2 (epoch 3), PU 2.4 (epoch 3), PU 2.5 (Epoch 2 – with NAI planned for epoch 3), PU 2.6 (epoch 3), PU 2.8 (Epochs 2 and 3), PU 2.11 (epochs 1 and 2) and PU 2.12 (epochs 1 and 2). NAI at Rickets Head (PU 2.9) will result in the loss of the tidal pools; however this is a result of natural processes and not the SMP.	None required	No adverse effect expected	Yes
	Coastal sand dunes. Sand beaches. Machair			<u>Coastal Squeeze / Coastal Processes:</u> The NAI policy in PU 2.13, where an area of coastal sandflat occurs would allow natural migration of the sand dunes ensuring no coastal squeeze, and thus habitat loss not being an issue in the medium to long term.	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
St David's / Ty Ddewi SAC							
Vegetated sea cliffs of the Atlantic and Baltic coasts	NA	<p>Cliff and Crevice</p> <ul style="list-style-type: none"> Extent of Maritime Cliff and Crevice vegetation Condition of Maritime Cliff and Crevice vegetation <p>Maritime Grassland</p> <ul style="list-style-type: none"> Extent of Maritime grassland vegetation Condition of Maritime grassland vegetation <p>Maritime Heathland</p> <ul style="list-style-type: none"> Extent of Maritime heathland vegetation Condition of Maritime heathland vegetation 	<p>Cliff and Crevice</p> <ul style="list-style-type: none"> Cliff and crevice vegetation will occur naturally on suitable cliff sections throughout the site. The vegetation will be composed of native plants such as sea spurrey <i>Spergularia rupicola</i> and sea samphire <i>Crithmum maritimum</i>. The establishment of non-native plants such as Hottentot fig <i>Carpobrotus edulis</i> will be discouraged. The factors affecting the feature are under control <p>Maritime Grassland</p> <ul style="list-style-type: none"> Maritime Grassland will occupy at least x% of the total site area (to be set). The following plants will be common in the maritime grassland: thrift <i>Armeria maritima</i>; spring squill <i>Scilla verna</i> and sea plantain <i>Plantago maritima</i> Competitive species indicative of under-grazing, particularly cocksfoot <i>Dactylis glomerata</i>, bracken <i>Pteridium aquilinum</i> and western gorse <i>Ulex gallii</i> will be kept in check. The factors affecting the feature are under control. <p>Maritime Heathland</p> <ul style="list-style-type: none"> Maritime heathland will occupy at least x% of the total site area (to be set). The following plants will be common in the maritime heathland: heather <i>Calluna vulgaris</i>; bell heather <i>Erica cinerea</i> and spring squill <i>Scilla verna</i>. Competitive species indicative of under-grazing, particularly bracken <i>Pteridium aquilinum</i> and gorse <i>Ulex europaeus</i> will be kept in check. The factors affecting the feature are under control. 	<p><u>Restriction of coastal erosion:</u></p> <p>The SAC is located in the Northern most part of the PDZ 2 within the PU 2.13. The preferred policy within the PU is NAI for all epochs, which will allow for rocky ledges to develop naturally due to erosion in the long term.</p>	None required	No adverse effect expected	Yes
European dry heaths	NA		<ul style="list-style-type: none"> Dry Heath will occupy areas of the site where heathland extends beyond the zone of maritime influence and lacks the species characteristic of maritime heath as a result Much of the dry heath will be short and open. The factors affecting the feature are under control. 				

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Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 3: PDZ 3 – St David's to Strumble Head: St Dinas Fach to Pen Anglas (including Ramsey Island)

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Pembrokeshire Marine/ Sir Benfro Forol SAC							
Estuaries	NA		<ul style="list-style-type: none"> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the inlets and bays feature these include; the embayment of St. Brides Bay, the ria of Milford Haven, peripheral embayments and inlets. For the coastal lagoons feature this is subject to the requirements for maintenance of the artificial impoundment structure and maintenance of the lagoons for the original purpose or subsequent purpose that pre-dates classification of the site. The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include; geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, biological interactions. This includes a need for nutrient levels in the water column and sediments to be: at or below existing statutory guideline concentrations, within ranges that are not potentially detrimental to the long term maintenance of the features, species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: at or below existing statutory guideline concentrations, below levels that would potentially result in increase in contaminant concentrations within sediments or biota, below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. The presence, abundance, condition and diversity of typical species are such that habitat quality is not degraded. Important elements include: species richness, population structure and dynamics, physiological health, reproductive capacity, recruitment, mobility, and range. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>HTL within the estuary at Solva (PU 3.2 and PU 3.5) may result in coastal squeeze of the intertidal habitat; however, the estuary habitat itself is not expected to reduce in area.</p> <p>HTL in the estuary is not expected to result in change to coastal processes.</p> <p>Over time, regular tidal flooding will occur, however, given that the preferred policy within the estuary is HTL the estuary habitat may be lost over time as a result of sea level rise. There is no intention to increase the defences along the estuary, therefore the SMP2 policy will not have an adverse impact compared to the policy already in place.</p> <p>The outer estuary is subject to NAI and the cliffs will be able to erode naturally, therefore potentially widening the mouth of the estuary. In the long term the estuary and the associated habitat may change, but the feature would be maintained overall.</p>	None required	No adverse effect expected	Yes
Large shallow inlets and bays	NA	<ul style="list-style-type: none"> Range. Structure and function. Typical species. 		<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Pembrokeshire Marine SAC in south-west Wales includes the wide, shallow, predominantly sandy embayment of St Brides Bay (and extends into PDZ 3). The wide range of environmental conditions, particularly seabed substrates, tidal streams and salinity gradients, supports high community and species diversity.</p> <p>The policies within the Bay area are primarily NAI along the open coast and HTL within the estuaries.</p> <p>However, the extent of the shallow inlet and bay features (i.e. intertidal sand and shingle) would only be affected in the locality of the settlements and no reduction in the overall area of shallow inlet and bay features or noticeable alteration to the structure would occur.</p> <p>No quantitative figures are available to the loss/gain of this particular habitat features, but it is not expected that the SMP2 policies will have a significant impact.</p>	None required	No adverse effect expected	Yes
Reefs	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Subtidal and intertidal reefs are located along the coastline within PDZ 3.</p> <p>NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease. A HTL will cause habitat loss of the rocky intertidal in the long term as sea levels rise and the shore is squeezed, under such conditions the area of subtidal reefs would increase in extent. Therefore, there is likely to be an adverse effect on the integrity of the SAC. MR in the long term would ensure that coastal squeeze would not</p>			
Sandbanks slightly covered by sea water all the time	NA				<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Subtidal and intertidal reefs are located along the coastline within PDZ 3.</p> <p>NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease. A HTL will cause habitat loss of the rocky intertidal in the long term as sea levels rise and the shore is squeezed, under such conditions the area of subtidal reefs would increase in extent. Therefore, there is likely to be an adverse effect on the integrity of the SAC. MR in the long term would ensure that coastal squeeze would not</p>	Explore adaptive defence options as hard defences come under increased pressure during the first epoch. For example, local realignment would ensure that the integrity of the interest features would be maintained	No adverse effect expected

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				<p>be an issue.</p> <p>The HTL policy is only intended along frontages where there are beaches or within embayments comprising only intertidal habitats, and as such would not directly impact on reef or subtidal sandbanks. The subtidal line would move up the existing intertidal sandflats but would not be expected to reach defences, and therefore the extent of subtidal sandbank would not reduce as a result of the HTL policy at specific locations. In addition, any changes to coastal processes of the HTL or MR policies would be localised to the immediate area of the defences and would not extent beyond the intertidal areas or embayments.</p>			
Mudflats and sandflats not covered by sea water at low tide	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Sand and mud flat habitats within the estuaries may experience habitat loss as a result of the HTL policies.</p> <p>Habitats on the undefended coastline within PU 3.1, 3.6, 3.7 and 3.12 will be able to respond naturally to sea level rise.</p> <p>The sandflats at most risk of coastal squeeze are located in PUs 3.2 (epochs 1 and 2), 3.3 (all epochs), 3.4 (epoch 1), 3.5 (epoch 1), and 3.8 (epoch 1).</p> <p>As a result HTL policies there will be an adverse effect in epoch 1 in PUs 3.2, 3.3, 3.4, 3.5, and 3.8 where there is a policy of HTL (resulting in the loss of 0.29ha of sandflat); in epoch 2 in PUs 3.2, 3.3 and 3.5 (resulting in the loss of 0.45ha of sandflat), and in epoch 3 in PUs 3.3 and 3.5 (resulting in the loss of 0.11ha of sandflat habitat).</p> <p>In total, up to 0.95ha of intertidal sandflat could be lost as a result of the HTL policies for some or all epochs at localised areas.</p>	<p>Explore adaptive defence options as hard defences come under increased pressure within the first epoch. For example, local realignment would ensure that the integrity of the interest features would be maintained</p>	<p>Cannot conclude 'no adverse effect'.</p>	No
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)	NA			<p>Not present in PDZ 3.</p>			
Coastal lagoons	NA			<p>Not Present in PDZ 3.</p>	<p>None required</p>	<p>No adverse effect expected</p>	Yes
Submerged or partially submerged sea caves	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>There is the potential for sea caves to be located along the entire coastline between PU 3.1 and 3.9. There is no information to state their exact location in relation to the coastal defences.</p> <p>The caves located within PDZ 3 may be lost as the sea level rises and the cliffs erode naturally – however, new caves will be created as part of the natural process.</p> <p>As the HTL policies within PDZ 3 are not located adjacent to areas of cliff, the presence of inshore submerged caves amongst the intertidal and subtidal mobile sediments is not likely; consequently there will be no adverse impact on the integrity of the cave feature of this SAC.</p> <p>Policy for management does not include areas containing this feature.</p>	<p>None required</p>	<p>No adverse effect expected</p>	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?						
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 	<ul style="list-style-type: none"> Populations. Range. Supporting habitat and species. 	<ul style="list-style-type: none"> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that for otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. For grey seal, populations should not be reduced as a consequence of human activity. The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for otter and grey seal: their range within the SAC and adjacent inter-connected areas is not constrained or hindered, there are appropriate and sufficient food resources within the SAC and beyond, and the sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	<p>Pembrokeshire is representative of grey seal colonies in the south-western part of the breeding range in the UK. It is the largest breeding colony on the west coast south of the Solway Firth, representing over 2% of annual UK pup production.</p> <p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>HTL within the estuary at Solva (PU 3.2 and PU 3.5) may result in coastal squeeze of the intertidal habitat; however, the estuary itself is not expected to reduce.</p> <p>The policy for PU 3.8 is HTL/MR/MR, with the intent to realign defences as pressure on the present line increases. This would allow natural processes to be restored.</p> <p>HTL may result in loss of intertidal habitat within the harbour, however, as this is a populated area, it is unlikely that it will be used by seals as a haul out site. In addition the seals food resource is unlikely to be affected as the estuary itself will not be reduced by the preferred policies, therefore the extent of feeding resource available to the seals will consequently not be reduced.</p> <p>Grey seals occur along most of the coastline within this SAC and PDZ 3 (specific locations not available). However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out/pupping sites.</p>	None required	No adverse effect expected	Yes						
Shore dock <i>Rumex rupestris</i>	<ul style="list-style-type: none"> Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) 			<ul style="list-style-type: none"> Populations. Range. Supporting habitat and species. 	<ul style="list-style-type: none"> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that for otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. For grey seal, populations should not be reduced as a consequence of human activity. The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for otter and grey seal: their range within the SAC and adjacent inter-connected areas is not constrained or hindered, there are appropriate and sufficient food resources within the SAC and beyond, and the sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Supporting saltmarsh habitat not present in PDZ 3.</p>	None required	No adverse effect expected	Yes				
Sea lamprey <i>Petromyzon marinus</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 					<ul style="list-style-type: none"> Populations. Range. Supporting habitat and species. 	<ul style="list-style-type: none"> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that for otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. For grey seal, populations should not be reduced as a consequence of human activity. The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for otter and grey seal: their range within the SAC and adjacent inter-connected areas is not constrained or hindered, there are appropriate and sufficient food resources within the SAC and beyond, and the sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>HTL within the estuary at Solva (PU 3.2 and PU 3.5) may result in coastal squeeze of the intertidal habitat; however, the estuary itself is not expected to reduce.</p> <p>Obstruction is unlikely to occur as a result of the preferred policy options as the river will continue to behave in its natural way.</p> <p>In addition the river lamprey food resource is unlikely to be affected as the estuary itself will not be reduced by the preferred policies, therefore the extent of feeding resource available to the river lamprey will consequently not be reduced.</p>	None required	No adverse effect expected	Yes		
River lamprey <i>Lampetra fluviatilis</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 							<ul style="list-style-type: none"> Populations. Range. Supporting habitat and species. 	<ul style="list-style-type: none"> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that for otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. For grey seal, populations should not be reduced as a consequence of human activity. The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for otter and grey seal: their range within the SAC and adjacent inter-connected areas is not constrained or hindered, there are appropriate and sufficient food resources within the SAC and beyond, and the sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>HTL within the estuary at Solva (PU 3.2 and PU 3.5) may result in coastal squeeze of the intertidal habitat; however, the estuary itself is not expected to reduce.</p> <p>In addition shad food resource is unlikely to be affected as the estuary itself will not be reduced by the preferred policies, therefore the extent of feeding resource available to the shad will consequently not be reduced.</p>	None required	No adverse effect expected	Yes
Allis shad <i>Alosa alosa</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 									<ul style="list-style-type: none"> Populations. Range. Supporting habitat and species. 	<ul style="list-style-type: none"> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that for otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. For grey seal, populations should not be reduced as a consequence of human activity. The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for otter and grey seal: their range within the SAC and adjacent inter-connected areas is not constrained or hindered, there are appropriate and sufficient food resources within the SAC and beyond, and the sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>HTL within the estuary at Solva (PU 3.2 and PU 3.5) may result in coastal squeeze of the intertidal habitat; however, the estuary itself is not expected to reduce.</p> <p>In addition shad food resource is unlikely to be affected as the estuary itself will not be reduced by the preferred policies, therefore the extent of feeding resource available to the shad will consequently not be reduced.</p>	None required
Twaite shad <i>Alosa fallax</i>	<ul style="list-style-type: none"> Large shallow inlets and bays Estuaries 	<ul style="list-style-type: none"> Populations. Range. Supporting habitat and species. 	<ul style="list-style-type: none"> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that for otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. For grey seal, populations should not be reduced as a consequence of human activity. The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for otter and grey seal: their range within the SAC and adjacent inter-connected areas is not constrained or hindered, there are appropriate and sufficient food resources within the SAC and beyond, and the sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 									<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>HTL within the estuary at Solva (PU 3.2 and PU 3.5) may result in coastal squeeze of the intertidal habitat; however, the estuary itself is not expected to reduce.</p> <p>In addition shad food resource is unlikely to be affected as the estuary itself will not be reduced by the preferred policies, therefore the extent of feeding resource available to the shad will consequently not be reduced.</p>	None required

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> • Estuaries • Reefs. • Sandbanks slightly covered by sea water all the time • Mudflats and sandflats not covered by seawater at low tide. • Coastal lagoons. • Atlantic salt meadows. 		<ul style="list-style-type: none"> • The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that for otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. For grey seal, populations should not be reduced as a consequence of human activity. • The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for otter and grey seal: their range within the SAC and adjacent interconnected areas is not constrained or hindered, there are appropriate and sufficient food resources within the SAC and beyond, and the sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. • The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include: distribution, extent, structure, function and quality of habitat, prey availability and quality. As part of this objective it should be noted that: the abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term, the management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term, contamination of potential prey species should be below concentrations potentially harmful to their physiological health, disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour, and for otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>The HTL policy within the estuaries at Solva (PU 3.2 and PU 3.5) lie outwith the SAC boundary, so are therefore not expected to have an impact.</p> <p>HTL within the estuary at Solva (PU 3.2 and PU 3.5) may result in coastal squeeze of the intertidal habitat; however, the estuary itself is not expected to reduce.</p> <p>It is not possible to quantify the exact amount of otter habitat lost due to the SMP2 policies, however, it can be anticipated that the otter will most likely occur along the banks of the estuary (away from populated areas) – therefore potentially within PUs 3.2 and 3.3. However, the habitat will only reduce in size rather than total loss, and it is not expected to affect otter movement or feeding resource.</p> <p>In addition otter food resource is unlikely to be affected as the estuary itself will not be reduced by the preferred policies, therefore the extent of feeding resource available to the otter will consequently not be reduced.</p> <p>Habitats on the undefended coastline within PU 3.1, 3.6, 3.7 and 3.12 will be able to respond naturally to sea level rise.</p> <p>Otters may occur along discreet and limited areas of coastline from time to time within PDZ 2. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting overall on the otter population.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Afonydd Cleddau/ Cleddau Rivers SAC							
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	NA	<ul style="list-style-type: none"> Distribution within catchment. Typical species. 	<ul style="list-style-type: none"> The capacity for the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary. The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure. It is anticipated that in most instances these limits will concur with the standards used by the Review of Consents process. Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC. All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change. Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed. The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided. River SSSI features should be in favourable condition. Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers. The reservoir dams on the Syfynwy are excluded. Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified. Flows during the normal migration periods of sea and river lamprey will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered. Levels of nutrients, in particular phosphate, will be agreed between EA and CCW for each WFD water body in the Cleddau SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process. Levels of all other water quality parameters that could affect the distribution and abundance of all species will be agreed between EA and CCW for each WFD water body in the Cleddau SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process. Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects. Potential sources of pollution not addressed in the review of consents, such as contaminated land, will be considered in assessing plans and projects. Levels of suspended solids will be agreed between EA and CCW for each WFD water body in the Usk SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels. 	<p><u>Saline intrusion:</u></p> <p>MR policy within PDZ 3 adjacent to the Cleddau Rivers SAC will not result in an impact to the watercourses. NAI policy along the remaining coast adjacent to the SAC will result in natural erosion of the coast. The flooding extent over the 3 epochs will not encroach on the freshwater courses of this SAC.</p> <p>In the long term the water course habitat will not change or be obstructed by the planned policies.</p> <p>The MR policy may lead to short term impacts on the condition of the water course and/or obstruction of Annex II species as a result of construction or maintenance measures. However, these are likely to be short term and will be addressed at the Flood Risk Management Strategy Level.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 1.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Active raised bogs	NA	<ul style="list-style-type: none"> Extent. Habitat composition. 	<ul style="list-style-type: none"> On the mire expanse there are at least 3 of <i>Calluna vulgaris</i>, <i>Erica tetralix</i>, <i>Eriophorum angustifolium</i>, <i>E.vaginatum</i> & <i>Trichophorum cespitosum</i> constant, with a combined cover not exceeding 80%. No single species > 50% cover. At least one of <i>Andromeda polifolia</i>, <i>Drosera rotundifolia</i>, <i>Empetrum nigrum</i>, <i>Nartheicum ossifragum</i> and <i>Vaccinium oxycoccos</i> occurs at least frequently. On the mire expanse only there are at least 2 of the following spp. constant, with a combined cover > 20%: <i>Sphagnum capillifolium</i>, <i>S. magellanicum</i>, <i>S. papillosum</i>, <i>S. tenellum</i>. No reduction in extent of microtopographic features (e.g. bog pools). 				
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	NA	<ul style="list-style-type: none"> Extent. Quality. Structure and processes. Regeneration. Non-native species. Ground flora. 	<ul style="list-style-type: none"> The canopy is dominated by single stands of alder <i>Alnus glutinosa</i> or willow <i>Salix</i> spp. In alluvial woods with free draining soils there may be ash or oak in the canopy, but in the wetter alluvial woodlands ash <i>Fraxinus excelsior</i> is more likely to be limited to areas of relatively drier ground. The structure of alluvial woodland is recognised as being dynamic therefore the presence of over mature trees is desirable but not essential. The river itself should be dynamic to allow for areas of outwash and deposition that trees can regenerate on. Lying or standing deadwood (> 20cm diameter and > 1m length) is present at all sites. The feature should support alluvial ground flora including two of the following: meadowsweet <i>Filipendula ulmaria</i>, yellow flag <i>Iris pseudacorus</i>, nettle <i>Urtica dioica</i>, common reed <i>Phragmites australis</i>, greater tussock sedge <i>Carex paniculata</i>, opposite-leaved golden saxifrage <i>Chrysosplenium oppositifolium</i>, rushes <i>Juncus</i> spp, tufted hair-grass <i>Deschampsia cespitosa</i>, hemlock water-dropwort <i>Oenanthe crocata</i>, and wild angelica <i>Angelica sylvestris</i>. 				
Brook lamprey <i>Lampetra planeri</i> River lamprey <i>Lampetra fluviatilis</i>	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	<ul style="list-style-type: none"> Age/size structure of ammocoete population. Distribution of ammocoetes within catchment. Ammocoete density. 	<ul style="list-style-type: none"> The conservation objective for the watercourse as defined above is met. The population of the feature in the SAC must be stable or increasing over the long term. The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Passage of the feature through the SAC is not to be hindered by artificial barriers such as weirs. The characteristic channel morphology provides the diversity of water depths, current velocities and substrate types necessary to fulfil the habitat requirements of the features. The close proximity of different habitats facilitates movement of fish to new preferred habitats with age. 				

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Bullhead <i>Cottus gobio</i>		<ul style="list-style-type: none"> • Adult densities. • Distribution. • Reproduction / age • Structure. 	<ul style="list-style-type: none"> • The conservation objective for the watercourse as defined above must be met. • The population of the feature in the SAC must be stable or increasing. • The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. • The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. • Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply. • Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. • Passage of the feature through the SAC is not to be hindered by artificial barriers such as weirs. • The characteristic channel morphology provides the diversity of water depths, current velocities and substrate types necessary to fulfil the habitat requirements of the features. The close proximity of different habitats facilitates movement of fish to new preferred habitats with age. 				
Otter <i>Lutra lutra</i>		<ul style="list-style-type: none"> • Distribution. • Breeding activity. • Actual and potential breeding sites. 	<ul style="list-style-type: none"> • The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC. • The SAC will have sufficient habitat, including riparian trees and vegetation and wetlands, to support the otter population. • The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. • The otter must be able to breed and recruit successfully in the SAC. The size of breeding territories may vary depending on prey abundance. • Otter food sources must be sufficient for maintenance of the population. • The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. • No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed. 				
Sea lamprey <i>Petromyzon marinus</i>		<ul style="list-style-type: none"> • Distribution within catchment. • Ammocoete density. 	<ul style="list-style-type: none"> • The conservation objective for the watercourse is met. • The population of the feature in the SAC must be stable or increasing over the long term. • The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. • The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. • Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply. • Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. • Passage of the feature through the SAC is not to be hindered by artificial barriers such as weirs. • The characteristic channel morphology provides the diversity of water depths, current velocities and substrate types necessary to fulfil the habitat requirements of the features. The close proximity of different habitats facilitates movement of fish to new preferred habitats with age. 				

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Ramsey and St David's Peninsula Coast SPA							
Internationally important Article 4.1 Species (breeding): Chough <i>Pyrrhocorax pyrrhocorax</i>	Shingle. Sea cliffs. Islets	<ul style="list-style-type: none"> Breeding population Breeding productivity Foraging habitat condition 	<ul style="list-style-type: none"> The breeding population of Chough is at least 11 pairs. Breeding success averages at least 2.5 chicks/pair. Sufficient suitable habitat is present to support the populations. The factors affecting the feature are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Much of the natural coastline has a preferred policy of NAI which will allow the vegetated cliffs erode naturally in the long term allowing natural succession. The NAI policy will not result in the active intervention of the natural processes, enabling the integrity of this feature to continue.</p> <p>The sandflats at most risk of coastal squeeze are located in PUs 3.2, 3.3, 3.4, 3.5, and 3.8 where there will be a loss of 0.87ha of habitat over the 3 epochs. The length of coastline within this SAC and PDZ that comprises sandflats is approximately 3,900km.</p> <p>There are currently no man-made defences in place around the Ramsay Island, therefore no impact from the NAI will occur as a result of the SMP policy.</p> <p>Not possible to identify the area of Machair with the available data.</p> <p>A total of 0.6ha of intertidal and cliff base habitat will be lost in epoch 1; 2ha in epoch 2, and 6ha in epoch 3.</p> <p>As the cliffs are able to continue moving landward naturally in response to sea level rise – the SPA feature which uses these cliffs to feed on adjacent short-grazed grassland or machair, then they will be not be adversely effected. Whilst the negligible (in context to actual remaining sandflat habitat including that created where the coast can respond naturally to sea level rise) loss of sandflat would not be expected to affect the chough population.</p>	None required	No adverse effect expected	Yes
	Marine areas. Sea inlets						
	Coastal sand dunes. Sand beaches. Machair						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
St David's / Ty Ddewi SAC							
Vegetated sea cliffs of the Atlantic and Baltic coasts	NA	<p>Cliff and Crevice</p> <ul style="list-style-type: none"> Extent of Maritime Cliff and Crevice vegetation Condition of Maritime Cliff and Crevice vegetation <p>Maritime Grassland</p> <ul style="list-style-type: none"> Extent of Maritime grassland vegetation Condition of Maritime grassland vegetation <p>Maritime Heathland</p> <ul style="list-style-type: none"> Extent of Maritime heathland vegetation Condition of Maritime heathland vegetation 	<p>Cliff and Crevice</p> <ul style="list-style-type: none"> Cliff and crevice vegetation will occur naturally on suitable cliff sections throughout the site. The vegetation will be composed of native plants such as sea spurrey <i>Spergularia rupicola</i> and sea samphire <i>Crithmum maritimum</i>. The establishment of non-native plants such as Hottentot fig <i>Carpobotus edulis</i> will be discouraged. The factors affecting the feature are under control <p>Maritime Grassland</p> <ul style="list-style-type: none"> Maritime Grassland will occupy at least x% of the total site area (to be set). The following plants will be common in the maritime grassland: thrift <i>Armeria maritima</i>; spring squill <i>Scilla verna</i> and sea plantain <i>Plantago maritima</i> Competitive species indicative of under-grazing, particularly cocksfoot <i>Dactylis glomerata</i>, bracken <i>Pteridium aquilinum</i> and western gorse <i>Ulex gallii</i> will be kept in check. The factors affecting the feature are under control. <p>Maritime Heathland</p> <ul style="list-style-type: none"> Maritime heathland will occupy at least x% of the total site area (to be set). The following plants will be common in the maritime heathland: heather <i>Calluna vulgaris</i>; bell heather <i>Erica cinerea</i> and spring squill <i>Scilla verna</i>. Competitive species indicative of under-grazing, particularly bracken <i>Pteridium aquilinum</i> and gorse <i>Ulex europaeus</i> will be kept in check. The factors affecting the feature are under control 	<p><u>Restriction of coastal erosion:</u></p> <p>The majority of the coastline of the St David's SAC has a preferred policy of NAI. In the long term as the vegetated cliffs would naturally erode this would allow for natural succession of vegetation.</p>	None required	No adverse effect expected	Yes
European dry heaths	NA		<ul style="list-style-type: none"> Dry Heath will occupy areas of the site where heathland extends beyond the zone of maritime influence and lacks the species characteristic of maritime heath as a result Much of the dry heath will be short and open. The factors affecting the feature are under control 	<p>The majority of the coastline of the St David's SAC has a preferred policy of NAI. In the long term as the vegetated cliffs would naturally erode, which would allow for natural succession of the European dry heaths on the shallower slopes and in the hinterland of these cliffs.</p>	None required	No adverse effect expected	Yes
Floating water-plantain <i>Luronium natans</i>	Heathland pools	<ul style="list-style-type: none"> Extent of population Distribution of population 	<ul style="list-style-type: none"> At least one population is well established. This population covers at least 15 square metres in two or more separate pools. Current areas of open water to be maintained on Ramsey; other pool habitats within the SAC to be kept in a suitable state for <i>Luronium</i> where possible. The factors affecting the feature are under control 	<p>The two larger pools – and one tiny satellite – on Ramsey Island are an internationally significant site for floating water-plantain <i>Luronium natans</i>. Rain-fed lowland pools, usually in heaths, are now an exceptionally rare habitat, and the population here is maintained by a combination of excellent management, favourable topography and clean rain.</p> <p>The majority of the coastline of the St David's SAC has a preferred policy of NAI. In the long term the coast will be respond naturally to sea level rise, which may include the loss of the pools; however as the coastline in question as natural sea defences, the loss will be a result of natural processes and not the SMP2 policies.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
North West Pembrokeshire Commons/ Comins Gogledd Orllewin Sir Benfro SAC							
European dry heaths	NA	<ul style="list-style-type: none"> Extent of dry heath Condition of dry heath Distribution of dry heath 	<ul style="list-style-type: none"> Dry heath will cover between 1% and 30% of the site area and display a range of plant and insect species typical of the habitat. The following plants will be common in the dry heath: heather <i>Calluna vulgaris</i>; bell heather <i>Erica cinerea</i> and western gorse <i>Ulex gallii</i>. Competitive species indicative of under-grazing, particularly bracken <i>Pteridium aquilinum</i> and purple moor-grass <i>Molinia caerulea</i> will be kept in check. Western gorse <i>Ulex gallii</i> will not exceed 50% cover. 70% of dry heath will be "good condition" dry heath. All factors affecting the achievement of these conditions, including grazing and scrub/bracken encroachment are under control. 	<p><u>Saline intrusion:</u> No impact as the site and features are inland.</p> <p>The North Pembrokeshire Commons SAC is located approximately 0.73 km for the nearest coastal point (PU 3.6). From the GIS data, the present day, 50 year and 100 year flood extents, will not impact on the features of this SAC.</p>	None required	No adverse effect expected	Yes
Transition mires and quaking bogs	NA	<ul style="list-style-type: none"> Extent of TM&QB Condition of TM&QB Distribution of TM&QB 	<ul style="list-style-type: none"> TM&QB will cover at least 9ha of the site and display a range of plant and invertebrate species typical of the habitat. <i>Potentilla palustris</i>, <i>Carex diandra</i>, <i>Carex rostrata</i>, <i>Menyanthes trifoliata</i>, <i>Hypericum elodes</i>, <i>Pedicularis palustris</i> will be common, forming a quaking raft of vegetation. <i>Juncus effusus</i> will be at less than 5% cover. 70% of TM&QB will be good condition, where open water species will be present; large sedges, negative indicator species and scrub will be absent; grasses form <5% cover. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u> No impact as the site and features are inland.</p> <p>The North Pembrokeshire Commons SAC is located approximately 0.73 km for the nearest coastal point (PU 3.6). From the GIS data, the present day, 50 year and 100 year flood extents, will not impact on the features of this SAC.</p>	None Required	No adverse effect expected	Yes
Northern Atlantic wet heaths with <i>Erica tetralix</i>	NA	<ul style="list-style-type: none"> Extent of wet heath Condition of wet heath Distribution of wet heath 	<ul style="list-style-type: none"> Wet heath will cover at least 14.5 ha of the site and display a range of plant and invertebrate species typical of the habitat. The following plants will be common in the dry heath: heather <i>Calluna vulgaris</i>; Cross-leaved heath <i>Erica tetralix</i> as well as bog moss <i>Sphagnum</i> spp. and <i>Narthecium ossifragum</i>. Competitive species indicative of under-grazing, particularly bracken <i>Pteridium aquilinum</i>, purple moor-grass <i>Molinia caerulea</i> and western gorse <i>Ulex gallii</i> will be kept in check. 70% of wet heath will be "good condition" wet heath. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u> No impact as the site and features are inland.</p> <p>The North Pembrokeshire Commons SAC is located approximately 0.73 km for the nearest coastal point (PU 3.6). From the GIS data, the present day, 50 year and 100 year flood extents, will not impact on the features of this SAC.</p>	None Required	No adverse effect expected	Yes
<i>Molinia</i> meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinia caerulea</i>)	NA	<ul style="list-style-type: none"> Extent of <i>Molinia</i> Meadows Condition of <i>Molinia</i> Meadows Distribution of <i>Molinia</i> Meadows 	<ul style="list-style-type: none"> <i>Molinia</i> meadows habitat will cover at least 22 ha of the site and display a range of plant and invertebrate species typical of the habitat. 70% of the <i>Molinia</i> meadows habitat in each area of habitat will be described as being in good condition. The SAC marshy grassland will be dominated by <i>Molinia caerulea</i>, typically with a species-rich mixture of short sedges, forbs and bryophytes. One or more of <i>Carex pulicaris</i>, <i>Carex hostiana</i> or <i>Cirsium dissectum</i> must be at least frequent. Competitive species indicative of under-grazing, particularly <i>Molinia</i> itself, will be kept in check. Scrub species such as willow <i>Salix</i> and birch <i>Betula</i> will also be largely absent from the marshy grassland. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u> No impact as the site and features are inland.</p> <p>The North Pembrokeshire Commons SAC is located approximately 0.73 km for the nearest coastal point (PU 3.6). From the GIS data, the present day, 50 year and 100 year flood extents, will not impact on the features of this SAC.</p>	None Required	No adverse effect expected	Yes
Floating water-plantain <i>Luronium natans</i>	Heathland pools	<ul style="list-style-type: none"> Population size Extent of population Reproductive capability Distribution of population Sufficient habitat 	<ul style="list-style-type: none"> There will be at least two populations, in separate waterbodies. There will be no contraction in the extent of <i>L. natans</i> populations. <i>L. natans</i> populations will be viable & able to maintain themselves on a long-term basis <i>L. natans</i> must be able to complete sexual and/or vegetative reproduction successfully. The waterbodies will have sufficient suitable habitat to support viable <i>L. natans</i> populations and to allow for future expansion of the population. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u> No impact as the site and features are inland.</p> <p>The North Pembrokeshire Commons SAC is located approximately 0.73 km for the nearest coastal point (PU 3.6). From the GIS data, the present day, 50 year and 100 year flood extents, will not impact on the features of this SAC.</p>	None Required	No adverse effect expected	Yes

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 4: PDZ 4 – Fishguard Bay and Newport Bay: Strumble Head to Pen-y-Bal (including the Nyfer Estuary)

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Afonydd Cleddau/ Cleddau Rivers SAC							
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	NA	<ul style="list-style-type: none"> Distribution within catchment. Typical species. 	<ul style="list-style-type: none"> The capacity for the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary. The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity and quality, physical habitat and community composition and structure. It is anticipated that in most instances these limits will concur with the standards used by the Review of Consents process. Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC. All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change. Flows, water quality, substrate quality and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed. The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided. River SSSI features should be in favourable condition. Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, eg. weirs, bridge sills, acoustic barriers. The reservoir dams on the Syfynwy are excluded. Natural factors such as waterfalls, which may limit the natural range of a species feature or dispersal between naturally isolated populations, should not be modified. Flows during the normal migration periods of sea and river lamprey will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered. Levels of nutrients, in particular phosphate, will be agreed between EA and CCW for each WFD water body in the Cleddau SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process. Levels of all other water quality parameters that could affect the distribution and abundance of all species will be agreed between EA and CCW for each WFD water body in the Cleddau SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process. Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects. Potential sources of pollution not addressed in the review of consents, such as contaminated land, will be considered in assessing plans and projects. Levels of suspended solids will be agreed between EA and CCW for each WFD water body in the Usk SAC. Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels. 	<p>The Cleddau Rivers SAC is located approximately 3 km from the nearest PU within PDZ 4. The flooding and erosion extent over the 3 epochs does not impact on this SAC or any of the relevant interest features.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 4.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Active raised bogs	NA	<ul style="list-style-type: none"> Extent. Habitat composition. 	<ul style="list-style-type: none"> On the mire expanse there are at least 3 of <i>Calluna vulgaris</i>, <i>Erica tetralix</i>, <i>Eriophorum angustifolium</i>, <i>E.vaginatum</i> & <i>Trichophorum cespitosum</i> constant, with a combined cover not exceeding 80%. No single species > 50% cover. At least one of <i>Andromeda polifolia</i>, <i>Drosera rotundifolia</i>, <i>Empetrum nigrum</i>, <i>Narthecium ossifragum</i> and <i>Vaccinium oxycoccos</i> occurs at least frequently. On the mire expanse only there are at least 2 of the following spp. constant, with a combined cover > 20%: <i>Sphagnum capillifolium</i>, <i>S. magellanicum</i>, <i>S. papillosum</i>, <i>S. tenellum</i>. No reduction in extent of microtopographic features (e.g. bog pools). 				
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	NA	<ul style="list-style-type: none"> Extent. Quality. Structure and processes. Regeneration. Non-native species. Ground flora. 	<ul style="list-style-type: none"> The canopy is dominated by single stands of alder <i>Alnus glutinosa</i> or willow <i>Salix</i> spp. In alluvial woods with free draining soils there may be ash or oak in the canopy, but in the wetter alluvial woodlands ash <i>Fraxinus excelsior</i> is more likely to be limited to areas of relatively drier ground. The structure of alluvial woodland is recognised as being dynamic therefore the presence of over mature trees is desirable but not essential. The river itself should be dynamic to allow for areas of outwash and deposition that trees can regenerate on. Lying or standing deadwood (> 20cm diameter and > 1m length) is present at all sites. The feature should support alluvial ground flora including two of the following: meadowsweet <i>Filipendula ulmaria</i>, yellow flag <i>Iris pseudacorus</i>, nettle <i>Urtica dioica</i>, common reed <i>Phragmites australis</i>, greater tussock sedge <i>Carex paniculata</i>, opposite-leaved golden saxifrage <i>Chrysosplenium oppositifolium</i>, rushes <i>Juncus</i> spp, tufted hair-grass <i>Deschampsia cespitosa</i>, hemlock water-dropwort <i>Oenanthe crocata</i>, and wild angelica <i>Angelica sylvestris</i>. 				
Brook lamprey <i>Lampetra planeri</i>	Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	<ul style="list-style-type: none"> Age/size structure of ammocoete population. Distribution of ammocoetes within catchment. Ammocoete density. 	<ul style="list-style-type: none"> The conservation objective for the watercourse as defined above is met. The population in the SAC must be stable or increasing over the long term. The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Passage of the feature through the SAC is not to be hindered by artificial barriers such as weirs. The characteristic channel morphology provides the diversity of water depths, current velocities and substrate types necessary to fulfil the habitat requirements of the features. The close proximity of different habitats facilitates movement of fish to new preferred habitats with age. 				
River lamprey <i>Lampetra fluviatilis</i>							
Bullhead <i>Cottus gobio</i>							

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Otter <i>Lutra lutra</i>		<ul style="list-style-type: none"> Distribution. Breeding activity. Actual and potential breeding sites. 	<ul style="list-style-type: none"> The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC. The SAC will have sufficient habitat, including riparian trees and vegetation and wetlands, to support the otter population in the long term. The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The otter must be able to breed and recruit successfully in the SAC. The size of breeding territories may vary depending on prey abundance. Otter food sources must be sufficient for maintenance of the population. The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed. 				
Sea lamprey <i>Petromyzon marinus</i>		<ul style="list-style-type: none"> Distribution within catchment. Ammocoete density. 	<ul style="list-style-type: none"> The conservation objective for the watercourse as defined above is met. The population of the feature in the SAC must be stable or increasing over the long term. The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Passage of the feature through the SAC is not to be hindered by artificial barriers such as weirs. The characteristic channel morphology provides the diversity of water depths, current velocities and substrate types necessary to fulfil the habitat requirements of the features. The close proximity of different habitats facilitates movement of fish to new preferred habitats with age. 				

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Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 5: PDZ 5 – The Teifi: Pen y Bal to Pencribach (including the Teifi Estuary and Cardigan Island)

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Afon Teifi/ River Teifi SAC							
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	NA	<ul style="list-style-type: none"> Distribution within catchment Typical species 	<ul style="list-style-type: none"> The capacity of the habitats in the SAC to support each feature at near-natural population levels, as determined by predominantly unmodified ecological and hydromorphological processes and characteristics, should be maintained as far as possible, or restored where necessary. The ecological status of the water environment should be sufficient to maintain a stable or increasing population of each feature. This will include elements of water quantity & quality, physical habitat, community composition & structure. It is anticipated that these limits will concur with the relevant standards used by the Review of Consents process Flow regime, water quality and physical habitat should be maintained in, or restored as far as possible to, a near-natural state, in order to support the coherence of ecosystem structure and function across the whole area of the SAC. All known breeding, spawning and nursery sites of species features should be maintained as suitable habitat as far as possible, except where natural processes cause them to change. Flows, water quality, substrate quality, and quantity at fish spawning sites and nursery areas will not be depleted by abstraction, discharges, engineering or gravel extraction activities or other impacts to the extent that these sites are damaged or destroyed. The river planform and profile should be predominantly unmodified. Physical modifications having an adverse effect on the integrity of the SAC, including, but not limited to, revetments on active alluvial river banks using stone, concrete or waste materials, unsustainable extraction of gravel, addition or release of excessive quantities of fine sediment, will be avoided. River habitat SSSI features should be in favourable condition. Artificial factors impacting on the capability of each species feature to occupy the full extent of its natural range should be modified where necessary to allow passage, e.g. weirs, bridge sills, acoustic barriers. Natural factors such as waterfalls, which may limit the natural range of a species feature, or dispersal between naturally isolated populations, should not be modified. Flows during the normal migration periods of each migratory fish species feature will not be depleted by abstraction to the extent that passage upstream to spawning sites is hindered. Flow objectives for assessment points in the Teifi Catchment Abstraction Management Strategy (CAMS) as they relate to the Afon Teifi SAC will be agreed between EA and CCW as necessary. It is anticipated that these limits will concur with the standards used by the Review of Consents process. Levels of nutrients, in particular phosphate, will be agreed between EA and CCW for each Water Framework Directive water body in the Afon Teifi SAC, and measures taken to maintain nutrients below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process. Levels of water quality parameters that are known to affect the distribution and abundance of SAC features will be agreed between EA and CCW for each Water Framework Directive water body in the Afon Teifi SAC, and measures taken to maintain pollution below these levels. It is anticipated that these limits will concur with the standards used by the Review of Consents process. Levels of suspended solids will be agreed between EA and CCW for each Water Framework Directive water body in the Afon Teifi SAC. 	<p><u>Saline intrusion:</u></p> <p>The preferred policy at the inner estuary west (PU 5.4), Bryn-y-mor (PU5.6), Gwbert Cliffs (PU 5.9) and St Dogmaels and Castle Farm (PU 5.10) is NAI which would allow the estuary and the associated sand/mudflats and cliffs to develop naturally and respond to sea level rise.</p> <p>The HTL along the majority of the remaining estuary/river will result in coastal squeeze and a loss of intertidal habitat, however there will be no loss of the watercourse habitat.</p> <p>A change to the coastal processes and coastal squeeze may result in the extension of saline water into the River Teifi and potentially having an impact on the integrity of the SAC and its typical species.</p> <p>The policies will not effect the saline intrusion as it will occur naturally and not as a result of the SMP2 policies.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
			<p>Measures including, but not limited to, the control of suspended sediment generated by agriculture, forestry and engineering works, will be taken to maintain suspended solids below these levels.</p> <ul style="list-style-type: none"> Potential sources of pollution not addressed in the Review of Consents, such as contaminated land, will be considered in assessing plans and projects. 				
Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i>	NA	<ul style="list-style-type: none"> Macrophyte community composition: Llyn Hir Macrophyte community composition: Llyn Teifi, Llyn Egnant, Llyn y Gorlan and Llyn Bach 	<ul style="list-style-type: none"> The conservation objective for the water course above must be met The <i>Littorelletea uniflorae</i> aquatic upland lake community will be present in all five of the Teifi Pools (Llyn Hir, Llyn Teifi, Llyn Egnant, Llyn y Gorlan and Llyn Bach), and will be self-maintaining on a long-term basis. A fully developed <i>Littorelletea</i> community will be present in Llyn Hir, including all of the component species typical of the SAC feature, as represented in the Afon Teifi SAC. The typical species are defined with reference to the species composition of the JNCC standing water type for the SAC feature, unless differing from this type due to natural variability when other typical species may be defined as appropriate. For each of Llyn Teifi, Llyn Egnant, Llyn y Gorlan and Llyn Bach, the extent and species composition of the <i>Littorelletea</i> community will be stable or increasing in range. There will be no deterioration in the conservation status of the feature as represented in these lakes. 	<p><u>Saline intrusion:</u></p> <p>Oligotrophic to mesotrophic standing waters which support the Floating water-plantain <i>Luronium natans</i> are not located within the SMP area.</p>	None required	No adverse effect expected	Yes
Brook lamprey <i>Lampetra planeri</i>	<ul style="list-style-type: none"> Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> 	<ul style="list-style-type: none"> Age/size structure of ammocoete population Distribution of ammocoetes within catchment Ammocoete Density 	<ul style="list-style-type: none"> The conservation objective for the water course as defined in 'water courses' above must be met The population of the feature in the SAC is stable or increasing over the long term. The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions e.g. food supply. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Natural factors such as waterfalls may limit the natural range of individual species. Existing artificial influences on natural range that cause an adverse effect on site integrity, such as physical barriers to migration, will be assessed. There is, and will continue to be, a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis. 	<p>On the whole, it is unlikely that structure or behaviour of the estuary will be impacted by the SMP policies. The NAI policy at the mouth of the estuary will allow the estuary to function naturally.</p> <p>The HTL policies within the inner estuary apply to areas of natural sea defence and where HTL was the original policy. The HTL policy is alongside existing developed areas and therefore is not likely to result in a barrier to the flow of the river.</p> <p>The SMP policies will not result in obstruction of the water course</p> <p>The MR policies within PUs 5.13 and 5.14 are to allow retreat of defences along the water course, and it is only the management of the habitat on the south side that is to be considered within this assessment, and that it is only the road set back from the river that would be defended along the north side.</p> <p>It is not expected that the SMP policies will cause obstruction to fish migratory routes, or change the conditions within the spawning areas for the qualifying species.</p>	None required	No adverse effect expected	Yes
River lamprey <i>Lampetra fluviatilis</i>	<ul style="list-style-type: none"> Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> 						
Atlantic salmon <i>Salmo salar</i>	<ul style="list-style-type: none"> Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> 	<ul style="list-style-type: none"> Adult run size Juvenile densities 					
Goby <i>Cottus gobio</i>	<ul style="list-style-type: none"> Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation 	<ul style="list-style-type: none"> Population densities Distribution Reproduction/ age structure 					
Sea lamprey <i>Petromyzon marinus</i>	<ul style="list-style-type: none"> Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation 	<ul style="list-style-type: none"> Distribution within catchment Ammocoete density 					

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation 	<ul style="list-style-type: none"> Distribution Breeding activity Actual and potential breeding sites 	<ul style="list-style-type: none"> The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour. The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The whole area of the Teifi SAC is considered to form potentially suitable breeding habitat for otters. The size of breeding territories may vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient they should be created through habitat enhancement and where necessary the provision of artificial holts. No otter breeding site should be subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance must be managed. The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. 	<p>The Teifi in West Wales holds otter throughout much of its catchment. The river has suitable resting and breeding sites along its length. Evidence from surveys and sightings suggest the tidal reach is being increasingly used by otters.</p> <p>It is unlikely that the SMP policies will have a significant impact on the breeding, feeding and resting sites along the entire catchment area, as the policies of MR would improve the extent of habitat available for the otter, and HTL (particularly in PUs 5.11 and 5.12) occurs in areas of existing hard defence, and would not be expected to encroach into the river and the supporting habitat for otter.</p> <p>However, during construction works particularly for MR policy implementation, there is a potential for otters and their habitat to be disturbed by construction machinery and this could result in the under-achievement of the conservation objectives.</p>	<p>During the design and application for any scheme, surveys of the area of proposed works should be undertaken to determine whether otter activity occurs, and works should be undertaken whereby construction disturbance would not occur on or immediately adjacent to otter habitat, or that disturbance would not affect sensitive times of the year for the otter population. In addition, design measures should ensure that otter movement is not obstructed.</p>	No adverse effect expected	Yes
Floating water-plantain <i>Luronium natans</i>	<ul style="list-style-type: none"> Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the Isoëto-Nanojuncetea 	<ul style="list-style-type: none"> Distribution of floating water-plantain in the main river Distribution of floating water-plantain in the Teifi pools Presence of floating flowers in the Teifi pools 	<ul style="list-style-type: none"> The conservation objective for the water course as defined in 'water courses' above must be met. The floating water-plantain populations will be viable throughout their current distribution in the SAC (maintaining themselves on a long-term basis). Each floating water-plantain population must be able to complete sexual and/or vegetative reproduction successfully. Potential for genetic exchange between floating water-plantain populations, in and/or outside the SAC, must be evident in the long-term. Dispersal of floating water-plantain must be unhindered. The SAC will have sufficient suitable habitat to support floating water-plantain populations within their current distribution. There will be no contraction of the current floating water-plantain distribution in the SAC. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. water levels in Teifi Pools, water depth, stability of river flows, stability of bed substrate, ecosystem structure and functions e.g. nutrient levels, and shade. 	<p><u>Saline intrusion:</u></p> <p>Oligotrophic to mesotrophic standing waters which support the Floating water-plantain <i>Luronium natans</i> are not located within the SMP2 area as they are situated upstream. Natural saline intrusion may occur and impact on the floating water plantain, as this may occur as a result of natural processes and not the SMP2 policy, no impact can be concluded.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Cardigan Bay/ Bae Ceredigion SAC							
Sandbanks slightly covered by sea water all the time	NA		<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include;</p> <ul style="list-style-type: none"> • Intertidal bedrock reefs • Intertidal cobble, pebble with <i>Sabellaria alveolata</i> (biogenic) reefs • Subtidal bedrock reefs • Subtidal pebble, cobble and boulder reefs • Sea caves. <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> • geology, • sedimentology, • geomorphology, • hydrography and meteorology, • water and sediment chemistry, • biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> • at or below existing statutory guideline concentrations within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. • Contaminant levels in the water column and sediments derived from human activity to be: <ul style="list-style-type: none"> – at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant concentrations within sediments or biota below levels potentially detrimental to the long-term maintenance of the feature species populations, – their abundance or range taking into account bioaccumulation and biomagnification. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include</p> <ul style="list-style-type: none"> – species richness: – population structure and dynamics, – physiological health, – reproductive capacity – recruitment, – mobility – range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> • populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term • the management and control of activities or operations likely to adversely affect the habitat feature is appropriate for maintaining it in favourable condition and is secure in the long term. 	<p>NAI policies on the open coast will allow the actively eroding cliffs to continue to erode, supplying sediment to the Subtidal sandbanks and ensuring that the feature is not lost.</p> <p>The HTL policies within the inner harbour will cause habitat loss of the sandbanks, however MR in the long term (PUs 5.13, 5.14, and 5.7) would ensure that coastal squeeze would not be an issue. Furthermore, the subtidal sandbank features are most abundant in the east of the site (to the north and west of New Quay) as noted in the Ref 33 report, and the figure showing locations is in preparation. However, there are no expected hydrodynamic changes from HTL or MR policies within this PDZ that would extend from this unit to the likely subtidal sandbanks 20km away. No other changes such as salinity or turbidity or other physical or chemical functions are expected.</p> <p>Therefore, there will be no constraint to Subtidal sandbank expansion as a result of the SMP2 policies.</p> <p><u>Coastal Squeeze / Coastal Processes:</u> The Reg 33 report notes that biogenic reef in the intertidal and shallow subtidal is common in the north-east of the Site (and this PDZ), though the indicative habitat map is still in preparation.</p> <p>NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease.</p> <p>The HTL and MR policies within the estuary would not directly impact on reefs as it is unlikely that biogenic reef will occur in the estuary as a result of the high flow rates. However, the changes to hydrography as a result of the HTL and MR policies within the Teifi Estuary (PUs 5. 3, 5.5, 5.7, 5.8, 5.11, 5.12, 5.13, and 5.14) are not expected to alter the salinity, turbidity, or other chemical or biological interactions, and furthermore, the limited and localised changes to water movement would not be expected to alter the conditions of biogenic reefs that are adapted to the large variation in waves and tides.</p>	None required	No adverse effect expected	Yes
Reefs	NA	<ul style="list-style-type: none"> • Range • Structure and Function • Typical Species 	<p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include</p> <ul style="list-style-type: none"> – species richness: – population structure and dynamics, – physiological health, – reproductive capacity – recruitment, – mobility – range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> • populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term • the management and control of activities or operations likely to adversely affect the habitat feature is appropriate for maintaining it in favourable condition and is secure in the long term. 	<p>The Reg 33 report notes that biogenic reef in the intertidal and shallow subtidal is common in the north-east of the Site (and this PDZ), though the indicative habitat map is still in preparation.</p> <p>NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease.</p> <p>The HTL and MR policies within the estuary would not directly impact on reefs as it is unlikely that biogenic reef will occur in the estuary as a result of the high flow rates. However, the changes to hydrography as a result of the HTL and MR policies within the Teifi Estuary (PUs 5. 3, 5.5, 5.7, 5.8, 5.11, 5.12, 5.13, and 5.14) are not expected to alter the salinity, turbidity, or other chemical or biological interactions, and furthermore, the limited and localised changes to water movement would not be expected to alter the conditions of biogenic reefs that are adapted to the large variation in waves and tides.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Submerged or partially submerged sea caves	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>It appears that the submerged or partially submerged sea caves are located on the coast where NAI is the preferred policy, therefore the cliffs can erode naturally in response to sea level rise.</p> <p>If the caves are lost due to the eroding cliffs, this would be as a result of natural processes and not the SMP policies – however, new caves will be created as part of the natural process.</p>	None required	No adverse effect expected	Yes
Mudflats and sandflats not covered by seawater at low tide	NA	<ul style="list-style-type: none"> • Range • Structure and Function • Typical Species 	<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing.</p> <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> • geology, • sedimentology, • geomorphology, • hydrography and meteorology, • water and sediment chemistry, • biological interactions. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include</p> <ul style="list-style-type: none"> – species richness: – population structure and dynamics, – physiological health, – reproductive capacity – recruitment, – mobility – range. 	<p>Though not a primary reason for qualification, the presence of this feature has been examined with respect to the HTL policies in Epochs 1 and 2 for PU 5.8. No evident constraint to intertidal habitats fronting PU 5.8 would occur during Epoch 1, and the potential for constraint in Epoch 2 is limited by the existing topography which would also provide a constraint if the existing defences were not present. Therefore there would be no constraint to the intertidal mudflat and sandflat habitat fronting this unit.</p>	Monitoring to ensure constraint does not arise.	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Reefs Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves 		<p><u>Populations</u></p> <p>The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements include:</p> <ul style="list-style-type: none"> population size structure, production condition of the species within the site. <p>As part of this objective it should be noted that for bottlenose dolphin and grey seal;</p> <ul style="list-style-type: none"> Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression For grey seal populations should not be reduced as a consequence of human activity <p><u>Range</u></p> <p>The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for bottlenose dolphin and grey seal</p> <ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered There are appropriate and sufficient food resources within the SAC and beyond The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing 	<p>The bottlenose dolphin <i>Tursiops truncatus</i> population of Cardigan Bay off the west coast of Wales has been estimated to consist of around 125 individuals. The dolphins appear to use the inshore waters of Cardigan Bay for both feeding and reproduction, and in the summer months calves and juveniles are often observed with adult individuals or groups.</p> <p>The SMP policies would not be expected to have an impact on the integrity of the SAC or the bottlenose dolphin's resident there.</p> <p>The SMP policies will not result in a reduction in the area or extent of the estuary or inlet/bay habitat that supports the dolphin population, therefore it is concluded that there will be no adverse effect.</p>	None required	No adverse effect expected	Yes
Sea lamprey <i>Petromyzon marinus</i>	<ul style="list-style-type: none"> Reefs Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>Supporting Habitats and Species</u></p> <p>The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution extent structure function and quality of habitat prey availability and quality. 	<p>On the whole, it is unlikely that structure or behaviour of the estuary will be impacted by the SMP policies. The NAI policy at the mouth of the estuary and up to the boundary of this SAC will allow the estuary to function naturally.</p>	None required	No adverse effect expected	Yes
River lamprey <i>Lampetra fluviatilis</i>	<ul style="list-style-type: none"> Reefs Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves 		<p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour Restoration and recovery. 		None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> • Reefs • Sandbanks slightly covered by sea water all the time • Submerged or partially submerged sea caves 		<ul style="list-style-type: none"> • As part of this objective it should be noted that for the bottlenose dolphin populations should be increasing. 	<p>Nearly 40% (about 125,000) of the world population of grey seals is found in the British Isles, with a relatively stable population of about 6,000 in Wales.</p> <p>Coastal squeeze may result in a general loss of haul out sites within the Cardigan Bay SAC over all 3 epochs.</p> <p>HTL (PUs 5.5, 5.7, 5.8, 5.11, and 5.12) may result in loss of intertidal habitat within the estuary, however, as this is a populated area, it is unlikely that it will be used by seals as haul out sites. In addition the seals food resource is unlikely to be affected as the estuary itself will not be reduced by the preferred policies, therefore the extent of feeding resource available to the seals will consequently not be reduced.</p> <p>Grey seals may occur along discreet areas of coastline within PDZ 5. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes under the NAI policy, therefore not impacting on the seal haul out sites.</p>	None required	No adverse effect expected	Yes

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 6: PDZ 6 – South Ceredigion: Pencribach to New Quay Head

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Cardigan Bay/ Bae Ceredigion SAC							
Sandbanks slightly covered by sea water all the time	NA	<ul style="list-style-type: none"> Range Structure and Function Typical Species 	<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include;</p> <ul style="list-style-type: none"> Intertidal bedrock reefs Intertidal cobble, pebble with Sabellaria alveolata (biogenic) reefs Subtidal bedrock reefs Subtidal pebble, cobble and boulder reefs Sea caves <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: <ul style="list-style-type: none"> at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant concentrations within sediments or biota below levels potentially detrimental to the long-term maintenance of the feature species populations, their abundance or range taking into account bioaccumulation and biomagnification. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include</p> <ul style="list-style-type: none"> species richness: population structure and dynamics, physiological health, reproductive capacity recruitment, mobility range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> populations of typical species subject to existing commercial fisheries 	<p><u>Coastal Squeeze/ Coastal Processes:</u> The specific locations of the sandbanks are unknown as the indicative habitat map is still in preparation. However, the extent of subtidal sandbanks would not decrease as a result of the HTL policies and they are likely to develop over existing intertidal habitat if they were present in areas adjacent to the four short frontages. No impact will occur to the subtidal sandbanks as any management occurs to local areas behind beaches and will no have an impact on a large scale of the coastal processes. Furthermore, the subtidal sandbank features are most abundant in the east of the site (to the north and west of New Quay) as noted in the Ref 33 report, and the figure showing locations is in preparation. However, there are no expected hydrodynamic changes that would extend away from the upper shore at the short frontages where HTL and/or MR policies are selected within this PDZ and these are not likely to extend to the subtidal sandbanks.</p>	None required	No adverse effect expected	Yes
Reefs	NA	<ul style="list-style-type: none"> Range Structure and Function Typical Species 	<p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include</p> <ul style="list-style-type: none"> species richness: population structure and dynamics, physiological health, reproductive capacity recruitment, mobility range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> populations of typical species subject to existing commercial fisheries 	<p><u>Coastal Squeeze/ Coastal Processes:</u> The Reg 33 report notes that biogenic reef in the intertidal and shallow sub-tidal is common in the north-east of the Site (and this PDZ), see Annex H-VI for details. NAI along the majority of the coastline will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease. No impact will occur to the reefs as a result of HTL or MR policies at PUs 6.2, 6.4, 6.6, and 6.8, as any management occurs to local areas behind beaches and will not alter the water movements of intertidal areas except in the immediate upper shore fronting HTL and/or MR locations, and consequently they will not have an impact on a large scale of the coastal processes (see Annex H-VI for details). The changes to hydrography as a result of the HTL and MR policies are not expected to alter the salinity, turbidity, or other chemical or biological interactions.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Submerged or partially submerged sea caves	NA		<p>need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term</p> <ul style="list-style-type: none"> the management and control of activities or operations likely to adversely affect the habitat feature is appropriate for maintaining it in favourable condition and is secure in the long term. 	<p><u>Coastal Squeeze/ Coastal Processes:</u> The submerged or partially submerged sea caves are located on the coast where NAI is the preferred policy, therefore the cliffs can erode naturally in response to sea level rise.</p> <p>If the caves are lost due to the eroding cliffs, this would be as a result of natural processes and not the SMP policies – however, new caves will be created as part of the natural process.</p> <p>It is estimated that 2ha of habitat will be lost along the coast of PDZ 6 (which mainly comprises cliffs) in epoch 1; 4ha in epoch 2; and 21ha in epoch 3.</p> <p>No impact will occur to the submerged or partially submerged sea caves as management only occurs to local areas behind beaches as opposed to coastal cliffs, and will have no impact on large scale or no noticeable impact on local scale coastal processes.</p>	None required	No adverse effect expected	Yes
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>Populations</u> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements include:</p> <ul style="list-style-type: none"> population size structure, production condition of the species within the site. <p>As part of this objective it should be noted that for bottlenose dolphin and grey seal;</p> <ul style="list-style-type: none"> Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression For grey seal populations should not be reduced as a consequence of human activity <p><u>Range</u> The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for bottlenose dolphin and grey seal</p> <ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered There are appropriate and sufficient food resources within the SAC and beyond The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing 	<p>The bottlenose dolphin <i>Tursiops truncatus</i> population of Cardigan Bay off the west coast of Wales has been estimated to consist of around 125 individuals. The dolphins appear to use the inshore waters of Cardigan Bay for both feeding and reproduction, and in the summer months calves and juveniles are often observed with adult individuals or groups.</p> <p>The SMP policies would not be expected to have an impact on the integrity of the SAC or the bottlenose dolphin's resident there.</p> <p>The SMP policies will not result in a reduction in the area or extent of the estuary or inlet/bay habitat that supports the dolphin population, therefore it is concluded that there will be no adverse effect.</p>	None required	No adverse effect expected	Yes
Sea lamprey <i>Petromyzon marinus</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 						
River lamprey <i>Lampetra fluviatilis</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 		<p><u>Supporting Habitats and Species</u> The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution extent structure 	<p>The estuarine feature which would support the Sea and River Lamprey are not located within PDZ 6.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 		<ul style="list-style-type: none"> function and quality of habitat prey availability and quality. <p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour Restoration and recovery As part of this objective it should be noted that for the bottlenose dolphin populations should be increasing. 	<p><u>Coastal Squeeze/ Coastal Processes:</u></p> <p>Nearly 40% (about 125,000) of the world population of grey seals is found in the British Isles, with a relatively stable population of about 6,000 in Wales.</p> <p>Coastal squeeze may result in a general loss of haul out sites within the Cardigan Bay SAC over all 3 epochs.</p> <p>Significant coastal squeeze and loss of beach habitat may be observed at Aberporth (PU 6.2) over all 3 epochs as a result of the HTL policy and at Llangrannog (PU 6.6) as a result of HTL and MR (increased protection). Coastal squeeze and loss of beach habitat will be minimal at Tresaith in epoch 1 as a result of HTL – however, MR in epochs 2 and 3 will allow the beach to retreat, therefore potentially alleviating the coastal squeeze in the long term.</p> <p>Grey seals may occur along discreet areas of coastline within PDZ 6. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites.</p>	None required	No adverse effect expected	Yes

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Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 7: PDZ 7 – New Quay Bay and Little Quay Bay: New Quay Head to Gilfach yr Halen

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Cardigan Bay/ Bae Ceredigion SAC							
Sandbanks slightly covered by sea water all the time	NA		<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include;</p> <ul style="list-style-type: none"> • Intertidal bedrock reefs • Intertidal cobble, pebble with Sabellaria alveolata (biogenic) reefs • Subtidal bedrock reefs • Subtidal pebble, cobble and boulder reefs • Sea caves <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> • geology, • sedimentology, • geomorphology, • hydrography and meteorology, • water and sediment chemistry, • biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> • at or below existing statutory guideline concentrations within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. • Contaminant levels in the water column and sediments derived from human activity to be: <ul style="list-style-type: none"> – at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant concentrations within sediments or biota below levels potentially detrimental to the long-term maintenance of the feature species populations, – their abundance or range taking into account bioaccumulation and biomagnification. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include</p> <ul style="list-style-type: none"> – species richness: – population structure and dynamics, – physiological health, – reproductive capacity – recruitment, – mobility – range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> • populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term • the management and control of activities or operations likely to adversely affect the habitat feature is appropriate for maintaining it in favourable condition and is secure in the long term. 	<p><u>Coastal Squeeze / Coastal Processes:</u> The specific locations of the sandbanks are unknown as the indicative habitat map is still in preparation. However, as HTL policies within PDZ 7 are located along existing hard cliff or set back behind the beach, it is unlikely that coastal processes of direct disturbance to subtidal sandbanks would occur.</p>	None required	No adverse effect expected	Yes
Reefs	NA	<ul style="list-style-type: none"> • Range • Structure and Function • Typical Species 	<p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include</p> <ul style="list-style-type: none"> – species richness: – population structure and dynamics, – physiological health, – reproductive capacity – recruitment, – mobility – range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> • populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term • the management and control of activities or operations likely to adversely affect the habitat feature is appropriate for maintaining it in favourable condition and is secure in the long term. 	<p><u>Coastal Squeeze / Coastal Processes:</u> The Reg 33 report notes that biogenic reef in the intertidal and shallow subtidal is common in the north-east of the Site (in this PDZ), (see Annex H-VI for details). However, as HTL policies within PDZ 7 are located along existing hard cliff and set back behind the beach, and will not alter the water movements of intertidal areas except in the immediate upper shore fronting HTL and/or MR locations, and these changes would have no noticeable effect in comparison to the existing wave and tidal processes, and consequently they will not have an impact on a large scale of the coastal processes (see Annex H-VI for details). Furthermore, the changes to hydrography as a result of the HTL and MR policies are not expected to alter the salinity, turbidity, or other chemical or biological interactions. NAI policies and MR to a degree will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease. A HTL could cause habitat loss of the rocky intertidal in the long term as sea levels rise and the shore is squeezed, under such conditions the area of subtidal reefs would increase in extent, which could result in an adverse effect on the integrity of the SAC. However, the only place where this is likely is within the harbour, but the walls will not</p>	During the design and application for any scheme surveys of the intertidal and shallow subtidal should be undertaken to determine whether reef communities or habitat are present, and if present the works should be undertaken whereby construction disturbance would not occur on or immediately adjacent to these reef habitats and communities.	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				affect the reef communities as they are already present on the existing structures, and would migrate vertically depending on zonation change with sea level rise. HTL works could disturb intertidal reef communities if tracking and deposition occur within the intertidal zone, which could damage or destroy areas of biogenic reef along a 1km frontage at Cei Bach in PU 7.5 and New Quay Harbour in PU 7.2, which would result in an adverse effect on the biogenic reefs.			
Submerged or partially submerged sea caves	NA			<p><u>Coastal Squeeze/ Coastal Processes:</u> It appears that the submerged or partially submerged sea caves are located on the coast where NAI is the preferred policy in an area of intertidal rocky shore and low cliffs; therefore the cliffs and rocky shore can erode naturally in response to sea level rise potentially resulting in a loss of cave habitat – however, new caves will be created as part of the natural process.</p> <p>The coastline with the most potential for sea caves is located within PUs 7.1; and 7.6, where the preferred policy is MR (managed retreat of the cliffs) and NAI (natural retreat of the cliffs), respectively.</p>	None required	No adverse effect expected	Yes
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>Populations</u> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements include:</p> <ul style="list-style-type: none"> population size structure, production condition of the species within the site. <p>As part of this objective it should be noted that for bottlenose dolphin and grey seal;</p> <ul style="list-style-type: none"> Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression For grey seal populations should not be reduced as a consequence of human activity <p><u>Range</u> The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for bottlenose dolphin and grey seal</p> <ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered There are appropriate and sufficient food resources within the SAC and beyond The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing 	<p>The bottlenose dolphin <i>Tursiops truncatus</i> population of Cardigan Bay off the west coast of Wales has been estimated to consist of around 125 individuals. The dolphins appear to use the inshore waters of Cardigan Bay for both feeding and reproduction, and in the summer months calves and juveniles are often observed with adult individuals or groups.</p> <p>The SMP policies would not be expected to have an impact on the integrity of the SAC or the bottlenose dolphin's resident there.</p> <p>The SMP policies will not result in a reduction in the area or extent of the estuary or inlet/bay habitat that supports the dolphin population, therefore it is concluded that there will be no adverse effect.</p>	None required	No adverse effect expected	Yes
Sea lamprey <i>Petromyzon marinus</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 		<p><u>Supporting Habitats and Species</u> The presence, abundance, condition and diversity of habitats and species</p>	The estuarine feature which would support the Sea and River Lamprey are not located within PDZ 7.	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
River lamprey <i>Lampetra fluviatilis</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 		<p>required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution extent structure function and quality of habitat prey availability and quality. 				Yes
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 		<p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour Restoration and recovery As part of this objective it should be noted that for the bottlenose dolphin populations should be increasing. 	<p><u>Coastal Squeeze/ Coastal processes:</u></p> <p>Nearly 40% (about 125,000) of the world population of grey seals is found in the British Isles, with a relatively stable population of about 6,000 in Wales.</p> <p>Coastal squeeze may result in a general loss of haul out sites within the Cardigan Bay SAC over all 3 epochs.</p> <p>Grey seals may occur along discreet areas of coastline within PDZ 7. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites.</p> <p>The area where coastal squeeze will most likely occur as a result of HTL is located in front of populated areas, which are not considered to be important seal haul out sites.</p>	None required	No adverse effect expected	Yes

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Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 8: PDZ 8 – Aberaeron Plateau: Gilfach yr Halen to Carreg Ti-pw

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Cardigan Bay/ Bae Ceredigion SAC							
Sandbanks slightly covered by sea water all the time	NA		<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include;</p> <ul style="list-style-type: none"> • Intertidal bedrock reefs • Intertidal cobble, pebble with Sabellaria alveolata (biogenic) reefs • Subtidal bedrock reefs • Subtidal pebble, cobble and boulder reefs • Sea caves <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> • geology, • sedimentology, • geomorphology, • hydrography and meteorology, • water and sediment chemistry, • biological interactions. 	<p><u>Coastal Squeeze / Coastal Processes:</u> The specific locations of the sandbanks are unknown as the indicative habitat map is still in preparation. However, the extent of Subtidal sandbanks would not actually decrease as a result of the HTL policies and they are likely to increase as the intertidal habitat is lost. Furthermore, the subtidal sandbank features are most abundant in the east of the site (to the north and west of New Quay in PDZ 7) as noted in the Ref 33 report, and the figure showing locations is in preparation. However, there are no expected hydrodynamic changes that would extend away from the upper shore at the frontages where HTL and/or MR policies are selected within this PDZ and these are not likely to extend to the subtidal sandbanks.</p>	None required	No adverse effect expected	Yes
Reefs	NA	<ul style="list-style-type: none"> • Range • Structure and Function • Typical Species 	<p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> • at or below existing statutory guideline concentrations within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. • Contaminant levels in the water column and sediments derived from human activity to be: <ul style="list-style-type: none"> – at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant concentrations within sediments or biota below levels potentially detrimental to the long-term maintenance of the feature species populations, – their abundance or range taking into account bioaccumulation and biomagnification. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include</p> <ul style="list-style-type: none"> – species richness: – population structure and dynamics, – physiological health, – reproductive capacity – recruitment, – mobility – range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> • populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term • the management and control of activities or operations likely to adversely affect the habitat feature is appropriate for maintaining it in favourable condition and is secure in the long term. 	<p><u>Coastal Squeeze / Coastal Processes:</u> The Reg 33 report notes that biogenic reef in the intertidal and shallow sub-tidal is common in the north-east of the Site (within this PDZ), (see Annex H-VI for details). NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease. A HTL policy could cause habitat loss of the intertidal biogenic reef in the long term as sea levels rise and the shore is squeezed in localised areas, though the extent of shallow subtidal geogenic reef habitat would increase. MR for Aberaeron South Beach and Aberarth would ensure that coastal squeeze would not be an issue if this habitat is present, and would increase the extent of intertidal reef habitat. The biogenic reefs within the Cardigan Bay SAC are predominantly located in the west and south of the area. No impact will occur to the biogenic reef habitat within the intertidal and shallow subtidal as a result of HTL and/or MR policies at PUs 8.2, 8.3, 8.4, and 8.6, as any management occurs to local areas behind beaches and will not alter the water movements of intertidal areas except in the immediate upper shore fronting HTL and/or MR locations, where reef habitats are not found (see Annex H-VI for details). In addition, they will not have an impact on a</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				large scale on the coastal processes or wider extents of reef habitat in the wider site. The changes to hydrography as a result of the HTL and MR policies are not expected to alter the salinity, turbidity, or other chemical or biological interactions.			
Submerged or partially submerged sea caves	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>It appears that the submerged or partially submerged sea caves are located on the coast where NAI is the preferred policy; therefore the cliffs can erode naturally in response to sea level rise potentially resulting in a loss of cave habitat – however, new caves will be created as part of the natural process.</p> <p>The coastline with the most potential for sea caves is located within PUs 8.1 and 8.5, where the preferred policy is DN (Do Nothing) and NAI (natural retreat of the cliffs).</p> <p>Within these 2 PUs, the only significant loss that will occur is within PU 8.1, with a total loss of 4 ha of habitat will occur over the 3 epochs. However, given the DN policy, this loss will occur naturally and not as a result of the SMP.</p>	None required	No adverse effect expected	Yes
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>Populations</u></p> <p>The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements include:</p> <ul style="list-style-type: none"> population size structure, production condition of the species within the site. <p>As part of this objective it should be noted that for bottlenose dolphin and grey seal;</p> <ul style="list-style-type: none"> Contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression For grey seal populations should not be reduced as a consequence of human activity <p><u>Range</u></p> <p>The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for bottlenose dolphin and grey seal</p>	<p>The bottlenose dolphin <i>Tursiops truncatus</i> population of Cardigan Bay off the west coast of Wales has been estimated to consist of around 125 individuals. The dolphins appear to use the inshore waters of Cardigan Bay for both feeding and reproduction, and in the summer months calves and juveniles are often observed with adult individuals or groups.</p> <p>The SMP policies would not be expected to have an impact on the integrity of the SAC or the bottlenose dolphin's resident there.</p> <p>The SMP policies will not result in a reduction in the area or extent of the estuary or inlet/bay habitat that supports the dolphin population, therefore it is concluded that there will be no adverse effect.</p>	None required	No adverse effect expected	Yes
Sea lamprey <i>Petromyzon marinus</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 		<ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered There are appropriate and sufficient food resources within the SAC and beyond The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing 	The estuarine feature which would support the Sea and River Lamprey are not located within PDZ 8.	None Required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
River lamprey <i>Lampetra fluviatilis</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 		<p><u>Supporting Habitats and Species</u></p> <p>The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution extent structure function and quality of habitat prey availability and quality. 				
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water all the time Submerged or partially submerged sea caves Reefs 		<p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour Restoration and recovery As part of this objective it should be noted that for the bottlenose dolphin populations should be increasing. 	<p>Nearly 40% (about 125,000) of the world population of grey seals is found in the British Isles, with a relatively stable population of about 6,000 in Wales.</p> <p>Coastal squeeze may result in a general loss of the single beach within the Cardigan Bay SAC over all 3 epochs within PDZ8. It is unlikely that seals will haul out on the shingle beaches along the coastline of PDZ8.</p> <p>Grey seals may occur along discreet areas of coastline within PDZ 8. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites. In addition, The area where coastal squeeze will most likely occur as a result of HTL is located in front of populated areas, which are not considered to be important seal haul out sites.</p>	None required	No adverse effect expected	Yes

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Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 9: PDZ 9 – Aberystwyth: Carreg Ti-pw to Sarn Gynfelyn

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Lleyn Peninsula and the Sarnau (Pen Llyn a'r Sarnau) SAC							
Sandbanks slightly covered by sea water	NA		<p><u>Range</u></p> <p>The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include:</p> <ul style="list-style-type: none"> Rocky intertidal reefs. Rocky subtidal reefs. Extensive boulder and cobble reefs – the sarnau. Biogenic reefs (horse mussel <i>Modiolus modiolus</i> reef / green crenella <i>Musculus discors</i> reef and Honeycomb worm <i>Sabellaria alveolata</i> reef. Carbonate reef formed by methane gas leaking from the seabed. 	The Lleyn Peninsula and the Sarnau SAC is partially located within the north section of PDZ9 (PU 9.11, 9.12 and 9.13) – the sandbanks associated with this SAC are not located within these policy units and are therefore unlikely to be impacted by preferred policy options.	None required	No adverse effect expected	Yes
Estuaries	NA		<p>For the intertidal mudflat and sandflat feature these include:</p> <ul style="list-style-type: none"> <i>Mya arenaria</i> and polychaetes in muddy gravel. Eel grass <i>Zostera marina</i> beds. Muddy gullies in the Mawddach estuary. <p>For the Salicornia feature this includes:</p> <ul style="list-style-type: none"> Communities characterised by the species <i>Sarcocornia perennis</i>. For the intertidal mudflats and sandflats and sandbanks features this requires an overall stability or increase in the amount of the feature, taking into account the areas of long term stability and localised losses and additions arising from environmental processes. For estuaries this includes the stability of sandy sediments in proportion to the muddy sediments. Restoration and recovery As part of this objective it should be noted that; for the estuaries feature additional land which should form an integral part of the estuarine ecosystem should be restored. 	The Lleyn Peninsula and the Sarnau SAC is partially located within the north section of PDZ9 (PU 9.11, 9.12 and 9.13)	None required	No adverse effect expected	Yes
Coastal lagoons (Priority Feature)	NA	<ul style="list-style-type: none"> Range Structure and Function 	<p><u>Structure and Function</u></p> <p>The physical, biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include:</p> <ul style="list-style-type: none"> geology sedimentology geomorphology hydrography and meteorology water and sediment chemistry biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations. within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from humanactivity to be: <ul style="list-style-type: none"> at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant 	The Lleyn Peninsula and the Sarnau SAC is partially located within the north section of PDZ9 (PU 9.11, 9.12 and 9.13)	None required	No adverse effect expected	Yes
Large shallow inlets and bays	NA		<p><u>Structure and Function</u></p> <p>The physical, biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include:</p> <ul style="list-style-type: none"> geology sedimentology geomorphology hydrography and meteorology water and sediment chemistry biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations. within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from humanactivity to be: <ul style="list-style-type: none"> at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant 	<p>The coastal lagoon (Morfa Gwyllt) which is a priority feature of this SAC is located approximately 20km to the north of the nearest PDZ 9 PU, therefore the policy options planned within PDZ 9 are not expected to have an impact on the integrity of the SAC feature.</p> <p>The Lleyn Peninsula and the Sarnau SAC is partially located within the north section of PDZ9 (PU 9.11, 9.12 and 9.13)</p> <p>Tremadog Bay is located more than 60km from the nearest PDZ 9 policy unit.</p> <p>HTL, MR and ATL policies within PDZ 9 may alter the coastal processes of the area and result in coastal squeeze (and loss of habitat) – however, due to the distance between the nearest policy unit and this feature, it is not expected that the management option will have an impact on the integrity of this feature.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Reefs	NA		<p>concentrations within sediments or biota</p> <ul style="list-style-type: none"> below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. For Atlantic saltmeadows this includes the morphology of the saltmarsh creeks and pans. Restoration and recovery. As part of this objective it should be noted that; for the estuaries feature the structure and functions of the estuaries that have been damaged/degraded by the constraints of artificial structures such as flood banks, are restored. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species are such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> species richness population structure and dynamics physiological health reproductive capacity recruitment mobility range. 	<p>Small areas of intertidal and subtidal reefs occur within PUs 9.11, 9.12 and 9.13 (see Annex H-VI for details).</p> <p>NAI and MR (managed retreat) policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease (see Annex H-VI for details). Furthermore, this will provide increased habitat available for intertidal and subtidal reef communities.</p>	None required	No adverse effect expected	Yes
Mudflats and sandflats not covered by sea water at low tide	NA		<p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Restoration and recovery As part of this objective it should be noted that; for the reefs feature the potential for expansion of the horse mussel <i>Modiolus modiolus</i> community off the north Llŷn coast is not inhibited. 	<p>Only PUs 9.11, 9.12 and 9.13 are located within this SAC.</p> <p>The preferred policy of MR at Clarach Bay (9.11) will involve retreating the central part of the bay over the 3 epochs.</p> <p>Retreating the current breakwater would allow for the beach area to widen and would possibly allow for decrease in the loss of mudflat and sandflat habitat in the short to medium term.</p> <p>The NAI policy in PU 9.12 and 9.13 will allow the mud and sand flats to respond naturally to sea level rise and any loss of habitat would occur a response to natural processes and not the SMP.</p> <p>A total of 0.4ha of coastal/intertidal habitat will be lost in epochs 1 and 2; and 1.3ha lost in epoch 3. However, these losses are for the coastline within PUs 9.12 and 9.13 comprising shingle beaches and cliffs and the constraint would be due to the natural topography and sea cliffs behind the existing beaches. Therefore the loss of mud and sandflats and colonising annuals will be significantly less than these estimates suggest – and as a result of natural constraint and change. The MR policy for PU 9.11 would provide space for intertidal mudflats and sandflats and associated saltmarsh habitats to migrate and develop inland in parallel with rising sea levels. Therefore no loss of extent or form and function of intertidal habitats is expected as a result of PU 9.11 policy.</p>	None required	No adverse effect expected	Yes
<i>Salicornia</i> and other annuals colonising mud and sand	NA						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?		
Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>)	NA			Not present in PDZ 9	None required	No adverse effect expected	Yes		
Submerged or partially submerged sea caves	NA			The coastline with the most potential for sea caves is located within PU 9.1, 9.10, 9.12 and 9.13, where the preferred policy is NAI. The cliffs will be able to erode naturally of the 3 epochs If the caves are lost due to the eroding cliffs, this would be as a result of natural processes and not the SMP policies – however, new caves will be created as a result of the natural process.	None required	No adverse effect expected	Yes		
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p>Populations The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that :</p> <ul style="list-style-type: none"> for bottlenose dolphin, otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression grey seal populations should not be reduced as a consequence of human activity <p>Range The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for bottlenose dolphin, otter and grey seal:</p> <ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered There are appropriate and sufficient food resources within the SAC and beyond The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing <p>SUPPORTING HABITATS AND SPECIES The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution, extent, structure, function and quality of habitat, prey availability and quality. <p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour For otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. 	The Lley Peninsula and the Sarnau SAC is partially located within the north section of PDZ9 (PU 9.11, 9.12 and 9.13). No estuaries are present within the Policy Units of PDZ 9 within the SAC and Tremadog Bay is located more than 60km from the nearest PDZ 9 policy unit. The estuarine features that would support the otter community within this SAC are not located in PDZ 9. The MR policy within the Site boundary will not reduce the supporting habitats of these qualifying species. The SMP policies will not result in a reduction in the area or extent of the estuary or inlet/bay habitat that supports the dolphin population, therefore it is concluded that there will be no adverse effect.	None required	No adverse effect expected	Yes		
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays 					Nearly 40% (about 125,000) of the world population of grey seals is found in the British Isles, with a relatively stable population of about 6,000 in Wales. Coastal squeeze may result in a general loss of haul out sites within the Lley Peninsula and the Sarnau SAC SAC over all 3 epochs. Haul out sites for grey seals are located within this SAC and in particular are located to the south of the Dyfi Estuary on the open coast of PDZ 10, although the coastline to the North end of PDZ may support grey seal populations. However, the policies along the coast north of Glarach are NAI and	None required	No adverse effect expected	Yes
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays 						None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
			<ul style="list-style-type: none"> • Restoration and recovery • As part of this objective it should be noted that for the bottlenose dolphin and otter, populations should be increasing. 	<p>hence natural processes of erosion and accretion would occur in response to sea level rise. Seal haul out sites are therefore expected to remain, whilst there would be no change in the supporting habitats in terms of reduction.</p>			

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 10: PDZ 10 – Dyfi: Sarn Gynfelyn to Tonfanau

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Pen Llyn a'r Sarnau/ Lleyen Peninsula and the Sarnau SAC							
Sandbanks slightly covered by sea water	NA		<p><u>Range</u></p> <p>The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include:</p> <ul style="list-style-type: none"> Rocky intertidal reefs. Rocky subtidal reefs. Extensive boulder and cobble reefs – the sarnau. Biogenic reefs (horse mussel <i>Modiolus modiolus</i> reef / green crenella <i>Musculus discors</i> reef and Honeycomb worm <i>Sabellaria alveolata</i> reef. Carbonate reef formed by methane gas leaking from the seabed. <p>For the intertidal mudflat and sandflat feature these include:</p> <ul style="list-style-type: none"> Mya arenaria and polychaetes in muddy gravel. Eel grass <i>Zostera marina</i> beds. Muddy gullies in the Mawddach estuary. <p>For the Salicornia feature this includes:</p> <ul style="list-style-type: none"> Communities characterised by the species <i>Sarcocornia perennis</i>. For the intertidal mudflats and sandflats and sandbanks features this requires an overall stability or increase in the amount of the feature, taking into account the areas of long term stability and localised losses and additions arising from environmental processes. For estuaries this includes the stability of sandy sediments in proportion to the muddy sediments. Restoration and recovery. As part of this objective it should be noted that; for the estuaries feature additional land which should form an integral part of the estuarine ecosystem should be restored. <p><u>Structure and Function</u></p> <p>The physical, biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include:</p> <ul style="list-style-type: none"> Geology, Sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations. within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: <ul style="list-style-type: none"> at or below existing statutory guideline concentrations. below levels that would potentially result in increase in contaminant concentrations within sediments or biota. below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. 	<p>Not present in PDZ 10.</p> <p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Pen Llyn a'r Sarnau has representative examples of bar-built estuaries in north-west Wales, and includes the Glaslyn/Dwryd (PDZ 12), Mawddach (PDZ 11) and Dyfi estuaries (PDZ 10). There is a continuous gradient between the clean sands near the entrance to the sea and the mud or muddy sands in the sheltered extremes of the estuaries. The intertidal sandflats support communities of burrowing invertebrates, including dense populations of polychaete worms, crustaceans, bivalve molluscs and gastropod molluscs. Saltmarsh fringing the shores of the estuaries, and the saltmarsh creeks and pools, are important habitat features for juvenile fish.</p> <p>Within the inner and outer estuary, the preferred policies are for HTL and MR. It is likely HTL constraints in Epochs 1 and 2 for PU 10.5, 10.6, and 10.7, and for all epochs in PU 10.8, 10.11, 10.12, 10.13, and epoch 1 for PU 10.9, would reduce the likely extent of intertidal estuarine habitat and hence result in a reduction in the estuary structure.. These policies continue to constrain the way in which the estuary behaves and could result in a smaller ebb delta system which would then impose greater pressure on the dunes to the west of Aberdyfi. This may result in the long term in loss of important habitat (although not a qualifying feature).</p> <p>The structure (type and function) and range of estuary habitats are likely to reduce in Epochs 1 and 2, though this may be offset by MR policies, these would not form mitigation but potential compensation. The policy of MR in epoch 3 for PU 10.5, 10.6, 10.7 would then be expected to significantly increase the area of both estuary and intertidal habitats within epoch 3 and remove the constraint on estuarine structure and function within epoch 1 and 2.</p> <p>Overall, the function, range and structure of the estuary habitats will remain in balance and favourable condition by epoch 3, and no adverse effect is expected. However, in epochs 1 and 2 the constraint of HTL policies could prevent upper saltmarsh translating (rolling back) in parallel with sea level rise, which could alter the estuary structure, and result in the underachievement of the conservation objectives in these epochs.</p>	<p>None required</p> <p>None identified</p>	<p>No adverse effect expected</p> <p>Loss of estuary structure and as a result, failure to achieve the conservation objectives for estuarine features.</p>	<p>Yes</p> <p>No</p>
Estuaries	NA	<ul style="list-style-type: none"> Range Structure and Function 					

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Coastal lagoons (Priority Feature)	NA		<ul style="list-style-type: none"> For Atlantic saltmeadows this includes the morphology of the saltmarsh creeks and pans Restoration and recovery. As part of this objective it should be noted that; for the estuaries feature the structure and functions of the estuaries that have been damaged/degraded by the constraints of artificial structures such as flood banks, are restored. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species are such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> species richness, population structure and dynamics, physiological health, reproductive capacity, recruitment, mobility, range. <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Restoration and recovery. As part of this objective it should be noted that; for the reefs feature the potential for expansion of the horse mussel <i>Modiolus modiolus</i> community off the north Llŷn coast is not inhibited. 	<p><u>Saline intrusion:</u> Morfa Gwylt lagoon is a small percolation lagoon that consists of a depression in a shingle bar across the mouth of the Afon Dysynni in mid Wales. This is the only example of a percolation lagoon in Wales. The substrate is a mosaic of medium sand over/amongst shingle, with muddier patches within the deeper pockets, and scattered larger pebbles. Three lagoonal specialists have been found at this site: the amphipod <i>Sphaeroma hookeri</i>, the bryozoan <i>Conopeum seurati</i> and the alga <i>Chaetomorpha linum</i>.</p> <p>The mouth of the Afon Dysynni is located within the constraints of PU 10.18, where the preferred policy option is HTL in epoch 1 and MR in epochs 2 and 3.</p> <p>With sea level rise, the plateau would flood, significantly increasing the potential tidal prism. If the shoreline barrier were allowed to breach then it is possible that a new active estuary mouth would develop. If the entrance channel remains fixed to the north, the increased flow will attempt to widen and deepen the channel.</p> <p>It is probable that recharge would be required to maintain both the railway defence and the northern bay. In taking this approach still further, consideration could be given to creating a new cut through to the Dysynni, developing a more functional estuary mouth.</p> <p>The potential benefits of this are in using the Dysynni and its ebb shingle banks as part of the defence system. However, in taking this approach there is potential to incorporate better defence to the lagoon.</p> <p>The policy of HTL for all epochs in PU 10.17 is intended to protect the railway, and may include recharge of the shingle ridge.</p> <p>The possible changes to the physical characteristics of the shingle ridge on which the lagoon is situated is difficult to determine at this strategic level as a number of methods and means may be used in the HTL policy and the influence on the lagoon both of these and of sea level rise. Consequently, there is a potential that HTL may affect the lagoon either by direct footprint effects if for example shingle recharge takes place in or adjacent to the lagoon, and the movement of the shingle as a result of storms and sea level rise. The effect of sea level rise on the lagoon in a NAI situation is likely to be that salinity of the lagoon changes, potentially increasing over time and becoming more stable as percolation is influenced by higher tides, however, erosion and movement of the shingle ridge in an unconstrained scenario could also result in the loss of the lagoon. Therefore HTL is a policy that could maintain the lagoon extent that may otherwise have disappeared, though the changes to salinity that may arise as a result of sea level rise will not be affected, but they may provide a more stable</p>	<p>A Strategy is required to ascertain the ecological function and influences on the lagoon, and a Strategy examining the potential methods of implementing the HTL policy must ensure (and should be able to ensure) that the lagoon extent is not adversely effected by direct loss. The Strategy would also need to determine whether any long term coastal process issues would affect the lagoon extent and ensure that appropriate management and maintenance measures are in place to prevent loss of lagoon extent.</p>	<p>No adverse effect expected, considering the ability to engineer and avoid loss of extent of the lagoon at the Strategy and Scheme level.</p>	<p>Yes</p>

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				lagoon environment. However, until more detail of the HTL implementation is available it cannot be concluded that no adverse effect on integrity of the lagoon feature would occur.			
Large shallow inlets and bays	NA			<u>Coastal Squeeze / Coastal Processes:</u> No 'large shallow inlets and bays' as a feature of this SAC are present in PDZ 10. The closest is Tremadog Bay located in PDZ 12 to the north.	None required	No adverse effect expected	Yes
Reefs	NA			<u>Coastal Squeeze / Coastal Processes:</u> Areas of subtidal reefs are located at either end of PDZ 10 (see Annex G-VI for details). NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease. The subtidal reefs within PDZ 10 comprise bedrock reef (biogenic reefs are not located in this PDZ). The HTL policies are located along the soft shoreline within PDZ 10 therefore continued movement of materials will occur and there will no impact on the reefs in terms of a reduction in their extent (see Annex G-VI for details).	None required	No adverse effect expected	Yes
Mudflats and sandflats not covered by sea water at low tide	NA			<u>Coastal Squeeze / Coastal Processes:</u> The majority of the open coastline within PDZ 10; and much of the Dyfi estuary consists of sandflats from PU 10.2 to PU 10.19. Of these sandflats – those present in PU 10.2, 10.16 and part of 10.15 and 10.17 are not part of the SAC. <i>Dyfi Estuary</i> Sandflats within the Dyfi Estuary are generally subject to a preferred option of HTL with some areas of MR. Within the inner and outer estuary, the preferred policies are for HTL and MR. It is likely that there will be a loss of sandflat habitat within the estuary as the defences are maintained over epoch 1 for PUs 10.6, 10.7, 10.9, and 10.11, and in epoch 2 for PUs 10.6, 10.7, 10.8, 10.11, 10.12, and 10.13, and during epoch 3 for PUs 10.11, 10.12, and 10.13. Under the HTL policies for these units, the defence to the south and north side of the estuary would be continued for those PUs listed above. The policy for the sand dunes at the mouth of the estuary (PU 10.4) will be a managed retreat to ensure that they remain a robust defence from the open coast. The intertidal sandflat habitat within the estuary that would be lost is 4.87ha (though no loss in PUs 10.7 and 10.8) in epoch 1; 62.01ha in epoch 2; and 29.29ha in epoch 3 (though no loss in PU 10.8). <i>Open Coastline</i>	Potentially move defences landward were feasible to allow mudflats to roll back in time with sea level rise.	Loss of intertidal habitat within the estuary and on the open coast will result in an adverse effect to the integrity of this SAC feature.	No
<i>Salicornia</i> and other annuals colonising mud and sand	NA						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				<p>The generally preferred policy options along much of the coastline is for HTL or MR over all 3 epochs – with maintaining the existing defences being the priority, with beach recharge identified at Borth and at Tywyn in epochs 2 and 3.</p> <p>The HTL policy would result in coastal squeeze and a loss of intertidal sandflat, where these are present seaward of existing defences within the SAC, such as at PU 10.3, 10.17 (part), and 10.18 (part).</p> <p>To the North at Tywyn (PU 10.16) the HTL policy will lead to erosion at the base of the defence and a change to the coastal processes to the north of the defence. Though these intertidal habitats are not located within the SAC boundary.</p> <p>North of the dunes the policy is also for retreat PU 10.14 and 10.15 however there is concern that within the MR policy planned drainage may become an issue over the main marsh area with sea level rise. MR will allow for natural succession and development within the dunes and the intertidal shoreline, therefore it can be concluded that there will be no adverse impact.</p> <p>The outer estuary and open coastline within the Site boundary (PUs 10.3, 10.17, and 10.18) will experience habitat loss over the 3 epochs. In epoch 1 a loss of up to 0.88ha of intertidal sandflat could occur in PUs 10.3 and 10.17; in epoch 2 a loss of up to 6.39ha of intertidal sandflat could occur as a result of HTL for PU 10.17, and in epoch 3 a loss of up to 5.34ha of intertidal sandflat could occur as a result of HTL for PU 10.17.</p> <p>A total of 96.17ha of intertidal sandflat could be lost over the next 100 years as a result of the HTL policies within this PDZ).</p>			
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Saltmarshes have been identified within the Dyfi Estuary (primarily PU 10.6) and are an important habitat for the SAC, SPA and Ramsar sites. Within this PU, there is a preferred policy of HTL/HTL/MR.</p> <p>The HTL policies would result in coastal squeeze as a result of sea level rise and a loss of intertidal habitat. The reduced area of intertidal habitat would also result in a reduction in the area of appropriate habitat for saltmarsh as the intertidal sandflats roll back into the saltmarsh habitat, particularly during epoch 2. Of the intertidal habitat lost as a result of HTL policy for PU 10.6 in epoch 1 1.84ha of saltmarsh habitat could be lost, and in epoch 2 up to 120.16ha of saltmarsh habitat could be lost due to constraint resulting from HTL. Potentially saltmarsh would develop in other areas of the estuary as MR policies are implemented in epochs 1 and 2, or even further upstream; however, the loss within the Site boundary could occur. Given that there is no detailed modelling (as this a strategic level assessment) based on the</p>	<p>Note: within the estuary the HTL policy is principally to the hard rock shoreline to the north where defence is constructed to hard rock. The MR policy is effectively removing the main line of defence with local management of the habitat development and the potential for local management of flood risk to properties. However, HTL in epoch 2 could result in potentially significant loss unless other areas are created.</p>	<p>Given the extent of loss of this feature an adverse effect could occur</p>	<p>No</p>

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				worst case and using the precautionary principle, these potential extents could be lost. Further study may identify a reduced extent of loss.			
Submerged or partially submerged sea caves	NA			Not within PDZ 10.	None required	No adverse effect expected	Yes
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays 		<p><u>Populations</u></p> <p>The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> for bottlenose dolphin, otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. grey seal populations should not be reduced as a consequence of human activity. 	<p>The SMP policies would not be expected to have an impact on the integrity of the SAC or the bottlenose dolphin's resident there.</p> <p>The SMP policies will not result in a reduction in the area or extent of the estuary or inlet/bay habitat that supports the dolphin population, therefore it is concluded that there will be no adverse effect.</p>	None required	No adverse effect expected	Yes
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Estuaries Mudflats and sandflats not covered by sea water at low tide 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>Range</u></p> <p>The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for bottlenose dolphin, otter and grey seal:</p> <ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered. There are appropriate and sufficient food resources within the SAC and beyond. The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. <p><u>SUPPORTING HABITATS AND SPECIES</u></p> <p>The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution, extent, structure, function and quality of habitat, prey availability and quality. <p>As part of this objective it should be noted that;</p>	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Overall, the area of estuary will not be reduced as a result of the SMP2 policies; therefore maintaining the otters food resources. However, there will be a loss of intertidal habitat within the estuary.</p> <p>Within the inner and outer estuary, the preferred policies are for HTL and MR. It is likely that there will be a loss of sandflat habitat within the estuary as the defences are maintained over Epochs 1 and 2 for PU 10.5, 10.6, and 10.7, and for all epochs in PU 10.8, 10.11, 10.12, 10.13. Under the HTL policies for these units, the defence to the south and north side of the estuary would be continued for those PUs listed above.</p> <p>MR upstream within the estuary (PU 10.10) will provide additional intertidal/estuary habitat in the longer term.</p> <p>Otters may occur along discreet areas of coastline within PDZ 10 and within the estuary. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, and the available estuarine feeding habitat will not be affected by the SMP policies.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Mudflats and sandflats not covered by sea water at low tide 		<ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour For otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. Restoration and recovery. As part of this objective it should be noted that for the bottlenose dolphin and otter, populations should be increasing. 	<p>Nearly 40% (about 125,000) of the world population of grey seals is found in the British Isles, with a relatively stable population of about 6,000 in Wales.</p> <p>Overall, the area of estuary will not be reduced as a result of the SMP2 policies; therefore maintaining the seals food resources.</p> <p>Erosion may occur to haul out site locations where they are in the intertidal area and coastal squeeze may result in a general loss of haul out sites within the Lleyn Peninsula and the Sarnau SAC SAC over all 3 epochs, however this will likely result in an alteration in the extent of haul out sites and not to the characteristics of the sites (e.g. disturbance etc). Therefore no adverse impact is expected.</p> <p>Haul out sites for grey seals are located within this SAC and in particular are located to the south of the Dyfi Estuary on the open coast of PDZ 10.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Cors Fochno SAC							
Active raised bogs	NA	<ul style="list-style-type: none"> Extent of active raised bog Condition of active raised bog 	<ul style="list-style-type: none"> NVC type M18 <i>Sphagnum papillosum-Erica tetralix</i> raised mire and M2 <i>Sphagnum cuspidatum</i> bog pool communities will occupy > 95% of the 'primary' (i.e. uncut) bog area. The cover level of characteristic bog mosses (<i>Sphagnum</i> species) will be sufficiently high (>25%) to indicate healthy peat growth. 'Hummock and hollow' patterning will be present across the centre of the bog dome. The hollows (i.e. <i>Rhynchosporion</i> depressions) will usually have greater sundew <i>Drosera anglica</i> present and will be increasing or maintaining their extent. The following species will be common in the active raised bog: <i>Sphagnum capillifolium</i>, <i>S. papillosum</i> and <i>S. magellanicum</i>, bog rosemary <i>Andromeda polifolia</i> and white-beak sedge <i>Rhynchospora alba</i>. The rare hummock forming bog mosses <i>Sphagnum austinii</i> and <i>S. fuscum</i> will be have stable or increasing populations. Purple moor grass <i>Molinia caerulea</i> will be largely absent from the active raised mire. Scrub species such as willow <i>Salix</i> and birch <i>Betula</i> will also be largely absent. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion</u></p> <p>Cors Fochno (also known as Borth Bog) lies on the south side of the Dyfi estuary in Wales and forms a component part of the Dyfi Biosphere Reserve. Although a substantial part of the former peatland complex has been taken for agriculture, the surviving core area supports the largest expanse of primary near-natural raised bog in an estuarine context within the UK. The extensive cover of bog-myrtle <i>Myrica gale</i> and maritime margins with black bog-rush <i>Schoenus nigricans</i> are distinctive features of this site in an England and Wales context.</p> <p>The main threat to the active raised bog SAC feature in the short-medium term would be sudden, uncontrolled inundation generating high flow rates and leading to deeply incised erosion channels.</p> <p>The issue of damage to Cors Fochno and the associated designated areas are taken forward as part of developing the management of the area; recognising that to attempt to maintain defence to the feature would in itself damage the feature or make it increasingly vulnerable to more significant damage.</p>			
Degraded raised bogs still capable of natural regeneration	NA	<ul style="list-style-type: none"> Extent of dredged bog with M18/M2 raised bog vegetation Condition of dredged bog with M18/M2 raise bog vegetation 	<ul style="list-style-type: none"> 80% of the degraded raised bog resource is restored to active raised bog, with the remainder, being hydrologically compatible with active bog. Vegetation corresponding to National Vegetation Classification raised mire communities types M2 and/or M18 will be stable or increasing in extent relative to that mapped in 2003. Areas/ stands of M18 vegetation will have a 20% or more cover of bog moss, and tree species and rhododendron will be rare or absent. Other non-woodland semi-natural vegetation communities, including poor fen, brackish fen and swamp will have tree species not exceeding their extent in 2003. Characteristic plant species of the mire margins and transitions, including alder buckthorn, black bog rush, brown beak-sedge, greater tussock sedge, lesser butterfly orchid, marsh cinquefoil, royal fern and veilwort will have stable or increasing populations. Species intolerant of impeded drainage such as bracken and most grass species will be absent or rare throughout the site, together with alien invasive species such as rhododendron. All factors affecting the achievement of these conditions are under control. 	<p>The MR policy in epoch 3 would result in the potential for sudden saline inundation in the initial stages which could affect the bog structure, and during epochs 1 and 2 the risk exists that sudden catastrophic inundation could arise for example from a severe storm, and having a HTL policy could exacerbate the nature of the catastrophic event which could result in the loss of extents of the bog habitats, as well as the condition of the bog habitats.</p> <p>A potential MR of reducing drainage in epochs 1 and 2 prior to MR and controlling inundation would ensure that the periphery of the bog is not affected.</p> <p>The flooding extent over 50 years does not significantly alter from the present day. The flooding extent over 100 years (epoch 3) will see extensive flooding of the entire SAC.</p>			
Depressions on peat substrates of <i>Rhynchosporion</i>	NA		No conservation objectives identified in Core Management Plan.	<p><u>Saline intrusion:</u></p> <p>No loss of habitat will occur to this feature of the SAC as a result of the SMP policies.</p>			

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?			
Dyfi Estuary / Aber Dyfi SPA										
Internationally important Article 4.1 Species (wintering): Greenland white-fronted geese <i>Anser albifrons flavirostris</i>	Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	<ul style="list-style-type: none"> Population size Winter survival/mortality rate Proportion of juvenile geese to adults 	<ul style="list-style-type: none"> The Dyfi wintering population attains national importance level (ie.1% of the national (UK) population), annually. Winter mortality levels are <1% annually. Juvenile/ sub-adult birds comprise > 5% of the wintering population annually. All site-specific factors affecting the achievement of these conditions (eg. avoidable disturbance), are under control 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Coastal squeeze within the estuary and along the open coast would result in a loss of sandflat/sand dune/saltmarsh habitats used by the overwintering birds and used as intertidal feeding grounds (particularly) within the estuary. However, given the extent of this habitat within the estuary, and the planned MR in long term which will allow the estuary to respond more naturally to sea level rise, it is unlikely that any loss of habitat will have a significant impact on the integrity SPA features and the overwintering population. However, with it is likely that there will be an adverse impact of the loss of feeding habitat within the intertidal zone.</p> <p>Sandflats within the Dyfi Estuary are generally subject to a preferred option of HTL with some areas of MR.</p> <p>Within the inner and outer estuary, the preferred policies are for HTL and MR. It is likely that there will be a loss of sandflat habitat within the estuary as the defences are maintained over Epochs 1 and 2 for PU 10.5, 10.6, and 10.7, and for all epochs in PU 10.8, 10.11, 10.12, 10.13. Under the HTL policies for these units, the defence to the south and north side of the estuary would be continued for those PUs listed above.</p> <p>The decrease in intertidal habitat would also result in a reduction in the area of appropriate habitat for saltmarsh as the intertidal sandflats roll back into the saltmarsh habitat, particularly in PU 10.6.</p> <p>The loss of intertidal sandflat and saltmarsh habitat within the estuary (primarily as a result of HTL for PUs 10.6, 10.7, 10.8, 10.9, 10.11, 10.12, and 10.13) could reach up to 209.44ha over the 3 epochs; epoch 1 = 5.95ha; epoch 2 = 175.78ha, and epoch 3 = 27.70ha. MR in other PUs would create additional intertidal habitat and reduce the scale of the potential impact.</p>	Potentially move defences landward were feasible to allow mudflats to roll back in time with sea level rise.	Loss of intertidal habitat within the estuary could result in an adverse effect to the integrity of the populations due to the loss of supporting habitat for these SPA features.	No			
	Inland water bodies (standing water, running water)			<p><u>Saline intrusion:</u></p> <p>Saline intrusion and damage to the bog and grassland of this SPA is inevitable whether the defence is held or not. It is anticipated that saline intrusion under a 1m SLR scenario would result in a change to the bog vegetation, allowing for more saltmarsh species to establish, and may actually lead to biomass and nutrient rich waters to support large populations of birds.</p> <p>The risk to the grassland habitats is generally low within epoch 1 and 2 with the majority of the policy options within the estuary being for HTL in the first 2 epochs; however as the MR policy is introduced with epoch 3, within PUs 10.6 and 10.7, the intertidal habitat will roll back, potentially reducing the availability of the grassland habitat.</p> <p>Overall, the availability of feeding habitat is not expected to change.</p>				None identified	Alteration of habitat but retaining supporting habitat for feeding geese.	Yes
	Bogs, marshes and fens			Improved grassland						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Cors Fochno and Dyfi Ramsar							
Active raised bogs	NA	<ul style="list-style-type: none"> Extent of active raised bog Condition of active raised bog Extent and condition of depressions on peat substrates of the <i>Rhynchosporion</i> 	<ul style="list-style-type: none"> NVC type M18 <i>Sphagnum papillosum-Erica tetralix</i> raised mire and M2 <i>Sphagnum cuspidatum</i> bog pool communities will occupy > 95% of the 'primary' (ie uncut) bog area. The cover level of characteristic bog mosses (<i>Sphagnum</i> species) will be sufficiently high (>25%) to indicate healthy peat growth. 'Hummock and hollow' patterning will be present across the centre of the bog dome. The hollows (ie. <i>Rhynchosporion</i> depressions) will usually have greater sundew <i>Drosera anglica</i> present and will be increasing or maintaining their extent. The following species will be common in the active raised bog: <i>Sphagnum capillifolium</i>, <i>S. papillosum</i> and <i>S. magellanicum</i>, bog rosemary <i>Andromeda polifolia</i> and white-beak sedge <i>Rhynchospora alba</i>. The rare hummock forming bog mosses <i>Sphagnum austinii</i> and <i>S. fuscum</i> will be have stable or increasing populations. Purple moor grass <i>Molinia caerulea</i> will be largely absent from the active raised mire. Scrub species such as willow <i>Salix</i> and birch <i>Betula</i> will also be largely absent. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u></p> <p>The Dyfi estuarine complex is of outstanding physiographic interest. It includes sandbanks, mudflats, saltmarsh, peatbogs, river channels and creeks, with an extensive sand dune complex across the mouth of the estuary.</p> <p>Degraded raised bog also occurs widely around the periphery of the active core. Included here is a range of vegetation types in which peat formation has been arrested as a consequence of intensive drainage followed in places by peat removal and/or agricultural management. The vegetation cover of these areas is varied and includes grazed and ungrazed <i>Molinia</i> – <i>Myrica</i> swards, reed <i>Phragmites</i> stands, rush <i>Juncus</i> pasture, wet woodland and scrub, drier areas of acid.</p> <p>The central dome of the raised mire lies at an elevation of 5m+ above mean sea level. Modelling work suggests that under a 1m SLR scenario this core area of the bog would remain free of tidal incursion even under an extreme (1:100 yr tidal event).</p>			Yes
Depressions on peat substrates of the <i>Rhynchosporion</i>	NA		<ul style="list-style-type: none"> 80% of the degraded raised bog resource is restored to active raised bog, with the remainder, being hydrologically compatible with active bog. Vegetation corresponding to National Vegetation Classification raised mire communities types M2 and/or M18 will be stable or increasing in extent relative to that mapped in 2003. Areas/ stands of M18 vegetation will have a 20% or more cover of bog moss, and tree species and rhododendron will be rare or absent. Other non-woodland semi-natural vegetation communities, including poor fen, brackish fen and swamp will have tree species not exceeding their extent in 2003. Characteristic plant species of the mire margins and transitions, including alder buckthorn, black bog rush, brown beak-sedge, greater tussock sedge, lesser butterfly orchid, marsh cinquefoil, royal fern and veilwort will have stable or increasing populations. Species intolerant of impeded drainage such as bracken and most grass species will be absent or rare throughout the site, together with alien invasive species such as rhododendron. All factors affecting the achievement of these conditions are under control. 	<p>The ability of the undrained bog surface to expand and rise under condition of high saturation levels could help to further buffer the ombrotrophic dome and prevent excessive flooding from ponded rain water.</p> <p>The introduction of seawater around the bog margins could conceivably lead to penetration of the heavier seawater into the lower layers of the peat causing a buoying up of the freshwater dome above.</p> <p>A 1m SLR would result in regular tidal inundation of significant areas of degraded raised bog, some of which is currently recovering towards 'active' peat-forming bog. This would cause a loss of typical bog vegetation and replacement with some type of saltmarsh community.</p> <p>Although some bog specialist species would face habitat and population reductions the elimination of any key species/ site features does not seem likely. Populations of some key species which are not specific to rain-fed raised bog e.g. otter, water vole, redshank, are likely to benefit from additional open water and higher nutrient status wetland habitat.</p> <p>The generation of new saltmarsh and freshwater/saline transitions would help off-set losses that would inevitably occur in the present estuary with a 1m SLR.</p> <p>The main threat to the active raised bog SAC feature in the short-medium term would appear to be sudden, uncontrolled inundation generating high flow rates and leading to deeply incised erosion channels.</p>			
Degraded raised bogs still capable of natural regeneration	NA	<ul style="list-style-type: none"> Extent of degraded bog with M18/M2 raised bog vegetation Condition of degraded bog with M18/M2 raised bog vegetation 			<p>The issue of damage to Cors Fochno and the associated designated areas are taken forward as part of developing the management of the area; recognising that to attempt to maintain defence to the feature would in itself damage the feature or make it increasingly vulnerable to more significant damage, therefore the preferred policy would be to HTL in epochs 1 and 2 and allow the defence to fail in epoch 3.</p>	No adverse effect expected	

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	NA	•	•	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Coastal squeeze within the estuary result in a loss of sandflat/sand dune/saltmarsh habitats used by the overwintering birds and used as intertidal feeding grounds (particularly) within the estuary. However, given the extent of this habitat within the estuary, and the planned MR in long term which will allow the estuary to respond more naturally to sea level rise, it is unlikely that any loss of habitat will have an significant impact on the integrity of the Ramsar site and the overwintering population. However, with it is likely that there will be an adverse impact of the loss of feeding habitat within the intertidal zone.</p> <p>Sandflats within the Dyfi Estuary are generally subject to a preferred option of HTL with some areas of MR.</p> <p>Within the inner and outer estuary, the preferred policies are for HTL and MR. It is likely that there will be a loss of sandflat habitat within the estuary as the defences are maintained over Epochs 1 and 2 for PU 10.5, 10.6, and 10.7, and for all epochs in PU 10.8, 10.11, 10.12, 10.13. Under the HTL policies for these units, the defence to the south and north side of the estuary would be continued for those PUs listed above.</p> <p>The reduced area of intertidal habitat would also result in a reduction in the area of appropriate habitat for saltmarsh as the mudflats/sandflats roll back into the saltmarsh habitat, particularly within PU 10.6 and 10.11.</p> <p>The loss of intertidal sandflat and saltmarsh habitat within the estuary (primarily as a result of HTL for PUs 10.6, 10.7, 10.8, 10.9, 10.11, 10.12, and 10.13) could reach up to 209.44ha over the 3 epochs; epoch 1 = 5.95ha; epoch 2 = 175.78ha, and epoch 3 = 27.70ha. MR in other PUs would create additional intertidal habitat and significantly reduce the scale of the potential impact.</p>	Potentially move defences landward were feasible to allow mudflats to roll back in time with sea level rise.	Loss of intertidal habitat within the estuary and on the open coast will result in an adverse effect on the achievement of the Ramsar criterion.	No
Salt marshes. Salt pastures. Salt steppes							

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 11: PDZ 11 – Barmouth and the Mawddach: Tonfanau to Traeth Dyffryn

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Pen Llyn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC							
Sandbanks slightly covered by sea water	NA		<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include:</p> <ul style="list-style-type: none"> Rocky intertidal reefs Rocky subtidal reefs Extensive boulder and cobble reefs – the sarnau Biogenic reefs (horse mussel <i>Modiolus modiolus</i> reef / green <i>crenella Musculus discors</i> reef and Honeycomb worm <i>Sabellaria alveolata</i> reef Carbonate reef formed by methane gas leaking from the seabed. <p>For the intertidal mudflat and sandflat feature these include:</p> <ul style="list-style-type: none"> <i>Mya arenaria</i> and polychaetes in muddy gravel Eel grass <i>Zostera marina</i> beds. Muddy gullies in the Mawddach estuary. 	<p><u>Coastal Squeeze / Coastal Processes:</u> Pen Llyn a'r Sarnau on the north-west coast of Wales includes the sandbanks of Devil's Ridge, Bastram Shoal, the Tripods, and areas within and to the south of Tremadog Bay. These include examples of fully marine salinity, tide-swept sandbanks and relatively sheltered sandbanks. On Devil's Ridge, Bastram Shoal and the Tripods strong tides mean that the sand, shell and gravel sediments are constantly shifting, and as a result the sandbanks support animals that can tolerate these high levels of disturbance.</p> <p>Sandbanks could be impacted if there is a considerable change in the coastal processes as a result of the SMP policies within PDZ 11.</p> <p>The sandbank feature of the SAC is located a considerable distance from the coastline of PDZ 11 and is therefore not expected to be impacted.</p>	None required	No adverse effect expected	Yes
Estuaries	NA	<ul style="list-style-type: none"> Range Structure and Function 	<p>For the <i>Salicornia</i> feature this includes:</p> <ul style="list-style-type: none"> Communities characterised by the species <i>Sarcocornia perennis</i>. For the intertidal mudflats and sandflats and sandbanks features this requires an overall stability or increase in the amount of the feature, taking into account the areas of long term stability and localised losses and additions arising from environmental processes. For estuaries this includes the stability of sandy sediments in proportion to the muddy sediments. Restoration and recovery As part of this objective it should be noted that; for the estuaries feature additional land which should form an integral part of the estuarine ecosystem should be restored <p><u>Structure and Function</u> The physical, biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include:</p> <ul style="list-style-type: none"> geology sedimentology geomorphology hydrography and meteorology water and sediment chemistry biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations. within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: <ul style="list-style-type: none"> at or below existing statutory guideline concentrations. below levels that would potentially result in increase in contaminant concentrations within sediments or biota. 	<p><u>Coastal Squeeze / Coastal Processes:</u> Pen Llyn a'r Sarnau has representative examples of bar-built estuaries in north-west Wales, and includes the Glaslyn/Dwryd (PDZ 12), Mawddach (PDZ 11) and Dyfi estuaries (PDZ 10). There is a continuous gradient between the clean sands near the entrance to the sea and the mud or muddy sands in the sheltered extremes of the estuaries. The intertidal sandflats support communities of burrowing invertebrates, including dense populations of polychaete worms, crustaceans, bivalve molluscs and gastropod molluscs. Saltmarsh fringing the shores of the estuaries, and the saltmarsh creeks and pools, are important habitat features for juvenile fish.</p> <p>At the mouth of the Mawddach estuary, the preferred policy option for epoch 1 is HTL at Barmouth but MR for Ro Wen Spit - maintaining and where appropriate taking local measures to improve flood defence and resilience but allowing the spit to realign and translate in parallel with sea level rise throughout all epoch, whilst the hard geology and the steep topography at Barmouth would provide no additional constraint compared to that under the NAI scenario.</p> <p>Within the inner and outer estuary, the preferred policies are for HTL and MR. It is likely that there will be a loss of intertidal sandflat habitat within the estuary as the defences are maintained over Epochs 1 for PU 11.6, 11.9, 11.12, and for all epochs in PU 11.11. Under the HTL policies for these units, the defences to the south and north side of the estuary would be continued for those PUs listed above. This continues to constrain the way in which the estuary behaves and could result in a smaller ebb delta system which would then impose greater pressure on the dunes at the estuary mouth (PU 11.14). This may result in the long term in loss of important habitat (although not a qualifying feature).</p> <p>Although the area of estuary habitat would not be reduced, the structure and range of intertidal and subtidal habitats within the estuary would be expected to reduce in Epochs 1 and 2,</p>	Development of a monitoring and management plan for Arthog bog in relation to water level management to ensure and improve the resilience of the bog to sea level rise.	Loss of estuary structure and as a result, failure to achieve the conservation objectives for estuarine features.	No

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
			<ul style="list-style-type: none"> below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. For Atlantic salt meadows this includes the morphology of the saltmarsh creeks and pans. Restoration and recovery. As part of this objective it should be noted that; for the estuaries feature the structure and functions of the estuaries that have been damaged/degraded by the constraints of artificial structures such as flood banks, are restored. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species are such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> species richness population structure and dynamics physiological health reproductive capacity recruitment mobility range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Restoration and recovery As part of this objective it should be noted that; for the reefs feature the potential for expansion of the horse mussel <i>Modiolus modiolus</i> community off the north Llŷn coast is not inhibited. 	<p>albeit offset by MR policies in the longer term (epochs 2 and 3) within PUs 11.9 and 11.12 and for all 3 epochs in 11.10 and 11.13. Overall the MR policies within PU 11.10 and 11.13 would be expected to significantly increase the area of both estuary and intertidal habitats within epoch 3.</p> <p>Overall, the function, range and structure of the estuary habitats will remain in balance and favourable condition, and no adverse effect is expected in epoch 3. However, in epochs 1 and 2 the constraint of HTL policies could prevent upper saltmarsh translating (rolling back) in parallel with sea level rise, which could alter the estuary structure, and result in the underachievement of the conservation objectives in these epochs.</p> <p>Arthog Bog is located inland of PU 11.6 with policies of HTL, MR, and NAI. The policy of HTL would not affect this estuary feature as its water management is not expected to be significantly affected by HTL measures at the Fairbourne Embankment much further downstream, and MR is currently not expected to affect the hydrology in epoch 2. NAI in epoch 3 could potentially see hydrological changes in the bog, however, these would only be expected to occur on extreme storm tides and would result in holding up water levels within the bog. Although a potential effect could arise on extreme events, as the NAI policy results in no constraints anticipated, the bog habitats and woodland would be able to respond naturally to the hydrological changes resulting from sea level rise. Therefore, this estuary feature will not be affected. However, the development of a management and monitoring plan would ensure that measures can be implemented to strengthen the resilience of the bog.</p>			
Coastal lagoons	NA			Not present in PDZ 11.	None required	No adverse effect expected	Yes
Large shallow inlets and bays	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>This feature is not present in PDZ 11, with the nearest - Tremadog Bay to the north in PDZ 12. However, the coastal processes in the area typically have a northward movement which may result in sediment deposits into the Bay as a result of the management options in PDZ 11.</p> <p>North of Barmouth the defences in front of Sunnysands (11.19) and in front of Islawffordd (11.20) do not appear to significantly interrupt long shore drift along the backshore at present. The main drift is considered to be along the lower foreshore. As the coast retreats to either side of both sections of defence, these defences will start having a more significant impact on the lower foreshore.</p>	None required	No adverse effect expected	Yes
Reefs	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Areas of subtidal reefs are located at either end of PDZ 11 (11.1 and 11.20); and intertidal reefs are located along the coast to the south of the estuary (11.1 to 11.3), see Annex G-VI for details.</p> <p>NAI policy (11.20) will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease.</p> <p>The subtidal reefs within PDZ 11 comprise bedrock reef (biogenic reefs are located in PDZ 13 to the north west). The HTL policies are located along the rocky foreshore of PUs</p>	During the design and application for any scheme for PUs 11.1 and 11.3, surveys of the intertidal should be undertaken to determine whether reef communities or habitat are present, and if present the works should be undertaken whereby construction disturbance would not occur on or immediately adjacent to these reef habitats and communities.	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				<p>11.1 and 11.3. The current defence of high ground will be maintained in order to protect the railway. As the rocky foreshore is constrained by the high ground, the loss of intertidal reef will occur naturally and not as a result of the SMP2 policy. However, there is the potential that HTL implementation could directly affect intertidal reef of present in the footprint of such works, and could therefore result in the underachievement of the conservation objectives for reef features particularly in Epochs 2 and 3. However, detailed consideration of location and likely effects indicate that an adverse impact is not expected (see Annex G-VI for details).</p> <p>MR (PUs 11.2, 11.5, 11.6, 11.9, 11.10, 11.13, and 11.14) in the long term would ensure that coastal squeeze would not be an issue, as no alteration to the physical or chemical processes would be expected other than that resulting from natural variation in response to sea level rise.</p> <p>HTL for all epochs for PUs 11.7, 11.8, and 11.12 are not expected to result in changes to the sediment movement or coastal processes of areas of existing intertidal reef habitat that are predominantly located away from these units, or where there is no expected direct erosion or accretion link, and where the wider estuary processes dominate. HTL in epoch 1 for other PUs 11.6, 11.9, and 11.13 are also not expected to extend any influence on the physical or chemical processes that would affect the intertidal reefs within the estuary.</p>			
Mudflats and sandflats not covered by sea water at low tide	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p><i>Open Coastline</i></p> <p>The underlying intent along the coast north of Llanaber (PUs 11.1 to 11.4, 11.14 to 11.20; although the sandflats within PUs 11.14 to 11.19 are outside the SAC boundary, therefore only PUs 11.1 to 11.4, and 11.20 are considered) is to allow its natural development and not to be in a situation where there is commitment to larger and larger defences to protect assets indefinitely. The underlying intent is, therefore, to create space in terms of land use.</p> <p>HTL policies for the open coast could result in coastal squeeze of the intertidal sandflats in epochs 1, 2 and 3 for PUs 11.1 and 11.3, and loss due to coastal squeeze is identified in PU 11.4. The loss in epoch 1 is generally small given the narrow and steep shore along these sections in epoch 1. Losses in epoch 2 are predicted for PUs 11.1 and 11.3, and in epoch 3 in (PUs 11.1 and 11.3).</p> <p>There are no existing defences within PU 11.20 and a policy of NAI will allow the sand dunes to continue to develop naturally.</p> <p><i>Mawddach Estuary</i></p> <p>Sandflats within the Mawddach Estuary are generally subject to a preferred option of HTL in epoch 1, with MR in epochs 2 and 3. Within the inner and outer estuary, the preferred policies are for HTL and MR. It is likely that there will be a loss of sandflat habitat within the estuary as the defences are maintained over all epochs in PUs 11.7, 11.8, and epoch 3 for PU 11.11. However, in epoch 1 for PUs 11.6, 11.8, and 11.9, a loss of sandflat and saltmarsh habitat is identified from the response measurements undertaken for this SMP. The defences to the south and north side of the estuary would be continued for those PUs listed above.</p>			
<i>Salicornia</i> and other annuals colonising mud and sand	NA				Potentially move defences landward were feasible to allow saltmarshes and mudflats to roll back in time with sea level rise.	The loss of intertidal sandflat and saltmarsh feature in epochs 1, 2 and 3 would result in an adverse effect.	No
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	NA						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				<p>The structure and range of intertidal habitats would be expected to reduce in epoch 2, albeit offset by MR policies in the longer term (epochs 2 and 3) within PU 11.9 and for all 3 epochs in 11.10, 11.12, and 11.13. Overall the MR policies within PU 11.10, 11.12, and 11.13 would be expected to significantly increase the area of both estuary and intertidal habitats in epoch 3.</p> <p>Saltmarsh habitat could be lost where there are HTL policies in epochs 2 and 3 as the intertidal sandflats roll back in response to sea level rise. However, no HTL policies are expected to result in constraint to the saltmarsh habitat.</p> <p>Where MR is planned in epochs 2 in PU 11.6; in epochs 2 and 3 in PU 11.9; and within all 3 epochs in PUs 11.10, 11.12, and 11.13, this will allow for the saltmarsh habitat to move landward in the long term.</p> <p>The loss of intertidal sandflat and saltmarsh predicted within this PDZ could reach up to 34.94ha over the 3 epochs (epoch 1 = 5.08ha, epoch 2 = 17.91ha, and epoch 3 = 21.95ha). The majority of the habitat type lost is saltmarsh, with less than 12.03ha of sandflat habitat predicted to be lost within these areas. The gains from MR policies have not been calculated at this stage, but are indicated in Annex G-X.</p>			
Submerged or partially submerged sea caves	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Areas of sea caves are identified within PU 11.1 and 11.3.</p> <p>The HTL line policy in place is to ensure the railway is not lost. The restriction of erosion of the cliffs may impact on the integrity of the sea cave features as they either are not able to function properly (continuing to erode) or are inundated with seawater as the sea level rises. However, the caves are not submerged at high tide and are outside the SAC boundary; furthermore, avoidance measures are expected to be available during the scheme level design to avoid obstruction or disturbance to the caves, therefore there will be no adverse impact.</p>	During scheme level design measures should be implemented to avoid obstruction or disturbance to the sea caves features.	No adverse effect expected	Yes
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>Populations</u></p> <p>The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that :</p> <ul style="list-style-type: none"> for bottlenose dolphin, otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression grey seal populations should not be reduced as a consequence of human activity <p><u>Range</u></p> <p>The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future.</p> <p>As part of this objective it should be noted that for bottlenose dolphin, otter and grey seal:</p>	<p>The SMP policies would not be expected to have an impact on the integrity of the SAC or the bottlenose dolphin's resident there.</p> <p>The SMP policies will not result in a reduction in the area or extent of the estuary or inlet/bay habitat that supports the dolphin population, therefore it is concluded that there will be no adverse effect.</p>	None required	No adverse effect expected	Yes
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Estuaries Mudflats and sandflats not covered by sea water at low tide 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>Populations</u></p> <p>The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that :</p> <ul style="list-style-type: none"> for bottlenose dolphin, otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression grey seal populations should not be reduced as a consequence of human activity <p><u>Range</u></p> <p>The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future.</p> <p>As part of this objective it should be noted that for bottlenose dolphin, otter and grey seal:</p>	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Otters may occur along discreet areas of coastline within PDZ 11 and within the estuary. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes.</p> <p>There is a potential loss of sandflat/ mudflat habitat in the estuary, which may be used as feeding or breeding habitat by otters. As the amount of habitat impacted is small, it is unlikely that there will be any adverse effect on the otters.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays Mudflats and sandflats not covered by sea water at low tide 		<ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered There are appropriate and sufficient food resources within the SAC and beyond The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing <p>SUPPORTING HABITATS AND SPECIES The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution, extent, structure, function and quality of habitat, prey availability and quality. <p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour For otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. Restoration and recovery As part of this objective it should be noted that for the bottlenose dolphin and otter, populations should be increasing. 	<p>Nearly 40% (about 125,000) of the world population of grey seals is found in the British Isles, with a relatively stable population of about 6,000 in Wales.</p> <p>Coastal squeeze may result in a general loss of haul out sites within the Lleyn Peninsula and the Sarnau SAC SAC over all 3 epochs.</p> <p>Grey seals may occur along discreet areas of coastline within PDZ 11. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites.</p> <p>Overall, the area of estuary will not be reduced as a result of the SMP2 policies; therefore maintaining the seals food resources.</p> <p>Erosion may occur to haul out site locations where they are in the intertidal area and coastal squeeze may result in a general loss of haul out sites within the Lleyn Peninsula and the Sarnau SAC over all 3 epochs, however this will likely result in an alteration in the extent of haul out sites and not to the characteristics of the sites (e.g. disturbance etc). Therefore no adverse impact is expected.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Morfa Harlech a Morfa Dyffryn SAC							
Embryonic shifting dunes	NA	<ul style="list-style-type: none"> Extent of embryonic shifting dunes Condition of embryonic shifting dunes: species composition 	<ul style="list-style-type: none"> The total extent of the embryonic shifting dunes including those areas that are considered unfavourable or currently degraded is maintained at the area present when designated. The strand line and embryonic dune vegetation should be made up of typical species listed in the table below. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Morfa Harlech a Morfa Dyffryn (Morfa Harlech and Morfa Dyffryn) is one of two north Wales sites selected. Embryonic shifting dunes occur as long narrow zones mainly in the Morfa Harlech part of the complex. Both lyme-grass <i>Leymus arenarius</i> and sand couch <i>Elytrigia juncea</i> shifting dune vegetation have been recorded, but the latter is by far the more extensive of the two.</p> <p>The sand dunes of this SAC in PDZ 11 are located in PU 11.20 where no HTL or MR policies are identified, with NAI being the preferred policy for this whole unit, therefore no direct or indirect effects as a result of SMP2 policy is expected.</p> <p>MR policies are proposed for PUs 11.17 (epoch 1 followed by NAI), 11.18 (all epochs), and 11.19 (all epochs) are expected to enable the coastal process and sediment supply to be maintained to the site. However, given the sensitivity of the site and features to sediment supply, and the relatively unknown rate of sediment feed, there is a risk that MR specifically in epochs 2 and 3, would not adequately keep pace with the natural sediment movement and feed. Consequently there is a risk that the rate of dune development could decrease, thus affecting the condition of the embryonic shifting dune feature.</p>	<p>A strategy should be developed to provide survey data for the sediment movement for from the policy units south of Morfa Dyffryn to identify what the sediment feed requirement currently is, and identify the rate by which MR should be undertaken to ensure that this is maintained naturally by translation of the shore in parallel with sea level rise. The strategy should be developed between the Local Planning Authority and CCW in order to ensure that MR develops landward an appropriate rate in PUs 11.18 and 11.19 for the maintenance of the dune system.</p>	No adverse effect expected	Yes
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')	NA	<ul style="list-style-type: none"> Extent of shifting dunes Condition of shifting dunes: species composition 	<ul style="list-style-type: none"> The total extent of the shifting dunes including those areas that are considered unfavourable or currently degraded is maintained at the area present when designated, c.18.9 ha at Morfa Harlech which should be present both along the seaward dune ridge and inland within units 1, 3, 4 and 5 and at least 82ha of shifting dunes at Morfa Dyffryn which should be distributed throughout units 28, 27, 26, 24, and 23. The shifting dunes should be vegetated by species such as those listed in the table below. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Morfa Harlech a Morfa Dyffryn (Morfa Harlech and Morfa Dyffryn) is one of two sites selected to represent Shifting dunes along the shoreline with <i>Ammophila arenaria</i> in north Wales. It lies at the junction of two major marine sediment transport systems, and as a result provides an excellent example of active accretion. Shifting dunes are therefore extensive, being particularly well-developed at Morfa Dyffryn. Notable species recorded here include hound's-tongue <i>Cynoglossum officinale</i> and sand cat's-tail <i>Phleum arenarium</i>.</p> <p><i>The potential impacts are the same Embryonic shifting dunes above.</i></p>			
Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)	NA	<ul style="list-style-type: none"> Extent Species composition of the dune slacks Condition of the dune slacks 	<ul style="list-style-type: none"> The total extent of the humid dune slacks and dunes with <i>Salix repens</i> including those areas that are considered unfavourable or currently degraded is maintained at the area present when designated, some 65.1 ha at Morfa Harlech and 43.6 ha at Morfa Dyffryn. All successional phases of dune slack vegetation should be present at Morfa Dyffryn. The humid dune slacks should be vegetated with typical and desirable species such as those outlined in the table below. The dune slack vegetation should be free from scrub and should have a relatively short sward. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Both Morfa Harlech and Morfa Dyffryn have comparatively large areas of dunes with <i>Salix repens</i> ssp. <i>argentea</i> and Yorkshire-fog <i>Holcus lanatus</i>, especially in some of the older, more inland parts of the system. In addition, there are two other dune slack communities that support creeping willow.</p> <p><i>The potential impacts are the same Embryonic shifting dunes above.</i></p>			
Humid dune slacks	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Morfa Harlech a Morfa Dyffryn (Morfa Harlech and Morfa Dyffryn) is one of two sites representative of dune slack vegetation in north Wales. Examples of three different humid dune slack communities have been recorded within the complex. The dune slack vegetation with silverweed <i>Potentilla anserina</i> and common sedge <i>Carex nigra</i> is particularly well-developed.</p> <p><i>The potential impacts are the same Embryonic shifting dunes above.</i></p>			

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Petalwort <i>Petalophyllum ralfsii</i>	Dune Slacks	<ul style="list-style-type: none"> Distribution and population size. Habitat condition. 	<ul style="list-style-type: none"> The population of <i>Petalophyllum</i> will remain stable or increase. <i>Petalophyllum</i> should be present at Morfa Harlech should be distributed across the northern part of Morfa Dyffryn sand dune system (Units 26 and 28). The successional young dune slacks that support the <i>Petalophyllum</i> should be in good condition as defined in the conservation objective for features 3 and 4 above. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Petalwort <i>Petalophyllum ralfsii</i> has been recorded in dune slacks in the two dune systems at this site; it is most frequent at Morfa Dyffryn.</p> <p><i>The potential impacts are the same Embryonic shifting dunes above.</i></p>			

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Coedydd Derw a Safleoedd Ystumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC							
Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	NA	<ul style="list-style-type: none"> Extent of broad-leaved woodland and associated habitats Location of woodland types Tree canopy cover Canopy and shrub layer Native tree and shrub regeneration Ground layer Common mosses, liverworts, lichens and slime moulds Uncommon mosses, liverworts, lichen and slime moulds Mature/Veteran trees Dead wood 	<ul style="list-style-type: none"> The total extent of the woodland area, including woodland canopy and scrub, woodland glades and associated dry heath, bracken and grassland shall be maintained as indicated on maps, see Annex 2, some 1826 ha in total. The location of the different woodland SAC features, as listed in the title above, will be as shown in Annex 2. The distribution of these woodland communities is largely a reflection of the topography, soils, geology and aspect and is unlikely to change. The tree canopy percentage cover within the woodland area for the whole SAC (see maps in Annex 2) shall be no less than 80%, 87% being the current canopy cover (excepting natural catastrophic events). Some units will have a lower canopy cover which is acceptable provided this is compatible with safeguard of the habitat, features and special interest. The canopy and shrub layer comprises locally native species, see Table 2 for the relevant species for each woodland SAC feature. There shall be sufficient natural regeneration of locally native trees and shrubs to maintain the woodland canopy and shrub layer, by filling gaps and allowing the recruitment of young trees, and encouraging a varied age structure. The typical ground layer species of each woodland SAC feature will be common, see Table 2. It is important for most of the woodland SAC that the vegetation does not become rank and overgrown with a height above 40cm and/or dominated by species such as bramble, ivy and young holly. Limits may be set on a unit or compartment basis. The abundance and distribution of common and typical (Atlantic, sub-Atlantic, western, oceanic) mosses and liverworts, lichens (and slime moulds), will be maintained or increased. Refer to indicative lists in Tables 3 and 4. The abundance and distribution of uncommon mosses and liverworts, lichens and slime moulds, will be maintained or increased. Refer to indicative lists in Tables 5 & 6 in Annex 3. There will be a scattering of 5 mature trees per hectare within the existing tree canopy or parkland, that is trees of c60cm diameter plus for oak and ash and/or with signs of decay, holes etc. In the longer-term, by 2060 there should be 1 veteran trees per hectare that is trees of c100cm diameter plus for oak and ash and 75cms birch. The volume of dead wood will exceed 30 cubic metres per hectare throughout and consist of a mixture of fallen trees (minimum 1 per hectare), broken branches, dead branches on live trees, and standing dead trees (minimum 1 per hectare). Volumes of deadwood are currently at relatively low levels because the woodlands, in general, have an even-age structure and lack mature trees and any quantity of deadwood because of past silvicultural management. Some lower plants are dead wood specialists but these woodlands tend to lack the rare dead wood invertebrate assemblage found in other parts of the UK. Invasive non-native species such as rhododendron, Japanese knotweed and Himalayan balsam will not be present. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u></p> <p>Meirionnydd Oakwoods are a very large example of old sessile oak woods in north Wales, with an outstanding Atlantic flora of bryophytes and lichens.</p> <p>Meirionnydd Oakwoods and Bat Sites include probably the most extensive area of alder <i>Alnus glutinosa</i> alluvial forest in north Wales. The woodland occurs on a dynamic floodplain, allowing cyclical regeneration and decay of alder stands, and the development of a natural structure, rich in dead wood.</p> <p>A number of areas which make up this SAC are adjacent to the Mawddach Estuary with particular close proximity in the upper estuary (PU 11.13). The preferred policy option within PU 11.13 is HTL in epoch 1 and MR in epochs 2 and 3.</p> <p>The MR policy could result in the loss of heathland or woodland habitat approximately 0.004ha from PU 11.13 over all 3 epochs.</p>	<p>At the scheme level, the MR policy must be designed to avoid the loss of or construction disturbance to the woodland habitat feature within the Site, and that it results in sensitive and natural flooding to any habitat rather than the presence or construction of structures.</p>	<p>No adverse effect expected</p>	<p>Yes</p>
<i>Tilio-Acerion</i> forests of slopes, screes and ravines	NA						
Bog woodland	NA						
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>) (Priority Feature)	NA						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	NA	<ul style="list-style-type: none"> Extent Distribution Typical species Undesirable and non-native species 	<ul style="list-style-type: none"> The extent of suitable river habitat within which the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation can occur should be stable as indicated on map in Annex 2. The current distribution (not known) of the <i>Ranunculus fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation should be stable or increasing. The river with floating vegetation may be dominated by water crowfoot species usually <i>Ranunculus fluitans</i>, (but this species is not recorded in Meirionnydd), <i>Callitriche stagnalis</i> and bryophytes. Species indicative of unfavourable condition for this feature e.g. filamentous algae associated with eutrophication and invasive non-native species, should be absent or below an acceptable threshold level, indicative of high ecological status, within the SAC. This attribute is considered further under factors. All factors affecting the achievement of these factors are under control 	<p><u>Saline intrusion:</u></p> <p>The Afon Mawddach is only subject to the SMP policies as far as the Normal Tidal Limit and would see the flooding extent of the river increase by approximately 120 m in epoch 3.</p> <p>The HTL policy at PU 11.12 (Penmaenpool) would see the defences being maintained along the shore of the Afon Wnion may result in saline intrusion into the river in response to sea level rise, as the river is unable to widen naturally. This will not affect the overall integrity of the water course.</p>	None required	No adverse effect expected	
European dry heaths	NA	<ul style="list-style-type: none"> Extent of dry heath Distribution of dry heath Vegetation composition Heath land structure Non-native species 	<ul style="list-style-type: none"> The total extent of the dry heath area, approximately 21 ha, shall be maintained. The distribution of the dry heath will at least be as shown on Core Management Plan map. The typical and uncommon species of the vegetation communities comprising the dry heath will be frequent and abundant, see Table 8. The structure of the heath should be maintained and restored, to show natural regeneration by layering and seeding, and to ensure that the component vegetation communities are naturally diverse (refer also to 3 above). Invasive non-native species such as conifers, rhododendron, Japanese knotweed and Himalayan balsam will not be present. The heath will be generally free from trees and at most have only a few individuals at a density of no more than 2 per hectare. Exceptions to this rule are transition zones from woodland to heath land where trees may be denser grading to open heath. Limits for woodland transition zones should be set on a unit or sub-unit basis. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u></p> <p>It is not possible to specifically identify this SAC feature from the maps, but generally, it is not expected that the SMP policies will have a significant impact on the habitat. The area of SAC adjacent to areas subject to SMP policies is small in comparison to the overall extent of the SAC habitat.</p> <p>The MR policy could result in the loss of heathland habitat approximately 0.004ha from PU 11.13 over all 3 epochs.</p>	At the scheme level, the MR policy must be designed to avoid the loss of or construction disturbance to the heathland habitat feature within the Site, and that it results in sensitive and natural flooding to any habitat rather than the presence or construction of structures.	No adverse effect expected	
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles. Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>). <i>Tilio-Acerion</i> forests of slopes, screes and ravines	<ul style="list-style-type: none"> Population of lesser horseshoe bats Roosts Foraging or feeding habitat Range of the population 	<ul style="list-style-type: none"> The population of lesser horseshoe bats should be maintained at its current size and encouraged where possible to increase. See Table 7 for summaries of population counts at recorded roost sites and maps in Annex 4, showing the locations of the roosts. As there has been an upward trend in lesser horseshoe bats numbers in Wales it is reasonable to expect the Gwynedd population to increase. There are sufficient breeding roosts (buildings, structures and trees) and hibernation roosts (mines and buildings) of appropriate quality. The other types of roost such as night, transitional, leks and swarming sites, should also be maintained as our knowledge of these often significant roosts improves. Foraging or feeding habitat in the SAC and surrounding countryside, including grasslands and some gardens, is of appropriate quality, extent and connectivity across the range. The range of the population within the SAC/Gwynedd is stable or increasing. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u></p> <p>This large composite site includes most of the known maternity roosts in Meirionnydd and some hibernacula, and comprises the centre of distribution for lesser horseshoe bats <i>Rhinolophus hipposideros</i> in Wales. The sheltered river valleys provide excellent tree cover and numerous suitable maternity roosts.</p> <p>It is not expected that the SMP policies will have a significant impact on the Habitat of the Lesser horseshoe bat. The area of SAC adjacent to areas subject to SMP policies is small in comparison to the overall extent of the SAC habitat.</p> <p>The MR policy could result in the loss of heathland or woodland habitat approximately 0.004ha from PU 11.13 over all 3 epochs. The total loss of habitat is small and will therefore not impact on the foraging and range of the bat population.</p>	None required	No adverse effect expected	

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Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 12: PDZ 12 – Coastal Snowdonia: Traeth Dyffryn to Pen y Chain

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Pen Llyn a'r Sarnau/ Lleyen Peninsula and the Sarnau SAC							
Sandbanks slightly covered by sea water	NA		<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include:</p> <ul style="list-style-type: none"> Rocky intertidal reefs. Rocky subtidal reefs. Extensive boulder and cobble reefs – the sarnau. Biogenic reefs (horse mussel <i>Modiolus modiolus</i> reef / green <i>crenella Musculus discors</i> reef and Honeycomb worm <i>Sabellaria alveolata</i> reef. Carbonate reef formed by methane gas leaking from the seabed. <p>For the intertidal mudflat and sandflat feature these include:</p> <ul style="list-style-type: none"> <i>Mya arenaria</i> and polychaetes in muddy gravel. Eel grass <i>Zostera marina</i> beds. Muddy gullies in the Mawddach estuary. <p>For the Salicornia feature this includes:</p> <ul style="list-style-type: none"> Communities characterised by the species <i>Sarcocornia perennis</i>. For the intertidal mudflats and sandflats and sandbanks features this requires an overall stability or increase in the amount of the feature, taking into account the areas of long term stability and localised losses and additions arising from environmental processes. For estuaries this includes the stability of sandy sediments in proportion to the muddy sediments. Restoration and recovery. As part of this objective it should be noted that; for the estuaries feature additional land which should form an integral part of the estuarine ecosystem should be restored. <p><u>Structure and Function</u> The physical, biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include:</p> <ul style="list-style-type: none"> geology sedimentology geomorphology hydrography and meteorology water and sediment chemistry biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations. within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: 	<p><u>Coastal Squeeze / Coastal Processes:</u> Not within PDZ 12.</p> <p><u>Coastal Squeeze / Coastal Processes:</u> Pen Llyn a'r Sarnau has representative examples of bar-built estuaries in north-west Wales, and includes the Glaslyn/Dwryrd (PDZ 12), Mawddach (PDZ 11), and Dyfi estuaries (PDZ 10). There is a continuous gradient between the clean sands near the entrance to the sea and the mud or muddy sands in the sheltered extremes of the estuaries. The intertidal sandflats support communities of burrowing invertebrates, including dense populations of polychaete worms, crustaceans, bivalve molluscs and gastropod molluscs. Saltmarsh fringing the shores of the estuaries, and the saltmarsh creeks and pools, are important habitat features for juvenile fish.</p> <p>The Glaslyn/Dwryrd Estuary has a variety of policy options within the PUs with the majority being NAI over all epochs which will allow the estuary to respond naturally to sea level rise. HTL for all epochs at PU 12.8 (Harlech Valley), 12.13 (The Cob and Porthmadog) and 12.14 (Borth y Gest) and epoch 1 for 12.9 (Talsarnau) will see some localised coastal squeeze. The area of the estuary will not decrease as a result of these SMP2 policies; however the extent and structure of the estuary intertidal and subtidal features will be altered with some habitats decreasing in extent whilst others increase as a result of coastal squeeze. However, the constraint of HTL policies could prevent upper saltmarsh translating (rolling back) in parallel with sea level rise, which could alter the estuary structure, and result in the underachievement of the conservation objectives in these epochs.</p> <p>The MR policy within PU 12.5, for all epochs, PUs 12.2, 12.3, and 12.9 in epochs 2 and 3 and 12.11 in epoch 1 will help to alleviate the coastal squeeze and will enable the estuary habitats to regain its natural balance of habitats. NAI in PU 12.10, 12.12 (all 3 epochs) and 12.11 (epochs 2 and 3) will enable the estuary and its intertidal features to respond naturally to sea level rise.</p> <p>The Artro Estuary located within PUs 12.2 (HTL/MR/MR), 12.3 (HTL/MR/MR), 12.4 (HTL/HTL/HTL), and 12.5 (MR/MR/MR) will not decrease in extent; however the balance of estuary intertidal features will alter over time as a result of coastal squeeze.</p> <p>The MR policy within PUs 12.2 and 12.3 in epochs 2 and 3 and 12.5 in all 3 epochs will help to alleviate the coastal squeeze and will enable the estuary to regain its natural balance of habitats. HTL in all 3 epochs in 12.4 is not part of the SAC, therefore is not expected to have an adverse impact on the integrity of this SAC feature.</p>	None required	No adverse effect expected	Yes
Estuaries	NA	<ul style="list-style-type: none"> Range Structure and Function 			None required	Reduction in estuary structure and, as a result, failure to achieve the conservation objectives for estuarine features.	No
Coastal lagoons	NA		– at or below existing statutory guideline concentrations	Not present in PDZ 12.	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Large shallow inlets and bays	NA		<ul style="list-style-type: none"> below levels that would potentially result in increase in contaminant concentrations within sediments or biota below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. For Atlantic salt meadows this includes the morphology of the saltmarsh creeks and pans Restoration and recovery As part of this objective it should be noted that; for the estuaries feature the structure and functions of the estuaries that have been damaged/degraded by the constraints of artificial structures such as flood banks, are restored. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species are such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> species richness population structure and dynamics physiological health reproductive capacity recruitment mobility range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>The seabed of Tremadog Bay on the south side of the Llyn Peninsula, north-west Wales, consists of a mosaic of different sediment types, which support a diverse mixture of plant and animal communities.</p> <p>The Tremadog Bay encompasses all of PDZ 12.</p> <p>The preferred management options within Tremadog Bay range from NAI, HTL and MR.</p> <p>In the PUs where NAI will be the policy option in the long term and where it was originally MR or HTL (PUs 12.22, 12.23 and 12.25) the policy option will allow the bay to start to erode more naturally.</p> <p>Coastal squeeze may be observed during all epochs, and a change in the coastal processes within the Bay as a result of the HTL and MR options. The area of the bay will not decrease as a result of the SMP2 policies; however the extent of the features within the bay in particular the intertidal features may change.</p> <p>The SMP policies cannot be concluded as having no significant adverse effect on the integrity of this SAC feature, as the range and structure of the intertidal elements.</p> <p>Sediment drift and deposition may be altered by the SMP policies, but this is only in localised areas, and would not affect the overall balance of sediment movement and volume; and as such will not result in a reduction or alteration to the function and development of relevant habitats.</p>	None required	Loss of shallow inlets and bays structure and as a result, failure to achieve the conservation objectives for the feature.	No
Reefs	NA		<ul style="list-style-type: none"> the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Restoration and recovery As part of this objective it should be noted that; for the reefs feature the potential for expansion of the horse mussel <i>Modiolus modiolus</i> community off the north Llŷn coast is not inhibited 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Small areas of intertidal and subtidal reefs occur in Tremadog Bay within PDZ 12 (see Annex G-VI for details).</p> <p>NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease.</p> <p>Areas of subtidal reefs are located within PUs 12.18 to 12.25 where the policy options include HTL, NAI and MR.</p> <p>The subtidal reefs within PDZ 12 comprise bedrock reef and biogenic reefs. The HTL policies are located along the back of the shingle foreshore of PUs 12.18 (epochs 1 and 2; MR epoch 3), 12.20 (all 3 epochs) and 12.24 (epoch 1) where settlements or roads are to be protected.</p> <p>The HTL policy will see a decrease in the area of shingle beach as the intertidal habitat is lost as a result of sea level rise in the short term (epochs 1 and 2); and will be alleviated by MR in the long term. As the shingle is removed from the beach, the shingle material may settle within the subtidal reefs, however, given that it is shingle material rather than sand, it is not expected that the subtidal reefs will be smothered as a result of the settle material. Instead, the shingle material may result in increasing the extent of the reefs in the long term. Overall, no adverse effect is expected on biogenic reef (see Annex G-VI for details).</p> <p>MR in the long term would ensure that coastal squeeze would not be an issue, as reef habitat will be able to respond naturally to sea level rise.</p> <p>NAI policy (12.19, 12.21, 12.23 and 12.25) will allow the shingle</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				beaches to continue to respond naturally to sea level rise.			

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Mudflats and sandflats not covered by sea water at low tide	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>The majority of the coastline within PDZ 12 comprises large stretches of sandflats, some areas of saltmarsh, with the remaining coastline comprising shingle beaches.</p> <p>The area of sandflats and there relevant policy options are summarised below:</p> <p><i>Open Coastline</i></p> <p>The following PUs contain a policy of HTL for some or all epochs:</p> <p>12.2 = HTL/MR/MR 12.6 = HTL/HTL/HTL 12.17 = HTL/MR/MR 12.18 = HTL/HTL/MR (partial intertidal in site boundary) 12.20 = HTL/HTL/HTL 12.24 = HTL/MR/MR (shingle/sand patches)</p> <p>HTL could result in the loss of intertidal habitat as a result of coastal squeeze, though this would be localised for PUs 12.6, 12.18, and 12.20 and no loss is expected for PUs 12.2, 12.17, and 12.24. Overall, no losses are expected in epoch 1, and losses are predicted in epoch 2 for PUs 12.6, 12.18, and 12.20, and in epoch 3 for PUs 12.6 and 12.20.</p> <p>MR for PUs 12.2, 12.3 and 12.5 specifically aims to avoid further extension of hard defence along this frontage with the aim to allow some control but also roll back of the dune system. This intent would feed through in the approach taken in epoch 1 (HTL) so that present management avoids future commitment to extending of hard defence.</p> <p><i>Estuary</i></p> <p>The following policy units contain a policy of HTL for some or all epochs:</p> <p>12.3 = HTL/MR/MR 12.4 = HTL/HTL/HTL 12.8 (estuary mouth; dunes) =HTL/HTL/HTL 12.9 = HTL/ MR/MR 12.13 = HTL/HTL/HTL 12.14 = HTL/HTL/HTL</p> <p>The sandflats where NAI is the preferred policy option will be able to respond to sea level rise and any loss of habitat from these PUs will occur naturally and not as a direct result of the SMP2 policy.</p> <p>Within the PUs with HTL in epoch 1 intertidal habitat could be lost in PUs 12.8 and 12.9, , in epoch 2 for PUs 12.4, 12.8, 12.13, and 12.14, and in epoch 3 for PUs 12.4, 12.8, 12.13, and 12.14.</p> <p>At PU 12.16 the essential need for management (MR) in this area is allowing the natural development of the dunes. This is important from a nature conservation perspective but also in providing a robust natural defence against flooding. Therefore the MR policy planned over all 3 epochs will enable the sand dunes to respond naturally to sea level rise and ensure that the mouth of the estuary is maintained.</p> <p>The predicted total losses of intertidal habitat as a result of the SMP policies in this unit are 0.23ha in epoch 1, 16.74ha in epoch 2, and 28.15ha in epoch 3. A total of 45.12ha would</p>	None identified	Due to the loss of intertidal sandflat habitat in all epochs an adverse effect is expected	No
Salicornia and other annuals colonising mud and sand	NA						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				therefore be at risk throughout the life of the SMP.			
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>)	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>The policy of NAI in the lower reaches of the estuary will allow the estuary to function more naturally, with saltmarshes migrating back with increasing saline inundation where feasible.</p> <p>HTL for all 3 epochs is the preferred option along two stretches of the outer estuary where defences are already in place (PUs 12.8 and 12.13); and one where there is a natural defence (12.14). HTL is also proposed in epoch 1 for PU 12.9.</p> <p>The HTL policies are located within an area of extensive intertidal habitat within the estuary which will respond to coastal squeeze and sea level rise by rolling back into the saltmarsh habitat (particularly within PUs 12.8, 12.9, and 12.13, where extensive saltmarsh habitat is present) ultimately resulting in a loss of saltmarsh habitat (the lower margins of the saltmarsh will become intertidal sandflat and mudflat habitat as tide levels rise).</p> <p>MR in epochs 2 and 3 for PU 12.9 will help alleviate the coastal squeeze occurring within the estuary.</p> <p>Overall, of the intertidal habitat extents identified above, in epoch 1 this would comprise approximately 0.21ha of saltmarsh habitat that could be lost in PUs 12.8 and 12.9, whilst in epoch 2 up to 5.55ha of saltmarsh could be lost in PUs 12.8, 12.13, and 12.14; and in epoch 3 up to 12.42ha of saltmarsh could be lost in PUs 12.8, 12.13, and 12.14. In total up to 18.18ha of saltmarsh habitat out within the 45.12ha of intertidal habitat identified above could be lost due to coastal squeeze as a result of HTL policies within this PDZ.</p>	Potentially move defences landward where possible (in particular within PUs 12.9) were feasible to allow mudflats to roll back in time with sea level rise.	Due to the loss of saltmarsh habitat in all epochs an adverse effect is expected	No
Submerged or partially submerged sea caves	NA			<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Areas of sea caves are identified at the mouth of the Glaslyn/Dwyrdd Estuary – potentially encompassing PU 12.16 (positioned, at the end of the PU).</p> <p>The preferred policy for PU 12.16 is MR – with the main emphasis on sustaining the dune habitat. It is therefore assumed that the area of sea caves will be allowed to function and erode naturally in response to sea level rise potentially resulting in a loss of cave habitat – however, new caves will be created as part of the natural process. Furthermore, avoidance measures are expected to be available during the scheme level design to avoid obstruction or disturbance to any caves that are present.</p>	During scheme level design measures should be implemented to avoid obstruction or disturbance to the sea caves features	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>Populations</u> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that :</p> <ul style="list-style-type: none"> for bottlenose dolphin, otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression grey seal populations should not be reduced as a consequence of human activity <p><u>Range</u> The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for bottlenose dolphin, otter and grey seal:</p> <ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered There are appropriate and sufficient food resources within the SAC and beyond The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing <p><u>SUPPORTING HABITATS AND SPECIES</u> The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution, extent, structure, function and quality of habitat, prey availability and quality. <p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. 	<p>The SMP policies would not be expected to have an impact on the integrity of the SAC or the bottlenose dolphin's resident there.</p> <p>The SMP policies will not result in a reduction in the area or extent of the estuary or inlet/bay habitat that supports the dolphin population, therefore it is concluded that there will be no adverse effect.</p>	None required	No adverse effect expected	Yes
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Estuaries Mudflats and sandflats not covered by sea water at low tide 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>SUPPORTING HABITATS AND SPECIES</u> The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution, extent, structure, function and quality of habitat, prey availability and quality. <p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. 	<p><u>Coastal Squeeze/ Coastal Processes</u> Otters may occur along discreet areas of coastline within PDZ 12 and within the estuary. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes</p> <p>There is a potential reduction in the extent of intertidal habitat within the estuary over the 3 epochs, however, remaining intertidal area and estuary features are not expected to limit or reduce the food resource or obstruct the movement of the otter population.</p> <p>Overall, the area of estuary will not be reduced as a result of the SMP2 policies; therefore maintaining the otters food resources. However, there will be a loss of intertidal habitat within the estuary.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays Mudflats and sandflats not covered by sea water at low tide 		<ul style="list-style-type: none"> The management and control of activities or operations likely to adversely affect the species feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour. For otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. Restoration and recovery As part of this objective it should be noted that for the bottlenose dolphin and otter, populations should be increasing. 	<p>Nearly 40% (about 125,000) of the world population of grey seals is found in the British Isles, with a relatively stable population of about 6,000 in Wales.</p> <p>Coastal squeeze may result in a general loss of haul out sites within the Llyn Peninsula and the Sarnau SAC SAC over all 3 epochs.</p> <p>Grey seals may occur along discreet areas of coastline within PDZ 12. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites.</p> <p>Overall, the area of estuary will not be reduced as a result of the SMP2 policies; therefore maintaining the seals food resources.</p> <p>Erosion may occur to haul out site locations where they are in the intertidal area and coastal squeeze may result in a general loss of haul out sites within the Llyn Peninsula and the Sarnau SAC over all 3 epochs, however this will likely result in an alteration in the extent of haul out sites and not to the characteristics of the sites (e.g. disturbance etc). Therefore no adverse impact is expected.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Morfa Harlech a Morfa Dyffryn SAC							
Embryonic shifting dunes	NA	<ul style="list-style-type: none"> Extent of embryonic shifting dunes Condition of embryonic shifting dunes: species composition 	<ul style="list-style-type: none"> The total extent of the embryonic shifting dunes including those areas that are considered unfavourable or currently degraded is maintained at the area present when designated. The strand line and embryonic dune vegetation should be made up of typical species listed in the table below. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal Squeeze / Coastal Processes</u></p> <p>Morfa Harlech a Morfa Dyffryn (Morfa Harlech and Morfa Dyffryn) is one of two north Wales sites selected. Embryonic shifting dunes occur as long narrow zones mainly in the Morfa Harlech part of the complex. Both lyme-grass <i>Leymus arenarius</i> and sand couch <i>Elytrigia juncea</i> shifting dune vegetation have been recorded, but the latter is by far the more extensive of the two.</p> <p>The sand dunes of this SAC in PDZ 12 are located in PU 12.7 and partially PU 12.1 and to a lesser extent PU 12.8. PU 12.7 and 12.1 have a preferred policy of NAI which would allow the dunes to respond naturally to sea level rise – and any loss as a result of erosion, would not be as a result of SMP2 policy.</p> <p>The HTL policy at 12.8 (part of PU 12.8) is required to maintain the rollover embankment which is not physically connected to the dune system. This defence only encompasses less than half of PU 12.8 and is principally backing saltmarsh and heath habitat, and will not affect sediment movement into or out of the dune system over 2km to the west. Therefore the HTL policy within PU 12.8 will not have an adverse impact on the sand dunes.</p>			Yes
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')	NA	<ul style="list-style-type: none"> Extent of shifting dunes Condition of shifting dunes: species composition 	<ul style="list-style-type: none"> The total extent of the shifting dunes including those areas that are considered unfavourable or currently degraded is maintained at the area present when designated, c.18.9 ha at Morfa Harlech which should be present both along the seaward dune ridge and inland within units 1, 3, 4 and 5 and at least 82 ha of shifting dunes at Morfa Dyffryn which should be distributed throughout units 28, 27, 26, 24, and 23. The shifting dunes should be vegetated by species such as those listed in the table below. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Morfa Harlech a Morfa Dyffryn (Morfa Harlech and Morfa Dyffryn) is one of two sites selected to represent shifting dunes along the shoreline with <i>Ammophila arenaria</i> in north Wales. It lies at the junction of two major marine sediment transport systems, and as a result provides an excellent example of active accretion. Shifting dunes are therefore extensive, being particularly well-developed at Morfa Dyffryn. Notable species recorded here include hound's-tongue <i>Cynoglossum officinale</i> and sand cat's-tail <i>Phleum arenarium</i>.</p> <p><i>The potential impacts are the same Embryonic shifting dunes above.</i></p>	None required	No adverse effect expected	
Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)	NA	<ul style="list-style-type: none"> Extent Species composition of the dune slacks Condition of the dune slacks 	<ul style="list-style-type: none"> The total extent of the humid dune slacks and dunes with <i>Salix repens</i> including those areas that are considered unfavourable or currently degraded is maintained at the area present when designated, some 65.1 ha at Morfa Harlech and 43.6 ha at Morfa Dyffryn. All successional phases of dune slack vegetation should be present at Morfa Dyffryn. The humid dune slacks should be vegetated with typical and desirable species such as those outlined in the table below. The dune slack vegetation should be free from scrub and should have a relatively short sward. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal Squeeze/ Coastal Processes</u></p> <p>Both Morfa Harlech and Morfa Dyffryn have comparatively large areas of dunes with <i>Salix repens</i> ssp. <i>argentea</i> and Yorkshire-fog <i>Holcus lanatus</i>, especially in some of the older, more inland parts of the system. In addition, there are two other dune slack communities that support creeping willow.</p> <p><i>The potential impacts are the same Embryonic shifting dunes above.</i></p>			
Humid dune slacks	NA			<p><u>Coastal Squeeze/ Coastal Processes:</u></p> <p>Morfa Harlech a Morfa Dyffryn (Morfa Harlech and Morfa Dyffryn) is one of two sites representative of dune slack vegetation in north Wales. Examples of three different humid dune slack communities have been recorded within the complex. The dune slack vegetation with silverweed <i>Potentilla anserina</i> and common sedge <i>Carex nigra</i> is particularly well-developed.</p> <p><i>The potential impacts are the same Embryonic shifting dunes above.</i></p>			

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Petalwort <i>Petalophyllum ralfsii</i>	Dune Slacks	<ul style="list-style-type: none"> Distribution and population size. Habitat condition. 	<ul style="list-style-type: none"> The population of <i>Petalophyllum</i> will remain stable or increase. <i>Petalophyllum</i> should be present at Morfa Harlech should be distributed across the northern part of Morfa Dyffryn sand dune system (Units 26 and 28). The successional young dune slacks that support the <i>Petalophyllum</i> should be in good condition as defined in the conservation objective for features 3 and 4 above. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Petalwort <i>Petalophyllum ralfsii</i> has been recorded in dune slacks in the two dune systems at this site; it is most frequent at Morfa Dyffryn.</p> <p><i>The potential impacts are the same Embryonic shifting dunes above.</i></p>			
Coedydd Derw a Safleoedd Ystumod Meirion/ Meirionnydd Oakwoods and Bat Sites SAC							
Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles	NA	<ul style="list-style-type: none"> Extent of broad-leaved woodland and associated habitats Location of woodland types Tree canopy cover Canopy and shrub layer Native tree and shrub regeneration Ground layer Common mosses, liverworts, lichens and slime moulds Uncommon mosses, liverworts, lichen and slime moulds Mature/Veteran trees Dead wood 	<ul style="list-style-type: none"> The total extent of the woodland area, including woodland canopy and scrub, woodland glades and associated dry heath, bracken and grassland shall be maintained as indicated on maps, see Annex 2, some 1826 ha in total. The location of the different woodland SAC features, as listed in the title above, will be as shown in Annex 2. The distribution of these woodland communities is largely a reflection of the topography, soils, geology and aspect and is unlikely to change. The tree canopy percentage cover within the woodland area for the whole SAC (see maps in Annex 2) shall be no less than 80%, 87% being the current canopy cover (excepting natural catastrophic events). Some units will have a lower canopy cover which is acceptable provided this is compatible with safeguard of the habitat, features and special interest. The canopy and shrub layer comprises locally native species, see Table 2 for the relevant species for each woodland SAC feature. There shall be sufficient natural regeneration of locally native trees and shrubs to maintain the woodland canopy and shrub layer, by filling gaps and allowing the recruitment of young trees, and encouraging a varied age structure. The typical ground layer species of each woodland SAC feature will be common, see Table 2. It is important for most of the woodland SAC that the vegetation does not become rank and overgrown with a height above 40cm and/or dominated by species such as bramble, ivy and young holly. Limits may be set on a unit or compartment basis. The abundance and distribution of common and typical (Atlantic, sub-Atlantic, western, oceanic) mosses and liverworts, lichens (and slime moulds), will be maintained or increased. Refer to indicative lists in Tables 3 and 4. The abundance and distribution of uncommon mosses and liverworts, lichens and slime moulds, will be maintained or increased. Refer to indicative lists in Tables 5 & 6 in Annex 3. There will be a scattering of 5 mature trees per hectare within the existing tree canopy or parkland, that is trees of c60cm diameter plus for oak and ash and/or with signs of decay, holes etc. In the longer-term, by 2060 there should be 1 veteran trees per hectare that is trees of c100cm diameter plus for oak and ash and 75cms birch. The volume of dead wood will exceed 30 cubic metres per hectare throughout and consist of a mixture of fallen trees (minimum 1 per hectare), broken branches, dead branches on live trees, and standing dead trees (minimum 1 per hectare). Volumes of deadwood are currently at relatively low levels because the woodlands, in general, have an even-age structure and lack mature trees and any quantity of deadwood because of past silvicultural management. Some lower plants are dead wood specialists but these woodlands tend to lack the rare dead wood invertebrate assemblage found in other parts of the UK. Invasive non-native species such as rhododendron, Japanese knotweed and Himalayan balsam will not be present. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u></p> <p>Meirionnydd Oakwoods are a very large example of old sessile oak woods in north Wales, with an outstanding Atlantic flora of bryophytes and lichens. Notable bryophyte species include the endangered <i>Sematophyllum demissum</i> and the nationally scarce <i>Campylopus setifolius</i> and <i>Leptoscyphus cuneifolius</i>. The woods – primarily of sessile oak <i>Quercus petraea</i> with an acidic ground flora – extend along a series of inter-connected valleys, with a wide variety of slopes and aspects, and include many narrow ravines and gorges. Management is diverse, including grazed and ungrazed areas, and stands managed silviculturally, or as minimum intervention. This wide range of environmental, topographic and management conditions contributes to the high biological diversity of this exceptional site. The woods extend into the adjacent Rhinog cSAC.</p> <p>Meirionnydd Oakwoods and Bat Sites comprise probably the most extensive area of alder <i>Alnus glutinosa</i> alluvial forest in north Wales. The woodland occurs on a dynamic floodplain, allowing cyclical regeneration and decay of alder stands, and the development of a natural structure, rich in dead wood. There is a rich ground flora, with notable plant species including globe-flower <i>Trollius europaeus</i> and creeping-jenny <i>Lysimachia nummularia</i>. The woodland occurs in a mosaic with species-rich marsh and wet grassland, and is continuous with stands of old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles. The site is also important for wildfowl.</p> <p>The nearest PU to this SAC is PU 12.11 where the preferred policy is MR in epoch 1 and NAI in epochs 2 and 3. However, the 100 year flooding or erosion extent modelling have determined that there will be no impact on the integrity of this SAC and calculations have derived that no habitat loss occurs to this SAC within PDZ 12. There is however a risk albeit low, that disturbance during implementation of the MR policy at PU 12.11 could affect the SAC features (either habitats or species) which could result in a short-term underachievement of the Site's conservation objectives.</p>	<p>At the scheme level, the MR policy must be designed to avoid the loss of or construction disturbance to the woodland/heathland habitat features or species within the Site and that it results in sensitive and natural flooding to any habitat rather than the presence or construction of structures.</p>	<p>As the PU 12.11 is not immediately within the Site, it is expected that there is a high possibility of complete success in preventing and avoiding any disturbance to the Site and its features, and therefore no adverse effect expected</p>	Yes
<i>Tilio-Acerion</i> forests of slopes, screes and ravines	NA						
Bog woodland	NA						
Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>)	NA						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Water courses of plain to montane levels with the <i>Ranunculus fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation	NA	<ul style="list-style-type: none"> Extent Distribution Typical species Undesirable and non-native species 	<ul style="list-style-type: none"> The extent of suitable river habitat within which the <i>Ranunculus fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation can occur should be stable as indicated on map in Annex 2. The current distribution (not known) of the <i>Ranunculus fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation should be stable or increasing. The river with floating vegetation may be dominated by water crowfoot species usually <i>Ranunculus fluitans</i>, (but this species is not recorded in Meirionnydd), <i>Callitriche stagnalis</i> and bryophytes. Species indicative of unfavourable condition for this feature eg. filamentous algae associated with eutrophication and invasive non-native species, should be absent or below an acceptable threshold level, indicative of high ecological status, within the SAC. This attribute is considered further under factors. All factors affecting the achievement of these factors are under control 				
Northern Atlantic wet heaths with <i>Erica tetralix</i>	NA		No conservation objectives identified in Core Management Plan				
European dry heaths	NA	<ul style="list-style-type: none"> Extent of dry heath Distribution of dry heath Vegetation composition Heath land structure Non-native species 	<ul style="list-style-type: none"> The total extent of the dry heath area, approximately 21 ha, shall be maintained. The distribution of the dry heath will at least be as shown on Core Management Plan map. The typical and uncommon species of the vegetation communities comprising the dry heath will be frequent and abundant, see Table 8. The structure of the heath should be maintained and restored, to show natural regeneration by layering and seeding, and to ensure that the component vegetation communities are naturally diverse (refer also to 3 above). Invasive non-native species such as conifers, rhododendron, Japanese knotweed and Himalayan balsam will not be present. The heath will be generally free from trees and at most have only a few individuals at a density of no more than 2 per hectare. Exceptions to this rule are transition zones from woodland to heath land where trees may be denser grading to open heath. Limits for woodland transition zones should be set on a unit or sub-unit basis. All factors affecting the achievement of these conditions are under control. 				
Lesser horseshoe bat <i>Rhinolophus hipposideros</i>	Old sessile oak woods with <i>Ilex</i> and <i>Blechnum</i> in the British Isles. Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i> , <i>Alnion incanae</i> , <i>Salicion albae</i>). <i>Tilio-Acerion</i> forests of slopes, screes and ravines.	<ul style="list-style-type: none"> Population of lesser horseshoe bats Roosts Foraging or feeding habitat Range of the population 	<ul style="list-style-type: none"> The population of lesser horseshoe bats should be maintained at its current size and encouraged where possible to increase. See Table 7 for summaries of population counts at recorded roost sites and maps in Annex 4, showing the locations of the roosts. As there has been an upward trend in lesser horseshoe bats numbers in Wales it is reasonable to expect the Gwynedd population to increase. There are sufficient breeding roosts (buildings, structures and trees) and hibernation roosts (mines and buildings) of appropriate quality. The other types of roost such as night, transitional, leks and swarming sites, should also be maintained as our knowledge of these often significant roosts improves. Foraging or feeding habitat in the SAC and surrounding countryside, including grasslands and some gardens, is of appropriate quality, extent and connectivity across the range. The range of the population within the SAC/Gwynedd is stable or increasing. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u></p> <p>This large composite site includes most of the known maternity roosts in Meirionnydd and some hibernacula, and comprises the centre of distribution for lesser horseshoe bats <i>Rhinolophus hipposideros</i> in Wales. The sheltered river valleys provide excellent tree cover and numerous suitable maternity roosts.</p> <p>It is not expected that the SMP policies will have a significant impact on the Habitat of the Lesser horseshoe bat. The area of SAC adjacent to areas subject to SMP policies is small in comparison to the overall extent of the SAC habitat.</p> <p>As there is no habitat loss to the bat supporting habitat as a result of the policies in PDZ 12, there will be no impact to the bats, although there is a potential for short-term disturbance during implementation of MR policy.</p>			

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 13: PDZ 13 – The South Llŷn Bays: Pen y Chain to Trwyn Cilan

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Pen Llŷn a'r Sarnau/ Lleyn Peninsula and the Sarnau SAC							
Sandbanks slightly covered by sea water	NA		<u>Structure and Function</u> The physical, biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include: <ul style="list-style-type: none"> • geology • sedimentology • geomorphology • hydrography and meteorology • water and sediment chemistry. • biological interactions. This includes a need for nutrient levels in the water column and sediments to be: <ul style="list-style-type: none"> • at or below existing statutory guideline concentrations. • within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. 	Not within PDZ 13.	None required	No adverse effect expected	Yes
Estuaries	NA		<ul style="list-style-type: none"> • Contaminant levels in the water column and sediments derived from human activity to be: <ul style="list-style-type: none"> – at or below existing statutory guideline concentrations. – below levels that would potentially result in increase in contaminant concentrations within sediments or biota. – below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. • For Atlantic salt meadows this includes the morphology of the saltmarsh creeks and pans. • Restoration and recovery • As part of this objective it should be noted that; for the estuaries feature the structure and functions of the estuaries that have been damaged/degraded by the constraints of artificial structures such as flood banks, are restored. 	<u>Coastal Squeeze/ Coastal Processes:</u> Pen Llŷn a'r Sarnau has representative examples of bar-built estuaries in north-west Wales, and includes the Glaslyn/Dwryrd, Mawddach and Dyfi estuaries. There is no designated estuary habitat within PDZ 13.	None required	No adverse effect expected	Yes
Coastal lagoons (Priority feature)	NA		<ul style="list-style-type: none"> • Contaminant levels in the water column and sediments derived from human activity to be: <ul style="list-style-type: none"> – at or below existing statutory guideline concentrations. – below levels that would potentially result in increase in contaminant concentrations within sediments or biota. – below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. • For Atlantic salt meadows this includes the morphology of the saltmarsh creeks and pans. • Restoration and recovery • As part of this objective it should be noted that; for the estuaries feature the structure and functions of the estuaries that have been damaged/degraded by the constraints of artificial structures such as flood banks, are restored. 	<u>Saline intrusion:</u> The priority feature of this SAC is not located within PDZ 13 and is therefore not expected to be impacted by the policy options in this PDZ.	None required	No adverse effect expected	Yes
Large shallow inlets and bays	NA	<ul style="list-style-type: none"> • Range • Structure and Function 	<ul style="list-style-type: none"> • As part of this objective it should be noted that; for the estuaries feature the structure and functions of the estuaries that have been damaged/degraded by the constraints of artificial structures such as flood banks, are restored. <u>Typical Species</u> The presence, abundance, condition and diversity of typical species are such that habitat quality is not degraded. Important elements include: <ul style="list-style-type: none"> • species richness • population structure and dynamics • physiological health • reproductive capacity • recruitment • mobility • range As part of this objective it should be noted that: <ul style="list-style-type: none"> • populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term • the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. • Restoration and recovery • As part of this objective it should be noted that; for the reefs feature the potential for expansion of the horse mussel <i>Modiolus modiolus</i> community off the north Llŷn coast is not inhibited. 	The seabed of Tremadog Bay on the south side of the Lleyn Peninsula, north-west Wales, consists of a mosaic of different sediment types, which support a diverse mixture of plant and animal communities. The Tremadog Bay encompasses all of PDZ 13. The preferred management options within Tremadog Bay range from NAI, HTL and MR. NAI at Porth Ceiriad Headland and St Tudwal's Island (PU 13.16 to 13.19) will allow the coast to respond naturally to sea level rise and result in natural erosion (0.7ha over 3 epochs), and a natural source of material to the coast. HTL at PUs 13.2 (epoch 1); 13.3, 13.4, 13.5, 13.6 (all 3 epochs); 13.7, 13.11, 13.12 (epoch 1); 13.13 (all 3 epochs); 13.14 and 13.15 (epoch 1) will constrain the intertidal habitat and result in a change in the structure of the shallow inlets and bays feature, though it may reduce the extent of some of the components, and increase others. Overall the alteration would occur in epochs 2 and 3 and is predominantly linked to PU 13.6, which would result in underachievement of the conservation objectives for this feature.	None required	Loss of shallow inlets and bays structure and as a result, failure to achieve the conservation objectives for the feature.	No

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Reefs	NA		<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include:</p> <ul style="list-style-type: none"> • Rocky intertidal reefs. • Rocky subtidal reefs. • Extensive boulder and cobble reefs – the sarnau. • Biogenic reefs (horse mussel <i>Modiolus modiolus</i> reef / green <i>crenella</i> <i>Musculus discors</i> reef and Honeycomb worm <i>Sabellaria alveolata</i> reef. • Carbonate reef formed by methane gas leaking from the seabed. 	<p><u>Coastal Squeeze / Coastal Processes:</u> Areas of subtidal reefs are located within PDZ 13; no intertidal reefs are present. The subtidal reefs within PDZ 13 comprise bedrock reef and biogenic reefs, with subtidal reefs present nearshore in PUs 13.6, 13.7, 13.8, 13.9, 13.10, 13.16, and 13.19. Intertidal reefs are located within PUs 13.3, 13.8, 13.9, 13.16, 13.18, and 13.19.</p> <p>NAI policy (13.1; 13.9, 13.10, 13.16, 13.17, 13.18, and 13.19) will allow the actively eroding cliffs to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal and subtidal reef to decrease. The sediment supply will also increase the extent of the subtidal reefs in the long term.</p> <p>HTL policies are located along the rocky foreshore of 13.6, 13.7, 13.8, 13.13, 13.14 and 13.15. As the rocky foreshore is constrained by high ground within PUs 13.13, 13.14 and 13.15 the loss of intertidal foreshore will occur naturally and not as a result of the SMP2 policy, whilst the sediment supply to the subtidal reefs is already restricted naturally. Furthermore, given the HTL in epoch 1 for PUs 13.7 and 13.8, no noticeable loss of intertidal habitat is evident in the GIS extractions given the limited rise in sea level and available movement of the lower and mid intertidal. HTL for all epochs at PU 13.3 occurs in the upper shore, and given that the intertidal reef is located in the lower shore, given that upper shore constraint is not expected to result in lower shore constraint, therefore the reef will be able to respond to sea level rise by migrating landward within the intertidal, consequently no constraint is expected.</p> <p>No reefs are located within PUs 13.2, 13.4, 13.5, 13.11, 13.12, 13.13, 13.14, and 13.15 and therefore policies in these units are not expected to result in any loss of intertidal or subtidal reef habitat or changes in sediment supply to subtidal reefs.</p> <p>In the long term where MR is the preferred policy within PUs 13.7, 13.8, 13.11, 13.12, 13.14 and 13.15 would ensure that coastal squeeze would not be an issue, as reef habitat (whether present or not) will be able to respond naturally to sea level rise and in the short to long term, and the extent of the subtidal reef habitat will not decrease.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Mudflats and sandflats not covered by sea water at low tide	NA		<p><u>Range</u> For the intertidal mudflat and sandflat feature these include:</p> <ul style="list-style-type: none"> • <i>Mya arenaria</i> and polychaetes in muddy gravel. • Eel grass <i>Zostera marina</i> beds. • Muddy gullies in the Mawddach estuary. <p>For the <i>Salicornia</i> feature this includes:</p> <ul style="list-style-type: none"> • Communities characterised by the species <i>Sarcocornia perennis</i>. • For the intertidal mudflats and sandflats and sandbanks features this requires an overall stability or increase in the amount of the feature, taking into account the areas of long term stability and localised losses and additions arising from environmental processes. • For estuaries this includes the stability of sandy sediments in proportion to the muddy sediments. • Restoration and recovery. • As part of this objective it should be noted that; for the estuaries feature additional land which should form an integral part of the estuarine ecosystem should be restored. 	<p><u>Coastal Squeeze / Coastal Processes:</u> The majority of the coastline within PDZ 13 consists of large stretches of beaches (sandflats). NAI has been planned for areas of cliffs typically at the headland (PU 13.10) and areas of sandflats (PU 13.9 and PU 13.1) which will be able to respond naturally to sea level rise. HTL along the remaining coast will result in coastal squeeze of the sandflats. However, the boundary of the Lleyn Peninsula and the Sarnau SAC only extends to the MLW mark of the sandflats within PUs 13.6, 13.7, 13.8, 13.9 and 13.18. The HTL policies are only planned within PU 13.6 (all 3 epochs) and 13.7 and 13.8 (epoch 1) with MR planned for epochs 2 and 3. No habitat loss has been identified for epoch 1 due to HTL for PU 13.6; 13.7, and 13.8. Within PU 13.6, the HTL policy for epoch 2 could result in up to 1.19ha of intertidal sandflat being lost, and during epoch 3 up to 0.8ha of intertidal sandflat could be lost. Despite HTL being the preferred policy along the majority of the coast, a limited loss of intertidal habitat occurs as a result of HTL policy for PU 13.2; 13.7, 13.8, 13.11, 13.12, 13.14, and 13.15 in epoch 1; PUs 13.3, 13.4, 13.5 13.6, 13.13 for all epochs. The most significant loss of intertidal habitat occurs in PU 13.5 (centre of Pwllheli Harbour), and this PU along with others where loss is predicted to occur are outside the Site boundary.</p>	None Identified	The loss of intertidal sandflat feature within the site as a result of HTL at PU 13.6 would result in an adverse effect.	No
Salicornia and other annuals colonising mud and sand	NA						
Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>)	NA		<p><u>Structure and Function</u> The physical, biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. For Atlantic salt meadows this includes the morphology of the saltmarsh creeks and pans.</p>	Not present within PDZ 13.	None required	No adverse effect expected	Yes
Submerged or partially submerged sea caves	NA		As above for all features.	<p><u>Coastal Squeeze / Coastal Processes:</u> Only one location has been identified as containing sea caves within PDZ 13, on St Tudwal's Islands (PU13.17). The preferred policy for 13.17 is NAI where NAI the cliffs can erode naturally in response to sea level rise potentially resulting in a loss of cave habitat – however, new caves will be created as part of the natural process. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 13. <i>Any loss occurring to this interest feature is a result of natural processes.</i></p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays 		<p><u>Populations</u> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that :</p> <ul style="list-style-type: none"> for bottlenose dolphin, otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. grey seal populations should not be reduced as a consequence of human activity. <p>Range The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for bottlenose dolphin, otter and grey seal:</p> <ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered. There are appropriate and sufficient food resources within the SAC and beyond. The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. 	<p>The SMP policies would not be expected to have an impact on the integrity of the SAC or the bottlenose dolphin's resident there.</p> <p>The SMP policies will not result in a reduction in the area or extent of the estuary or inlet/bay habitat that supports the dolphin population, therefore it is concluded that there will be no adverse effect.</p>	None required	No adverse effect expected	Yes
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Estuaries Mudflats and sandflats not covered by sea water at low tide 		<p>SUPPORTING HABITATS AND SPECIES The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution extent structure function and quality of habitat prey availability and quality. <p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour. For otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. Restoration and recovery As part of this objective it should be noted that for the bottlenose dolphin and otter, populations should be increasing. 	<p><u>Coastal Squeeze/ Coastal Processes:</u> The majority of the coastline within PDZ 13 consists of large stretches of beaches (sandflats), with the overall favoured management policy being HTL or MR. NAI has been planned for areas of cliffs typically at the headland (PU 13.10) and areas of sandflats (PU 13.9 and PU 13.1) which will be able to respond naturally to sea level rise.</p> <p>significant coastal squeeze and loss of beach habitat may be observed from South Beach (PU13.6) to Traeth Crugan (PU 13.8)</p> <p>The estuary and River Soch are not part of this SAC – therefore the planned policy options are not expected to have an impact on the integrity of the otter habitat.</p> <p>Overall, the area of estuary will not be reduced as a result of the SMP2 policies; therefore maintaining the otters food resources. However, there will be a loss of intertidal habitat within the estuary.</p>	None required	No adverse effect expected	Yes
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Mudflats and sandflats not covered by sea water at low tide 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour. For otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. Restoration and recovery As part of this objective it should be noted that for the bottlenose dolphin and otter, populations should be increasing. 	<p>Nearly 40% (about 125,000) of the world population of grey seals is found in the British Isles, with a relatively stable population of about 6,000 in Wales.</p> <p>Coastal squeeze may result in a general loss of haul out sites within the Lley Peninsula and the Sarnau SAC over all 3 epochs.</p> <p>Coastal Squeeze/ Coastal Processes: significant coastal squeeze and loss of beach habitat may be observed from South Beach (PU13.6) to Traeth Crugan (PU 13.8).</p> <p>Overall, the area of estuary will not be reduced as a result of the SMP2 policies; therefore maintaining the seals food resources.</p> <p>Erosion may occur to haul out site locations where they are in the intertidal area and coastal squeeze may result in a general loss of haul out sites within the Lley Peninsula and the Sarnau SAC over all 3 epochs, however this will likely result in an alteration in the extent of haul out sites and not to the characteristics of the sites (e.g. disturbance etc). Therefore no adverse impact is expected.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Clogwyni Pen Llyn/ Seacliffs of Lleyn SAC							
Vegetated sea cliffs of the Atlantic and Baltic coasts	NA	<ul style="list-style-type: none"> Extent of the coastal heath (dry and maritime) Condition of the coastal heath (dry and maritime) Associated significant features 	<ul style="list-style-type: none"> Extent of coastal or maritime heath is stable or increasing. At least 2 different coastal or maritime heath NVC community types are present and support a range of characteristic plant species. Areas of heath form a mosaic with maritime grassland with patches of bare ground – no blanket heath cover. Pioneer heath plants are present. Grazing occurs annually at a level which prevents a long sward developing but does not suppress heather growth or flowering. A low sward height in grassland habitats and an open, varied structure in heath will be maintained within the cliff top habitats for feeding chough, without causing a decline in the extent or quality of the grassland and heathland. The coastal heath will comprise vegetation with <i>Ulex gallii</i> present and at least 30% ericoid cover, usually <i>Calluna vulgaris</i>, with at least one maritime indicator present such as <i>Armeria maritima</i>, <i>Plantago maritima</i>, <i>Plantago coronopus</i> or <i>Scilla verna</i>. Healthy populations of the rare vascular plants (including spotted rockrose, <i>Tuburaria guttata</i>, prostrate broom <i>Cytisus scoparius</i> subsp. <i>maritimus</i>, rock sea-lavender <i>Limonium britannicum</i> subsp. <i>pharense</i>, small adder's tongue, <i>Ophioglossum azoricum</i>, western clover, <i>Trifolium occidentale</i> and sharp rush <i>Juncus acutus</i>) will be present. Healthy populations of rare non-vascular plant species, including moss and liverwort species with restricted European distributions, and the soil-living lichens, ciliate strap-lichen <i>Heterodermia leucomela</i> and golden hair lichen <i>Teloschistes flavicans</i> will be present. Species indicative of rank or unmanaged conditions including European gorse, <i>Ulex europeaus</i>, bracken <i>Pteridium aquilinum</i>, foxglove <i>Digitalis purpurea</i>, ragwort species <i>Senecio</i> sp, dock <i>Rumex obtusifolius</i> and nettle <i>Urtica dioica</i> should be largely absent. Grass species indicative of improvement including creeping bent <i>Agrostis stolonifera</i>, cock's foot <i>Dactylus glomerata</i>, perennial rye-grass <i>Lolium perenne</i> and Yorkshire fog <i>Holcus lanatus</i> should be largely absent. Associated important species such as feeding chough (on the mainland and <i>Ynys Enlli</i>) and nesting Manx shearwater (on <i>Ynys Enlli</i>) are recorded in coastal or maritime heath areas. All factors affecting the achievement of these conditions, including grazing intensity and burning, will be under control. 	<p><u>Restriction of coastal erosion:</u></p> <p>The entire section of the Seacliffs of Lleyn SAC within PDZ 13 have a preferred policy of NAI – therefore the cliffs will be able to respond naturally to sea level rise and any loss of habitat as a result of erosion will be the result of natural processes and not the SMP.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 13.</p> <p><i>Any loss occurring to this interest feature is a result of natural processes.</i></p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA							
Internationally important Article 4.1 Species (wintering): Chough <i>Pyrhocorax pyrrhocorax</i>	Improved grassland	<ul style="list-style-type: none"> Breeding Population Breeding Population Foraging habitat condition 	<ul style="list-style-type: none"> The breeding population of Chough within the SPA is at least 18 pairs, of which at least 12 should be within the Glannau Ynys Gybi / Tre Wilmot SSSI and at least 6 should be within the Glannau Rhoscolyn SSSI. The non-breeding population of Chough is at least 18 individuals or 2.5 % of the GB wintering population. Sufficient suitable habitat (including Atlantic sea cliffs, maritime grassland, maritime heath, wet heath and dry heath) is present and in appropriate condition to support the breeding populations. All factors affecting the achievement of these conditions are under control. 	<u>Coastal Squeeze / Coastal Processes:</u> The entire section of the Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA within PDZ 13 have a preferred policy of NAI (13.16, 13.17, 13.18 and 13.19) – therefore the cliffs and other associated coastal habitat will be able to respond naturally to sea level rise and any loss of habitat as a result of erosion will be the result of natural processes and not the SMP.	None required	No adverse effect expected	Yes
	Heathland and scrub						
	Dry grassland						
	Coastal sand dunes. Sand beaches. Machair						
	Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)						

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 14: PDZ 14 – Trwyn Cilan to Carreg Ddu: Trwyn Cilan to Carreg Ddu including Ynys Enlli

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Pen Llyn a'r Sarnau/ Lley Peninsula and the Sarnau SAC							
Sandbanks slightly covered by sea water	NA	<ul style="list-style-type: none"> Range Structure and Function 	<u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include: <ul style="list-style-type: none"> Rocky intertidal reefs. Rocky subtidal reefs. Extensive boulder and cobble reefs – the sarnau. Biogenic reefs (horse mussel <i>Modiolus modiolus</i> reef / green crenella <i>Musculus discors</i> reef and Honeycomb worm <i>Sabellaria alveolata</i> reef. Carbonate reef formed by methane gas leaking from the seabed. 	No HTL or MR policies are identified, with NAI being the preferred policy for the majority of this unit, therefore no direct or indirect effects as a result of coastal management policy is expected. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14. <i>Any loss occurring to this interest feature is a result of natural processes.</i>	None Required	No adverse effect expected	Yes
Estuaries	NA		For the intertidal mudflat and sandflat feature these include: <ul style="list-style-type: none"> <i>Mya arenaria</i> and polychaetes in muddy gravel. Eel grass <i>Zostera marina</i> beds. Muddy gullies in the Mawddach estuary. For the Salicornia feature this includes: <ul style="list-style-type: none"> Communities characterised by the species <i>Sarcocornia perennis</i>. For the intertidal mudflats and sandflats and sandbanks features this requires an overall stability or increase in the amount of the feature, taking into account the areas of long term stability and localised losses and additions arising from environmental processes. For estuaries this includes the stability of sandy sediments in proportion to the muddy sediments. Restoration and recovery As part of this objective it should be noted that; for the estuaries feature additional land which should form an integral part of the estuarine ecosystem should be restored. 	No HTL or MR policies are identified, with NAI being the preferred policy for the majority of this unit, therefore no direct or indirect effects as a result of coastal management policy is expected. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14. <i>Any loss occurring to this interest feature is a result of natural processes.</i>	None Required	No adverse effect expected	Yes
Coastal lagoons (Priority Feature)	NA		<u>Structure and Function</u> The physical, biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include: <ul style="list-style-type: none"> geology sedimentology geomorphology hydrography and meteorology water and sediment chemistry biological interactions. 	The priority feature of this SAC is not located within the vicinity of PDZ 14.	None Required	No adverse effect expected	Yes
Large shallow inlets and bays	NA		This includes a need for nutrient levels in the water column and sediments to be: <ul style="list-style-type: none"> at or below existing statutory guideline concentrations. within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: 	No HTL or MR policies are identified, with NAI being the preferred policy for the majority of this unit, therefore no direct or indirect effects as a result of coastal management policy is expected. The Large shallow bay of Hell's Mouth is located in PUs 14.2, 14.2 and 14.3 where the preferred policy option in NAI. No habitat loss occurs within these PUs.	None Required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Reefs	NA		<ul style="list-style-type: none"> - at or below existing statutory guideline concentrations. - below levels that would potentially result in increase in contaminant concentrations within sediments or biota. - below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. <ul style="list-style-type: none"> • For Atlantic saltmeadows this includes the morphology of the saltmarsh creeks and pans. • Restoration and recovery • As part of this objective it should be noted that; for the estuaries feature the structure and functions of the estuaries that have been damaged/degraded by the constraints of artificial structures such as flood banks, are restored. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species are such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> • species richness • population structure and dynamics • physiological health • reproductive capacity • recruitment • mobility • range 	<p>No HTL or MR policies are identified, with NAI being the preferred policy for the majority of this unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>The reefs located within PDZ 14 are unlikely to be impacted as a result of the SMP. As the coast is able to respond naturally to sea level rise, there is unlikely to be any loss of the reef habitat, with the potential for more reef habitat to be created.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.</p> <p><i>Any loss occurring to this interest feature is a result of natural processes.</i></p>	None Required	No adverse effect expected	Yes
Mudflats and sandflats not covered by sea water at low tide	NA		<p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> • populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. • the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. • Restoration and recovery • As part of this objective it should be noted that; for the reefs feature the potential for expansion of the horse mussel <i>Modiolus modiolus</i> community off the north Llŷn coast is not inhibited. 	<p>No HTL or MR policies are identified, with NAI being the preferred policy for the majority of this unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect on intertidal mudflat, sandflat and saltmarsh: could have a beneficial effect by creating new intertidal and subtidal habitat and delivering new sediment to sand and dune habitats.</p>			
Salicornia and other annuals colonising mud and sand	NA			<p>The defended section of Aberdaron Village (PU 14.8) has a HTL policy in epochs 1 and 3 and MR in epoch 2 (MR will involve the improvement of the existing defence). The SAC only encompasses a small area of sandflat within PU 14.8. Modelling has shown that no mudflat or sandflat fronting Aberdaron will be lost from within the SAC in PU 14.8.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.</p> <p><i>Any loss occurring to this interest feature is a result of natural processes.</i></p>	None Required	No adverse effect expected	Yes
Atlantic salt meadows (<i>Glauco-Puccinellietalia maritima</i>)	NA						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Submerged or partially submerged sea caves	NA			<p>No HTL or MR policies are identified in the locations of submerged sea caves, with NAI being the preferred policy for the majority of this unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>The caves located within PDZ 14 may be lost as the sea level rises and the cliffs erode naturally – however, new caves will be created as part of the natural process.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.</p> <p><i>Any loss occurring to this interest feature is a result of natural processes.</i></p>	None Required	No adverse effect expected	Yes
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>Populations</u> The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> for bottlenose dolphin, otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression grey seal populations should not be reduced as a consequence of human activity <p><u>Range</u> The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for bottlenose dolphin, otter and grey seal:</p> <ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered There are appropriate and sufficient food resources within the SAC and beyond The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing 	<p>No HTL or MR policies are identified with the exception of Aberdaron, with NAI being the preferred policy for the majority of this unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>It is not expected for the policies within PDZ to affect the distribution range or the supporting habitat of the Bottlenose Dolphins in the Lleyn Peninsula and the Sarnau SAC.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.</p> <p><i>Any loss occurring to this interest feature is a result of natural processes.</i></p>	None Required	No adverse effect expected	Yes
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Sandbanks slightly covered by sea water 	<ul style="list-style-type: none"> Populations Range Supporting Habitats and Species 	<p><u>SUPPORTING HABITATS AND SPECIES</u> The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution, extent, structure, function and quality of habitat, prey availability and quality. <p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. 	<p>No HTL or MR policies are identified in areas that could support otter, with NAI being the preferred policy for the majority of this unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>Otters occur along a very limited length of coastline within PDZ 14. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.</p> <p><i>Any loss occurring to this interest feature is a result of natural processes.</i></p>	None Required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Estuaries Large shallow inlets and bays 		<ul style="list-style-type: none"> Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour For otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. Restoration and recovery As part of this objective it should be noted that for the bottlenose dolphin and otter, populations should be increasing. 	<p>No HTL or MR policies are identified with the exception of Aberdaron, with NAI being the preferred policy for the majority of this unit; therefore no direct or indirect effects as a result of coastal management policy are expected due to the lack of direct habitat loss.</p> <p>Grey seals may occur along discreet areas of coastline within PDZ 14. However, loss of habitat will be minimal in the long term as a result of coastal squeeze as the coast naturally erodes, therefore not impacting on the seal haul out sites.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.</p> <p><i>Any loss occurring to this interest feature is a result of natural processes.</i></p>	None Required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Corsydd Llyn/ Lleyfyn Fens SAC							
Alkaline fens	NA	<ul style="list-style-type: none"> Extent of alkaline fen habitat Habitat quality 	<ul style="list-style-type: none"> Alkaline fen occupies at least 7.1% of the total SAC area (i.e. 20.14ha) and occupies areas which have potential to support this habitat. Alkaline fen is found on all 4 component sites. The following plants are common in the alkaline fen: <i>Schoenus nigricans</i>, yellow starry feather moss <i>Campyllum stellatum</i>, great fen sedge <i>Cladium mariscus</i> (up to 1m tall), blunt flowered rush <i>Juncus subnodulosus</i>, sweet gale <i>Myrica gale</i>, moss <i>Drepanocladus revolvens</i>, bladderwort <i>Utricularia minor</i>, butterwort <i>Pinguicula vulgaris</i>. Species indicative of drainage or agricultural modification, such as yorkshire fog <i>Holcus lanatus</i>, bramble <i>Rubus</i> spp., nettle <i>Urtica dioica</i>, are largely absent from the alkaline fen. Purple moor grass <i>Molinia caerulea</i> does not exceed 25% of ground cover and is restricted to drier areas. Bare ground should constitute no more than about 5% of the ground cover (perhaps 10% on the wettest soligenous examples of alkaline fen). Alkaline Fen exhibits a diverse age and height structure across the site (tussocks are undamaged and 20% short grazed, 50% mature – 30% in between including bare ground). Scrub species such as willow <i>Salix</i> spp and birch <i>Betula pubescens</i> are largely absent from the alkaline fen. Invasive, non-native species are absent. Appropriate grazing is managed across 100% of the site. Standing or running surface water is present between tussocks throughout the year, and visible over 30% of the tussock covered area. All Hydrological (diffuse, surface and sub-surface) pathways (inputs and outputs) should be restored and/or intact (includes ditch infilling, blocking, diversion and re-engineering). Water quality is appropriate to the needs of the vegetation and species – namely base-rich but nutrient-poor. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u></p> <p>The area of coast nearest the Lleyfyn Fens SAC has a preferred policy of NAI, therefore the natural erosion of the coast and alteration of hydrology would develop naturally and not as a direct result of the SMP. There do not appear to be any obvious land constraints which would alter the integrity of this SAC.</p>	None Required	No adverse effect expected	Yes
Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	NA	<ul style="list-style-type: none"> Extent of calcareous fen habitat Habitat quality of open <i>Cladium</i> sward Habitat quality of <i>Cladium</i> dominated vegetation 	<ul style="list-style-type: none"> Calcareous fen occupies at least 3.8% (10.78ha) of <i>Cors Geirch</i>. The following plants are common in the Calcareous fen: Great fen sedge <i>Cladium mariscus</i>, blunt flowered rush <i>Juncus subnodulosus</i>, and sweet gale <i>Myrica gale</i>; bog-bean <i>Menyanthes trifoliata</i> marsh cinquefoil <i>Potentilla palustris</i>, bladderwort <i>Utricularia vulgaris</i> and slender sedge <i>Carex lasiocarpa</i>, are locally prominent. Species indicative of drainage or agricultural modification, such as yorkshire fog <i>Holcus lanatus</i>, bramble <i>Rubus</i> spp., nettle <i>Urtica dioica</i> are largely absent from the calcareous fen. Purple moor grass <i>Molinia caerulea</i> does not exceed 25% of ground cover. Calcareous Fen exhibits a diverse age and height structure across the site (20% short sward ?) Pure (monospecific) stands of single age and structure <i>Cladium mariscus</i> do not exceed 50% of the feature area. Scrub species such as willow <i>Salix</i> and birch <i>Betula</i> are largely absent from the calcareous fen. Non native invasive species are absent. Standing surface water is present over most of the winter period. Groundwater is within 15cm of surface in mid summer. All Hydrological (diffuse, surface and sub-surface) pathways (inputs and outputs) are restored and/or intact (includes ditch infilling, blocking, diversion and re-engineering). Water quality is appropriate to the needs of the vegetation – namely base-rich but nutrient poor. All factors affecting the achievement of these conditions are under control. 	<p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.</p>	None Required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Desmoulin`s whorl snail <i>Vertigo moulinsiana</i>	<ul style="list-style-type: none"> Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>. Alkaline fens. 	<ul style="list-style-type: none"> Extent of <i>Vertigo moulinsiana</i> Extent of suitable habitat Soil moisture content 	<ul style="list-style-type: none"> <i>Vertigo moulinsiana</i> is frequent in suitable habitat at Cors Geirch SSSI. Average height of vegetation is not less than 70cm when measured in August. Greater and lesser pond sedges, tussock sedge and saw sedge, branched burr-reed and yellow flag indicate favourable conditions, as can sparse <i>Phragmites</i> and <i>Phalaris</i>. Ground moisture levels at between damp and very wet. Prevent any significant rise in water levels such that aquatic plants (e.g. watercress <i>Rorippa nasturtium-aquaticum</i>, and fool's water cress <i>Apium nodiflorum</i>) become dominant. Light or rotational grazing or no grazing. No increase in scrub cover compared to the baseline. Avoid heavy grazing and poaching of banks. Prevent any decrease in water quality leading to eutrophication and changes in nutrient status. No increase in rank herbs (particularly nettle <i>Urtica dioica</i>, thistle <i>Cirsium</i> spp., meadowsweet <i>Filipendula ulmaria</i>, great willow-herb <i>Epilobium hirsutum</i> and butterbur <i>Petasites</i> spp.) with vegetation height increasing. 		None Required	No adverse effect expected	Yes
Geyer`s whorl snail <i>Vertigo geyeri</i>	<ul style="list-style-type: none"> Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>. Alkaline fens. 	<ul style="list-style-type: none"> Extent of <i>Vertigo geyeri</i> Extent of suitable habitat Habitat quality 	<ul style="list-style-type: none"> <i>Vertigo geyeri</i> is frequent in suitable habitat at Cors Geirch. There are abundant areas of flushed fen grassland (M13 / feature 2) with sedge/moss lawns 5- 15cm tall, containing species such as <i>Carex viridula</i> subsp. <i>brachyrrhyncha</i>, mosses <i>Drepanocladus revolvens</i>, <i>Campylium stellatum</i>, <i>Pinguicula vulgaris</i>, <i>Briza media</i>, <i>Equisetum palustre</i>, <i>Juncus articulatus</i> together with scattered tussocks of <i>Schoenus nigricans</i> no greater than 80cm tall. The ground supporting suitable habitat is saturated and there is a spring flow with a network of dendritic trickles. Light grazing of suitable habitat with ponies and/or cattle. 		None Required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Clogwyni Pen Llyn/ Seacliffs of Lleyn SAC							
Vegetated sea cliffs of the Atlantic and Baltic coasts	NA	<ul style="list-style-type: none"> Extent of the coastal heath (dry and maritime) Condition of the coastal heath (dry and maritime) Associated significant features 	<ul style="list-style-type: none"> Extent of coastal or maritime heath is stable or increasing. At least 2 different coastal or maritime heath NVC community types are present and support a range of characteristic plant species. Areas of heath form a mosaic with maritime grassland with patches of bare ground – no blanket heath cover. Pioneer heath plants are present. Grazing occurs annually at a level which prevents a long sward developing but does not suppress heather growth or flowering. A low sward height in grassland habitats and an open, varied structure in heath will be maintained within the cliff top habitats for feeding chough, without causing a decline in the extent or quality of the grassland and heathland. The coastal heath will comprise vegetation with <i>Ulex gallii</i> present and at least 30% ericoid cover, usually <i>Calluna vulgaris</i>, with at least one maritime indicator present such as <i>Armeria maritima</i>, <i>Plantago maritima</i>, <i>Plantago coronopus</i> or <i>Scilla verna</i>. Healthy populations of the rare vascular plants (including spotted rockrose, <i>Tuburaria guttata</i>, prostrate broom <i>Cytisus scoparius</i> subsp. <i>maritimus</i>, rock sea-lavender <i>Limonium britannicum</i> subsp. <i>pharense</i>, small adder's tongue, <i>Ophioglossum azoricum</i>, western clover, <i>Trifolium occidentale</i> and sharp rush <i>Juncus acutus</i>) will be present. Healthy populations of rare non-vascular plant species, including moss and liverwort species with restricted European distributions, and the soil-living lichens, ciliate strap-lichen <i>Heterodermia leucomela</i> and golden hair lichen <i>Teloschistes flavicans</i> will be present. Species indicative of rank or unmanaged conditions including European gorse, <i>Ulex europeaus</i>, bracken <i>Pteridium aquilinum</i>, foxglove <i>Digitalis purpurea</i>, ragwort species <i>Senecio</i> sp, dock <i>Rumex obtusifolius</i> and nettle <i>Urtica dioica</i> should be largely absent. Grass species indicative of improvement including creeping bent <i>Agrostis stolonifera</i>, cock's foot <i>Dactylus glomerata</i>, perennial rye-grass <i>Lolium perenne</i> and Yorkshire fog <i>Holcus lanatus</i> should be largely absent. Associated important species such as feeding chough (on the mainland and <i>Ynys Enlli</i>) and nesting Manx shearwater (on <i>Ynys Enlli</i>) are recorded in coastal or maritime heath areas. All factors affecting the achievement of these conditions, including grazing intensity and burning, will be under control. 	<p>The Seacliffs of Lleyn SAC covers over half of the coastline within PDZ 14.</p> <p>No HTL or MR policies are identified immediately within or adjacent to the site boundary, with NAI being the preferred policy for the majority of this PDZ, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect long term, as the cliffs would be allowed to erode naturally and allow vegetated succession.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14.</p> <p><i>Any loss occurring to this interest feature is a result of natural processes.</i></p>	None Required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Mynydd Cilan, Trwyn y Wylfa ac Ynysoedd Sant Tudwal SPA							
Internationally important Article 4.1 Species (wintering): Chough <i>Pyrhacorax pyrrhocorax</i>	Improved grassland Heathland and scrub	<ul style="list-style-type: none"> Breeding Population Breeding Population Foraging habitat condition 	<ul style="list-style-type: none"> The breeding population of Chough within the SPA is at least 18 pairs, of which at least 12 should be within the Glannau Ynys Gybi / Tre Wilmot SSSI and at least 6 should be within the Glannau Rhoscolyn SSSI. The non-breeding population of Chough is at least 18 individuals or 2.5 % of the GB wintering population. Sufficient suitable habitat (including Atlantic sea cliffs, maritime grassland, maritime heath, wet heath and dry heath) is present and in appropriate condition to support the breeding populations. All factors affecting the achievement of these conditions are under control. 	<u>Erosion:</u> The area of has a preferred policy of NAI, therefore, natural erosion of these supporting habitats would occur, but not as a direct result of the active SMP2 policy. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14. <i>Any loss occurring to this interest feature is a result of natural processes.</i>	None Required	No adverse effect expected	Yes
	Dry grassland			<u>Coastal squeeze / coastal processes:</u> No HTL or MR policies are identified within or adjacent to the site boundary, with NAI being the preferred policy for the majority of this PDZ, therefore no direct or indirect effects as a result of coastal management policy are expected.	None Required	No adverse effect expected	
	Coastal sand dunes. Sand beaches. Machair			No significant effect on intertidal mudflat, sandflat and saltmarsh: could have a beneficial effect by creating new intertidal and subtidal habitat and delivering new sediment to sand and dune habitats. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14. <i>Any loss occurring to this interest feature is a result of natural processes.</i>	None Required	No adverse effect expected	
	Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Glannau Aberdaron and Ynys Enlli / Aberdaron Coast and Bardsey Island SPA							
Internationally important Article 4.1 Species (breeding): chough <i>Pyrhocorax pyrrhocorax</i> .	Marine areas and sea inlets	<ul style="list-style-type: none"> Breeding population Breeding population Foraging habitat condition 	<ul style="list-style-type: none"> The breeding population of Chough within the SPA is at least 18 pairs, of which at least 12 should be within the Glannau Ynys Gybi / Tre Wilmot SSSI and at least 6 should be within the Glannau Rhoscolyn SSSI. The non-breeding population of Chough is at least 18 individuals or 2.5 % of the GB wintering population. Sufficient suitable habitat (including Atlantic sea cliffs, maritime grassland, maritime heath, wet heath and dry heath) is present and in appropriate condition to support the breeding populations. All factors affecting the achievement of these conditions are under control. 	<u>Coastal squeeze / coastal processes:</u> No HTL or MR policies are identified within the site boundary, with NAI being the preferred policy for the majority of this PDZ, therefore no direct or indirect effects as a result of coastal management policy is expected.	None Required	No adverse effect expected	Yes
	Heathland and scrub			This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14. <i>Any loss occurring to this interest feature is a result of natural processes.</i>	None Required	No adverse effect expected	Yes
	Shingle and sea cliffs			<u>Coastal squeeze / coastal processes:</u> No HTL or MR policies are identified within the site boundary, with NAI being the preferred policy for the majority of this unit, therefore no direct or indirect effects as a result of coastal management policy is expected.	None Required	No adverse effect expected	Yes
	Dry grassland			No significant effect long term as the cliffs would be allowed to erode naturally and allow vegetated succession.	None Required	No adverse effect expected	Yes
	Improved grassland			This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14. <i>Any loss occurring to this interest feature is a result of natural processes.</i>	None Required	No adverse effect expected	Yes
Humid grassland. Mesophile grassland.			<u>Erosion:</u> The area of has a preferred policy of NAI, therefore, natural erosion of these supporting habitats would occur, but not as a direct result of the active SMP2 policy.	None Required	No adverse effect expected	Yes	
			This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 14. <i>Any loss occurring to this interest feature is a result of natural processes.</i>	None Required	No adverse effect expected	Yes	

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Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 15: PDZ 15 – North Llyn: Carreg Ddu to Trwyn Maen Dylan

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Pen Llyn a'r Sarnau/ Llyn Peninsula and the Sarnau SAC							
Sandbanks slightly covered by sea water	NA	<ul style="list-style-type: none"> Range Structure and function 	<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include:</p> <ul style="list-style-type: none"> Rocky intertidal reefs Rocky subtidal reefs Extensive boulder and cobble reefs – the sarnau Biogenic reefs (horse mussel <i>Modiolus modiolus</i> reef / green crenella <i>Musculus discors</i> reef and Honeycomb worm <i>Sabellaria alveolata</i> reef Carbonate reef formed by methane gas leaking from the seabed. <p>For the intertidal mudflat and sandflat feature these include:</p> <ul style="list-style-type: none"> <i>Mya arenaria</i> and polychaetes in muddy gravel. Eel grass <i>Zostera marina</i> beds. Muddy gullies in the Mawddach estuary. <p>For the Salicornia feature this includes:</p> <ul style="list-style-type: none"> Communities characterised by the species <i>Sarcocornia perennis</i>. For the intertidal mudflats and sandflats and sandbanks features this requires an overall stability or increase in the amount of the feature, taking into account the areas of long term stability and localised losses and additions arising from environmental processes. For estuaries this includes the stability of sandy sediments in proportion to the muddy sediments. Restoration and recovery As part of this objective it should be noted that; for the estuaries feature additional land which should form an integral part of the estuarine ecosystem should be restored. <p><u>Structure and Function</u> The physical, biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include:</p> <ul style="list-style-type: none"> geology sedimentology geomorphology hydrography and meteorology water and sediment chemistry biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations. within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human 	Not within PDZ 15.	None required	No adverse effect expected	Yes
Estuaries	NA						
Coastal lagoons	NA						
Large shallow inlets and bays	NA						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Reefs	NA		<p>activity to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations. below levels that would potentially result in increase in contaminant concentrations within sediments or biota. below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. <ul style="list-style-type: none"> For Atlantic salt meadows this includes the morphology of the saltmarsh creeks and pans. Restoration and recovery As part of this objective it should be noted that; for the estuaries feature the structure and functions of the estuaries that have been damaged/degraded by the constraints of artificial structures such as flood banks, are restored. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>A small area of rocky intertidal reef is located within PU 15.2. Within this PU the intention is to manage the retreat of the cliffs and sandflat habitat over epochs 2 and 3, allowing the coast to respond more naturally.</p> <p>It is unlikely that the preferred policy option will have an impact on the integrity of this SAC feature.</p>	None required	No adverse effect expected	Yes
Mudflats and sandflats not covered by sea water at low tide	NA		<p><u>Typical Species</u></p> <p>The presence, abundance, condition and diversity of typical species are such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> species richness population structure and dynamics physiological health reproductive capacity recruitment mobility range 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Loss of intertidal sandflats will occur as a result of coastal squeeze and a change in the coastal processes resulting from the preferred HTL and MR policies at Porth Dinllaen, Porth Nefyn West, Trefor and Aberdesach.</p> <p>However, the MR policy in epochs 2 and 3 would be in response to this coastal squeeze with only local level of control.</p>			
Salicornia and other annuals colonising mud and sand	NA		<p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Restoration and recovery As part of this objective it should be noted that; for the reefs feature the potential for expansion of the horse mussel <i>Modiolus modiolus</i> community off the north Llŷn coast is not inhibited. 	<p>However, the SAC only encompasses PU 15.2 (Porth Dinllaen). The beach at Porth Dinllaen is backed by a natural defence of high ground which will provide a natural constraint to intertidal habitats migrating landward in parallel with sea level rise.</p>	Policy would change from HTL to MR in response to potential coastal squeeze.	No adverse effect expected	Yes
Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>)	NA			<p>As a result of HTL potential constraint occurs to a frontage of 150m of shoreline, and from GIS extraction indicates that a loss could arise of less than 100m² of sandflat habitat within PU 15.2 in epoch 1, not including any potential deposition from the eroding shore away from the frontage with existing properties. Furthermore, this minimal loss is also difficult to separate out from the yearly change and variation in tides. As such it is considered to be de minimis for epoch 1. The subsequent epochs of MR would entail movement of the built properties and allowing the shore to naturally move landward subject to the natural constraint of topography behind the shore, and as no constraint to natural development is removed outside the Site, the conservation objectives will not be affected.</p>			

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Submerged or partially submerged sea caves	NA			<p><u>Coastal Squeeze/ Coastal Processes:</u></p> <p>It appears that the submerged or partially submerged sea caves are located on the coast where NAI is the preferred policy; therefore the cliffs can erode naturally in response to sea level rise.</p> <p>If the caves are lost due to the eroding cliffs, this would be as a result of natural processes and not the SMP policies.</p>	None required	No adverse effect expected	Yes
Bottlenose dolphin <i>Tursiops truncatus</i>	<ul style="list-style-type: none"> Estuaries 		<p><u>Populations</u></p> <p>The population is maintaining itself on a long-term basis as a viable component of its natural habitat. Important elements are population size, structure, production, and condition of the species within the site. As part of this objective it should be noted that :</p> <ul style="list-style-type: none"> for bottlenose dolphin, otter and grey seal; contaminant burdens derived from human activity are below levels that may cause physiological damage, or immune or reproductive suppression. grey seal populations should not be reduced as a consequence of human activity. 	<p>It is not expected for the policies within PDZ to effect the distribution range or the supporting habitat of the Bottlenose Dolphins in the Llyn Peninsula and the Sarnau SAC</p>	None required	No adverse effect expected	Yes
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Estuaries Mudflats and sandflats not covered by sea water at low tide 	<ul style="list-style-type: none"> Populations Range Supporting habitats and species 	<p><u>Range</u></p> <p>The species population within the site is such that the natural range of the population is not being reduced or likely to be reduced for the foreseeable future. As part of this objective it should be noted that for bottlenose dolphin, otter and grey seal:</p> <ul style="list-style-type: none"> Their range within the SAC and adjacent inter-connected areas is not constrained or hindered. There are appropriate and sufficient food resources within the SAC and beyond. The sites and amount of supporting habitat used by these species are accessible and their extent and quality is stable or increasing. <p><u>SUPPORTING HABITATS AND SPECIES</u></p> <p>The presence, abundance, condition and diversity of habitats and species required to support this species is such that the distribution, abundance and populations dynamics of the species within the site and population beyond the site is stable or increasing. Important considerations include;</p> <ul style="list-style-type: none"> distribution, extent, structure, function and quality of habitat, prey availability and quality. <p>As part of this objective it should be noted that;</p> <ul style="list-style-type: none"> The abundance of prey species subject to existing commercial fisheries needs to be equal to or greater than that required to achieve maximum sustainable yield and secure in the long term. The management and control of activities or operations likely to adversely affect the species feature, is appropriate for maintaining it in favourable condition and is secure in the long term. Contamination of potential prey species should be below concentrations potentially harmful to their physiological health. Disturbance by human activity is below levels that suppress reproductive success, physiological health or long-term behaviour. For otter there are sufficient sources within the SAC and beyond of high quality freshwater for drinking and bathing. Restoration and recovery As part of this objective it should be noted that for the bottlenose dolphin and otter, populations should be increasing. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Loss of intertidal mudflats will occur as a result of coastal squeeze and a change in the coastal processes resulting from the preferred HTL and MR policies at Porth Dinllaen, Porth Nefyn West, Trefor and Aberdesach.</p> <p>Mudflats and sandflats throughout the remaining coastline where NAI is the preferred policy will be able to respond naturally to sea level rise.</p> <p>The SAC only lies within PU 15.2 where the preferred policy in HTL and MR.</p> <p>The area of sandflat within PU 15.2 may be used by otters and seals as breeding or haul out sites, although no data was available to quantify this.</p> <p>As per the potential impacts for mudflats/sandflats, the total area of sandflat lost in PU 15.2 is 0.1ha over the 100 year period.</p> <p>No known haul out sites occur within PU 15.2 (where the SAC occurs), however given the extent of human activity and settlements within PU 15.2 are not likely to be utilised as haul out sites by seals.</p>	None required	No adverse effect expected	Yes
Grey seal <i>Halichoerus grypus</i>	<ul style="list-style-type: none"> Estuaries Mudflats and sandflats not covered by sea water at low tide 						

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Clogwyni Pen Llyn/ Seacliffs of Lleyn SAC							
Vegetated sea cliffs of the Atlantic and Baltic coasts	NA	<ul style="list-style-type: none"> Extent of the coastal heath (dry and maritime) Condition of the coastal heath (dry and maritime) Associated significant features 	<ul style="list-style-type: none"> Extent of coastal or maritime heath is stable or increasing. At least 2 different coastal or maritime heath NVC community types are present and support a range of characteristic plant species. Areas of heath form a mosaic with maritime grassland with patches of bare ground – no blanket heath cover. Pioneer heath plants are present. Grazing occurs annually at a level which prevents a long sward developing but does not suppress heather growth or flowering. A low sward height in grassland habitats and an open, varied structure in heath will be maintained within the cliff top habitats for feeding cough, without causing a decline in the extent or quality of the grassland and heathland. The coastal heath will comprise vegetation with <i>Ulex gallii</i> present and at least 30% ericoid cover, usually <i>Calluna vulgaris</i>, with at least one maritime indicator present such as <i>Armeria maritima</i>, <i>Plantago maritima</i>, <i>Plantago coronopus</i> or <i>Scilla verna</i>. Healthy populations of the rare vascular plants (including spotted rockrose, <i>Tuburaria guttata</i>, prostrate broom <i>Cytisus scoparius</i> subsp. <i>maritimus</i>, rock sea-lavender <i>Limonium britannicum</i> subsp. <i>pharense</i>, small adder's tongue, <i>Ophioglossum azoricum</i>, western clover, <i>Trifolium occidentale</i> and sharp rush <i>Juncus acutus</i>) will be present. Healthy populations of rare non-vascular plant species, including moss and liverwort species with restricted European distributions, and the soil-living lichens, ciliate strap-lichen <i>Heterodermia leucomela</i> and golden hair lichen <i>Teloschistes flavicans</i> will be present. Species indicative of rank or unmanaged conditions including European gorse, <i>Ulex europeaus</i>, bracken <i>Pteridium aquilinum</i>, foxglove <i>Digitalis purpurea</i>, ragwort species <i>Senecio</i> sp, dock <i>Rumex obtusifolius</i> and nettle <i>Urtica dioica</i> should be largely absent. Grass species indicative of improvement including creeping bent <i>Agrostis stolonifera</i>, cock's foot <i>Dactylus glomerata</i>, perennial rye-grass <i>Lolium perenne</i> and Yorkshire fog <i>Holcus lanatus</i> should be largely absent. Associated important species such as feeding cough (on the mainland and <i>Ynys Enlli</i>) and nesting Manx shearwater (on <i>Ynys Enlli</i>) are recorded in coastal or maritime heath areas. All factors affecting the achievement of these conditions, including grazing intensity and burning, will be under control. 	<p><u>Restriction of coastal erosion:</u></p> <p>This SAC is only present in part of PDZ 15 (PUs 15.1, 15.2 and 15.3) where the overarching policy is NAI.</p> <p>Localised policies within PDZ 15 include the managed retreat of the cliffs at Porth Dinllaen, therefore allowing for the cliffs to respond more naturally (under management) to sea level rise.</p> <p>The preferred policy options only result in a loss of cliff habitat within PUs 15.1 and 15.2. As the policy for 15.1 in NAI over the 3 epochs, the loss of cliff habitat will not be included in this assessment as it is a result of natural processes rather than the SMP2 policy.</p> <p>Within PU 15.2 as a result of HTL and MR there could be a reduction in natural succession of vegetated cliff habitat depending on the extent and location of in particular MR policy. HTL for epoch 1 would not noticeably affect natural succession given the existing management, however, MR could. The extent of habitat that could be lost is unknown but less than 0.1ha is predicted.</p> <p>Erosion of vegetated cliff will take place away from the very localised area of MR policy (only adjacent to the properties) and occurs as a result of natural processes.</p>	During MR ensure that vegetated cliff habitat is avoided.	As MR is likely to entail the relocation of properties or other alternative low impact actions, no adverse effect is anticipated.	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Corsydd Llyn/ Lleyn Fens SAC							
Alkaline fens	NA	<ul style="list-style-type: none"> Extent of alkaline fen habitat Habitat quality 	<ul style="list-style-type: none"> Alkaline fen occupies at least 7.1% of the total SAC area (i.e. 20.14ha) and occupies areas which have potential to support this habitat. Alkaline fen is found on all 4 component sites. The following plants are common in the alkaline fen: <i>Schoenus nigricans</i>, yellow starry feather moss <i>Campyllum stellatum</i>, great fen sedge <i>Cladium mariscus</i> (up to 1m tall), blunt flowered rush <i>Juncus subnodulosus</i>, sweet gale <i>Myrica gale</i>, moss <i>Drepanocladus revolvens</i>, bladderwort <i>Utricularia minor</i>, butterwort <i>Pinguicula vulgaris</i>. Species indicative of drainage or agricultural modification, such as yorkshire fog <i>Holcus lanatus</i>, bramble <i>Rubus</i> spp., nettle <i>Urtica dioica</i>, are largely absent from the alkaline fen. Purple moor grass <i>Molinia caerulea</i> does not exceed 25% of ground cover and is restricted to drier areas. Bare ground should constitute no more than about 5% of the ground cover (perhaps 10% on the wettest soligenous examples of alkaline fen). Alkaline Fen exhibits a diverse age and height structure across the site (tussocks are undamaged and 20% short grazed, 50% mature – 30% in between including bare ground). Scrub species such as willow <i>Salix</i> spp and birch <i>Betula pubescens</i> are largely absent from the alkaline fen. Invasive, non-native species are absent. Appropriate grazing is managed across 100% of the site. Standing or running surface water is present between tussocks throughout the year, and visible over 30% of the tussock covered area. All Hydrological (diffuse, surface and sub-surface) pathways (inputs and outputs) should be restored and/or intact (includes ditch infilling, blocking, diversion and re-engineering). Water quality is appropriate to the needs of the vegetation and species – namely base-rich but nutrient-poor. All factors affecting the achievement of these conditions are under control. 	<p><u>Erosion and Saline intrusion:</u></p> <p>The area of coast nearest the Lleyn Fens SAC has a preferred policy of NAI, therefore the natural erosion of the coast and alteration of hydrology would develop naturally and not as a direct result of the SMP. There do appear to be any obvious land constraints which would alter the integrity of this SAC or habitat of the Desmoulin's whorl snail <i>Vertigo moulinsiana</i> and the Geyer's whorl snail <i>Vertigo geyeri</i>.</p> <p>A total of 0.3ha of habitat could be lost to erosion from this SAC over all 3 epochs (epoch 1 = 0.02ha; epoch 2 = 0.2ha; epoch 3 = 0.06ha). However, any loss occurring to this interest feature is a result of natural processes.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 15.</p>	None required	No adverse effect expected	Yes
Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallianae</i>	NA	<ul style="list-style-type: none"> Extent of calcareous fen habitat Habitat quality of open <i>Cladium</i> sward Habitat quality of <i>Cladium</i> dominated vegetation 	<ul style="list-style-type: none"> Calcareous fen occupies at least 3.8% (10.78ha) of <i>Cors Geirch</i>. The following plants are common in the Calcareous fen: Great fen sedge <i>Cladium mariscus</i>, blunt flowered rush <i>Juncus subnodulosus</i>, and sweet gale <i>Myrica gale</i>; bog-bean <i>Menyanthes trifoliata</i> marsh cinquefoil <i>Potentilla palustris</i>, bladderwort <i>Utricularia vulgaris</i> and slender sedge <i>Carex lasiocarpa</i>, are locally prominent. Species indicative of drainage or agricultural modification, such as yorkshire fog <i>Holcus lanatus</i>, bramble <i>Rubus</i> spp., nettle <i>Urtica dioica</i> are largely absent from the calcareous fen. Purple moor grass <i>Molinia caerulea</i> does not exceed 25% of ground cover. Calcareous Fen exhibits a diverse age and height structure across the site (20% short sward ?) Pure (monospecific) stands of single age and structure <i>Cladium mariscus</i> do not exceed 50% of the feature area. Scrub species such as willow <i>Salix</i> and birch <i>Betula</i> are largely absent from the calcareous fen. Non native invasive species are absent. Standing surface water is present over most of the winter period. Groundwater is within 15cm of surface in mid summer. All Hydrological (diffuse, surface and sub-surface) pathways (inputs and outputs) are restored and/or intact (includes ditch infilling, blocking, diversion and re-engineering). Water quality is appropriate to the needs of the vegetation – namely base-rich but nutrient poor. All factors affecting the achievement of these conditions are under control. 				

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Desmoulin`s whorl snail <i>Vertigo moulinsiana</i>	<ul style="list-style-type: none"> Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion davallianae. Alkaline fens. 	<ul style="list-style-type: none"> Extent of <i>Vertigo moulinsiana</i> Extent of suitable habitat Soil moisture content 	<ul style="list-style-type: none"> <i>Vertigo moulinsiana</i> is frequent in suitable habitat at Cors Geirch SSSI. Average height of vegetation is not less than 70cm when measured in August. Greater and lesser pond sedges, tussock sedge and saw sedge, branched burr-reed and yellow flag indicate favourable conditions, as can sparse <i>Phragmites</i> and <i>Phalaris</i>. Ground moisture levels at between damp and very wet. Prevent any significant rise in water levels such that aquatic plants (e.g. watercress <i>Rorippa nasturtium-aquaticum</i>, and fool's water cress <i>Apium nodiflorum</i>) become dominant. Light or rotational grazing or no grazing. No increase in scrub cover compared to the baseline. Avoid heavy grazing and poaching of banks. Prevent any decrease in water quality leading to eutrophication and changes in nutrient status. No increase in rank herbs (particularly nettle <i>Urtica dioica</i>, thistle <i>Cirsium</i> spp., meadowsweet <i>Filipendula ulmaria</i>, great willow-herb <i>Epilobium hirsutum</i> and butterbur <i>Petasites</i> spp.) with vegetation height increasing. 				
Geyer`s whorl snail <i>Vertigo geyeri</i>	<ul style="list-style-type: none"> Calcareous fens with <i>Cladium mariscus</i> and species of the Caricion davallianae. Alkaline fens. 	<ul style="list-style-type: none"> Extent of <i>Vertigo geyeri</i> Extent of suitable habitat Habitat quality 	<ul style="list-style-type: none"> <i>Vertigo geyeri</i> is frequent in suitable habitat at Cors Geirch. There are abundant areas of flushed fen grassland (M13 / feature 2) with sedge/moss lawns 5- 15cm tall, containing species such as <i>Carex viridula</i> subsp. <i>brachyrrhyncha</i>, mosses <i>Drepanocladus revolvens</i>, <i>Campyllum stellatum</i>, <i>Pinguicula vulgaris</i>, <i>Briza media</i>, <i>Equisetum palustre</i>, <i>Juncus articulatus</i> together with scattered tussocks of <i>Schoenus nigricans</i> no greater than 80cm tall. The ground supporting suitable habitat is saturated and there is a spring flow with a network of dendritic trickles. Light grazing of suitable habitat with ponies and/or cattle. 				

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Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 16: PDZ 16 – Menai Strait: Trwyn Maen Dylan to Garizim and Pen y Parc to Trwyn Penmon

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Afon Gwyrfaï a Llyn Cwellyn SAC							
Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflora</i> and/or of the <i>Isoëto-Nanojuncetea</i>	NA	<ul style="list-style-type: none"> Extent of Oligotrophic to mesotrophic standing waters Condition of Oligotrophic to mesotrophic standing waters 	<ul style="list-style-type: none"> Water quality of the lake is within parameters which are suitable to support the characteristic flora and fauna. The lake shows a characteristic vegetation zonation from the shore to the deeper water. The lake has a macrophyte flora which includes many of the characteristic species including <i>Littorella uniflora</i>, <i>Lobelia dortmanna</i>, <i>Isoetes lacustris</i>, <i>Luronium natans</i> and <i>Subularia aquatica</i>, together with a diverse range of associates including <i>Myriophyllum alterniflorum</i>, <i>Callitriche hamulata</i>, <i>Nitella flexilis</i> and <i>Potamogeton berchtoldii</i>. <i>Nitella gracilis</i> and <i>Luronium natans</i> to be present as characteristic plants. 	<p><u>Saline intrusion:</u></p> <p>The Llyn Cwellyn lies approximately 11km upstream of Fforyd Bay. Given the topography in the area, saline intrusion on this feature of the SAC is extremely unlikely.</p> <p>It is considered that there will be no significant impact on the features of this SAC as a result of the preferred management options.</p>	None required	No adverse effect expected	Yes
Water courses of plain to montane levels with the <i>Ranunculion fluitantis</i> and <i>Callitriche-Batrachion</i> vegetation	NA	<ul style="list-style-type: none"> Distribution within catchment Typical species Plant community reproduction Bank and riparian zone vegetation Species indicative of eutrophication Alien/ introduced species 	<ul style="list-style-type: none"> The conservation objective for the water course as must be met. The extent of this feature within its potential range in this SAC should be stable or increasing. The extent of the sub-communities that are represented within this feature should be stable or increasing. The conservation status of the feature's typical species should be favourable. All known, controllable factors, affecting the achievement of these conditions are under control (many factors may be unknown or beyond human control). 	<p><u>Saline intrusion:</u></p> <p>Saline intrusion of the lower reaches of River Gwyrfaï will be likely over the 3 epochs. Within PU 16.5 as a whole (Fforyd Bay) it is planned to HTL in epoch 1 with MR and NAI planned for epoch 2 and 3 respectively. The MR in epoch 2 would be aimed at alleviating the coastal squeeze within Fforyd Bay and with NAI in epoch 3 potentially returning the Bay to a naturally functioning system.</p> <p>Saline intrusion of the lower reaches of the river is possible as a result of sea level rise and in response to the coastal squeeze, and not as a result of the SMP intentions or policies.</p> <p>It is considered that there will be no significant impact on the features of this SAC as a result of the preferred management options.</p>	None required	No adverse effect expected	Yes
Atlantic salmon <i>Salmo salar</i>	<ul style="list-style-type: none"> Water courses of plain to montane levels 	<ul style="list-style-type: none"> Adult run size Juvenile densities 	<ul style="list-style-type: none"> The conservation objective for the water course must be met. The population of the feature in the SAC is stable or increasing over the long term. The natural range of the feature in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches where predominantly suitable habitat for each life stage exists over the long term. Suitable habitat is defined in terms of near-natural hydrological and geomorphological processes and forms e.g. suitable flows to allow upstream migration, depth of water and substrate type at spawning sites, and ecosystem structure and functions. Suitable habitat need not be present throughout the SAC but where present must be secured for the foreseeable future. Natural factors such as waterfalls may limit the natural range of individual species. Existing artificial influences on natural range that cause an adverse effect on site integrity, such as physical barriers to migration, will be assessed. The Gwyrfaï will continue to be a sufficiently large habitat to maintain the feature's population in the SAC on a long-term basis. 	<p><u>Obstruction:</u></p> <p>The Afon Gwyrfaï in north-west Wales is representative of the small montane rivers in this region. It contains a largely unexploited salmon population with a characteristically late run. Environment Agency electro-fishing data indicates the presence of healthy juvenile populations downstream of Llyn Cwellyn.</p> <p>A change in coastal processes or coastal squeeze could potentially lead to an obstacle within the river as a result of sediment deposition which will hinder fish migration, or saline intrusion will change the extent of available habitat and will alter spawning sites.</p> <p>No obstructions will occur that will reduce access to the habitats for these species, as a result of the SMP policies in this PDZ.</p> <p>It is considered that there will be no significant impact on the features of this SAC as a result of the preferred management options.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Floating water-plantain <i>Luronium natans</i>	<ul style="list-style-type: none"> Oligotrophic to mesotrophic standing waters 	<ul style="list-style-type: none"> Species extent and abundance Sufficient habitat 	<ul style="list-style-type: none"> The conservation objective for the water course must be met. Llyn Cwellyn will continue to support a peripheral floating water-plantain assemblage, as well as a deeper water assemblage, with a characteristic zonation of vegetation from the shore at two areas of the lake. Floating water-plantain will continue to flourish in the Afon Gwyrfa and will continue to occur in every selected section. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u></p> <p>The diversity of growth forms and their range across the Cwellyn-Gwyrfa makes this an internationally significant site for the species.</p> <p>Saline intrusion of the lower reaches of the river is possible as a result of sea level rise and in response to the coastal squeeze, however the extent of intrusion and location of the floating water-plantain populations would not be affected.</p> <p>It is considered that there will be no significant impact on the features of this SAC as a result of the preferred management options.</p>	None required	No adverse effect expected	Yes
Otter <i>Lutra lutra</i>	<ul style="list-style-type: none"> Water courses of plain to montane levels 	<ul style="list-style-type: none"> Population distribution Breeding activity Actual and potential breeding sites 	<ul style="list-style-type: none"> The population of otters in the SAC is stable or increasing over the long term and reflects the natural carrying capacity of the habitat within the SAC, as determined by natural levels of prey abundance and associated territorial behaviour. The natural range of otters in the SAC is neither being reduced nor is likely to be reduced for the foreseeable future. The natural range is taken to mean those reaches that are potentially suitable to form part of a breeding territory and/or provide routes between breeding territories. The size of breeding territories may vary depending on prey abundance. The population size should not be limited by the availability of suitable undisturbed breeding sites. Where these are insufficient they should be created through habitat enhancement and where necessary the provision of artificial holts. No otter breeding site is subject to a level of disturbance that could have an adverse effect on breeding success. Where necessary, potentially harmful levels of disturbance are managed. The safe movement and dispersal of individuals around the SAC is facilitated by the provision, where necessary, of suitable riparian habitat, and underpasses, ledges, fencing etc at road bridges and other artificial barriers. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u></p> <p>Saline intrusion of the lower reaches of the river is possible as a result of sea level rise and in response to the coastal squeeze, and not as a result of the SMP intentions or policies.</p> <p>Overall, the area of the river will not be reduced as a result of the SMP2 policies; therefore maintaining the otters food resources.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Y Twyni o Abermenai I Aberffraw/ Abermenai to Aberffraw Dunes SAC							
Embryonic shifting dunes	NA	<ul style="list-style-type: none"> Extent Quality 	<ul style="list-style-type: none"> The distribution and extent of embryonic shifting dunes in late summer is determined by the availability of naturally accreting sand and strand line organic material. However, we would not expect all this potential embryonic dune habitat area to be vegetated in any one year and embryonic dunes may be absent in some years. Continuous absence over the six-year reporting cycle would cause the condition to be considered unfavourable. The potential for the embryonic shifting dunes element of the typical zonation, from beach to fixed dune, is intact along the soft coastal frontage. This includes an unrestricted supply of sediment, opportunity for aeolian transport and naturally occurring organic strandline material. The typical species of the strandline vegetation include <i>Atriplex</i> spp., <i>Beta vulgaris</i>, <i>Cakile maritime</i>, <i>Honkenya peploides</i>, <i>Salsola kali</i>. The typical species of the embryonic dune vegetation include <i>Elytrigia juncea</i> and /or <i>Leymus arenarius</i>. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Abermenai to Aberffraw Dunes is one of two sites selected to represent Embryonic shifting dunes in north Wales. Embryonic dunes form a zone across a broad part of the beach/dune interface, making this site one of the most extensive examples of this habitat type in the UK. It is a site where, in contrast to some others in north Wales, recreational damage is minimal.</p> <p>Areas of sand dune with particular contact with the coastal processes are located within Morfa Dinlle (PU 16.4), Fforyd Bay (16.5), Llanddwyn Bay (PU 16.7), Newborough Forest (16.8), and marginally in the Cefni Estuary (PU 16.10). All PUs are subject to a NAI policy, with the exception of PUs 16.4 (MR/MR/NAI) and 16.5 (HTL/MR/NAI). NAI will allow the sand dunes to respond naturally to sea level rise, retaining the range and structure of the dune habitats.</p> <p>The MR policy in epochs 1 and 2 for PU 16.4 would consist of measures rather than hard defences) to sustain dune development and function, thereby sustaining dune development, as the MR policy enables the dunes to develop naturally in response to sea level rise. An appropriate strategy and management plan would be necessary to ensure that dune development is not inhibited or that other dune habitats are not restricted.</p> <p>The HTL policy in PU 16.5 would not comprise hard defences along the entire frontage but would entail management of the eastern and southeastern site boundary which does not contribute to dune function, and they would not therefore reduce dune development on the western face. Furthermore, the HTL would not inhibit the landward movement of the western dune extent comprising fixed dunes. HTL is only proposed in epoch 1, and following that MR would provide appropriate response and management to sea level rise, providing space for and removing obstructions to the landward translation of dunes, albeit those on the far western face which are unlikely to reach this point in epoch 2, but may in epoch 3 under the long term response to sea level rise. Noting that the area of defence is outside the dune site boundary, consequently limiting the potential constraint to the dune system further as it would take some considerable time before the dune habitats translate landward into the PU 16.5 area of constraint, by which time the policy will be NAI (epoch 3).</p> <p>Overall, the policies are not expected to result in any deterioration of dune processes and features within the Site.</p>	<p>Preparation of management plan and strategy in relation to Morfa Dinlle dune system and surroundings in order to ensure that MR proposals and actions appropriately enhance and allow the development of the dune habitats.</p>	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')	NA	<ul style="list-style-type: none"> Extent Quality 	<ul style="list-style-type: none"> Shifting dunes with <i>Ammophila arenaria</i> are present along the dune front facing prevailing (southwest) winds where sediment supply is adequate. There should be no decrease in the total (aggregate) area of qualifying dune habitats for which this site was designated (ie the sum total of qualifying dune habitat should not diminish). The extent and location of individual dune habitat features may be subject to periodic and seasonal variation. The shifting dunes element of the typical zonation from beach to fixed dune is intact along the soft coastal frontage. Bare ground is present. The typical species of the shifting dune vegetation include <i>Ammophila arenaria</i>, <i>Leymus arenarius</i>, <i>Elymus farctus</i>, <i>Eryngium maritimum</i>, <i>Euphorbia portlandica</i>, <i>Euphorbia paralias</i>, and <i>Calystegia soldanella</i>. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Abermenai to Aberffraw Dunes is one of two sites selected in north Wales. It contains one of the largest areas of lyme-grass <i>Leymus arenarius</i> shifting dune community in Wales. The mobile dunes at the southern end of the site support an abundance of sea-holly <i>Eryngium maritimum</i>, and there is well-developed zonation of dune types, including both seaward transitions between mobile dune and foredune, and landward transitions to fixed dune and dune slack.</p> <p>See <i>Embryonic shifting dunes for habitat loss details</i>.</p>			
Fixed dunes with herbaceous vegetation ('grey dunes')	NA	<ul style="list-style-type: none"> Extent Quality 	<ul style="list-style-type: none"> The distribution of fixed dunes within the site may vary in response to natural dynamic processes and changes to other qualifying dune habitats for the site. There should be no decrease in the total area of fixed dunes with herbaceous vegetation. The fixed dunes element of the typical zonation from beach to fixed dune is intact along the soft coastal frontage. Bare ground is present The typical species of the fixed dune vegetation include <i>Cerastium fontanum</i>, <i>Crepis capillaris</i>, <i>Cladonia</i> spp., <i>Peltigera</i> spp., <i>Erodium cicutarium</i>, <i>Geranium molle</i>, <i>Luzula campestris</i>, <i>Odontites verna</i>, <i>Pilosella officinarum</i>, <i>Plantago lanceolata</i>, <i>Prunella vulgaris</i>, <i>Festuca rubra</i>, <i>Galium verum</i>, <i>Anacamptis pyramidalis</i>, <i>Thymus polytrichus</i>, <i>Sedum acre</i>, <i>Veronica chamaedrys</i>, <i>Carex arenaria</i>, <i>C. flacca</i>, <i>Euphrasia officinalis</i>, <i>Hypnum cupressiforme</i>, <i>Hypochaeris radicata</i>, <i>Linum catharticum</i>, <i>Lotus corniculatus</i>, <i>Ononis repens</i>, <i>Rhinanthus minor</i>, <i>Rhytidadelphus squarrosus</i>, <i>R triquetrus</i>, <i>Tortula muralis</i> <i>Viola canina</i>, <i>V. riviniana</i> and <i>V. tricolor</i>. All factors affecting the achievement of these conditions are under control 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Within this dune complex in north Wales are extensive areas of both fixed dune vegetation with red fescue <i>Festuca rubra</i> and lady's bedstraw <i>Galium verum</i> and semi-fixed dune grassland with marram <i>Ammophila arenaria</i> and red fescue. Despite the fact that a large proportion of the open vegetation has been afforested, the remaining communities retain considerable interest. Notable species of the site include early sand-grass <i>Mibora minima</i>. On the south side of Menai Strait, the dunes at Morfa Dinlle include a lichen-rich community with <i>Coelocaulon aculeatum</i> (SD11), a type of vegetation which is very rare in Wales.</p> <p>See <i>Embryonic shifting dunes for habitat loss details</i>.</p>			
Dunes with <i>Salix repens</i> ssp. <i>argentea</i> (<i>Salicion arenariae</i>)	NA	<ul style="list-style-type: none"> Extent Quality 	<ul style="list-style-type: none"> The distribution of dunes with <i>Salix repens</i> ssp. <i>argentea</i> is consistent with the typical dune zonation and where topographic conditions are suitable. The location of dunes with <i>Salix repens</i> ssp. <i>argentea</i> within the site may vary in response to natural dynamic processes and changes to other qualifying dune habitats for the site There should be no decrease in the total (aggregate) area of qualifying dune habitats for which this site was designated (i.e., the sum total of qualifying dune habitat should not diminish). The extent of individual dune habitat features may be subject to periodic and seasonal variation. <i>Salix repens</i> is at least frequent and generally 5 - 30cm tall. Opportunities for the initiation of embryonic dune slacks by wind erosion exist. Bare ground is present. The groundwater level is appropriate in winter and summer. Groundwater quality is unaffected by pollution. The typical species include <i>Salix repens</i>, <i>Carex arenaria</i>, <i>C flacca</i>, <i>Euphrasia officinalis</i>, <i>Festuca rubra</i>, <i>Lotus corniculatus</i>, <i>Ononis repens</i>, <i>Equisetum variegatum</i>, <i>Epipactis palustris</i>, <i>Epipactis leptochila</i> ssp. <i>dunensis</i> and <i>Pilosella officinarum</i>. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Abermenai to Aberffraw Dunes in north Wales comprises an extensive area of dunes with a complete range of dune vegetation, including substantial areas of slack vegetation dominated by creeping willow <i>Salix repens</i> ssp. <i>argentea</i>. Despite the extent of afforestation, the dune aquifer retains its overall integrity, although changes in water table, partly attributable to the growth of the forest, have influenced the development of the dune slacks. There is long-term potential for further improvement.</p> <p>See <i>Embryonic shifting dunes for habitat loss details</i>.</p>			

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Humid dune slacks	NA	<ul style="list-style-type: none"> Quality 	<ul style="list-style-type: none"> The distribution of humid dune slacks is consistent with the typical dune zonation and where topographical conditions are suitable. The location of humid dune slacks within the site may vary in response to natural dynamic processes and changes to other qualifying dune habitats for the site. There should be no decrease in the total (aggregate) area of qualifying dune habitats for which this site was designated (i.e., the sum total of qualifying dune habitat should not diminish). The extent and location of individual dune habitat features may be subject to periodic and seasonal variation. All humid dune slack communities should be present, from embryonic dune slacks with a high % of bare ground to more closed vegetation with <i>Salix repens</i>. Opportunities for the initiation of embryonic dune slacks (by wind erosion) exist. Bare ground is present. The ground water level is appropriate in winter and summer. Ground water quality is unaffected by pollution. The typical species include <i>Salix repens</i>, <i>Carex arenaria</i>, <i>C flacca</i>, <i>Equisetum variegatum</i>, <i>Lotus corniculatus</i>, <i>Ononis repens</i>, <i>Potentilla anserina</i>, <i>Galium palustre</i>, <i>Mentha aquatica</i>, <i>Hydrocotyle vulgaris</i>, <i>Campyllum stellatum</i>, <i>Prunella vulgaris</i>, <i>Ranunculus flammula</i>, <i>Calliargon cuspidatum</i>, <i>Anagallis tenella</i>, <i>Parnassia palustris</i>, <i>Selaginella selaginoides</i>, <i>Dactylorhiza incarnata</i> and <i>Epipactis palustris</i>. Petalwort occurs in humid dune slacks in which <i>Equisetum variegatum</i> is frequent at Aberffraw and Newborough compartments. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Abermenai to Aberffraw Dunes represents Humid dune slacks in north Wales. There are large areas of open dune vegetation and many humid dune slacks remain, although there have been changes in the water table that are partly attributable to the growth of the commercial forest. The changes have influenced the development of humid dune slacks, which nonetheless retain most the essential features of the habitat type.</p> <p>See Embryonic shifting dunes for habitat loss details.</p>			
Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	NA	<ul style="list-style-type: none"> Extent of habitat Condition of feature Presence of alien invasive species 	<ul style="list-style-type: none"> The distribution of the lakes reflects their physiographic status as dune-dammed lakes of shallow valleys. The extent (area) of the habitat is 30ha, except if reduced by natural succession to swamp or bog. The catchment of the lakes continues to provide adequate quality and quantity of water. Appropriate water level is maintained throughout the year, (seasonal fluctuation +/- 30cm). Water quality is characteristic of maritime, high alkalinity shallow lakes, such as to maintain pH 7-9, alkalinity 1500-2500µeq/l, dissolved oxygen and peak annual Total Phosphorus <50µg/l. Chlorophyll α values are low, and sufficient to allow both lakes to be passed as 'Good' or better for a 'high alkalinity shallow lake' using Water Framework Directive classification methods. The typical species are submerged aquatic plants including <i>Elatine hydropiper</i>, <i>Potamogeton trichoides</i>, <i>P pectinatus</i> <i>P. perfoliatus</i> <i>P. lucens</i>, <i>Ranunculus circinatus</i>, <i>Eleocharis acicularis</i>, <i>Myriophyllum spicatum</i>, <i>Callitriche hermaphrodita</i>, and <i>Chara</i> spp.. Emergent aquatic plants, typically <i>Phragmites australis</i>, <i>Schoenoplectus lacustris</i>, <i>Sparganium erectum</i>, <i>Typha latifolia</i>, <i>Alisma plantago-aquatica</i>, and <i>Litorella uniflora</i> should be present on the shoreline. Invasive or disruptive species such as <i>Crassula helmsii</i> or coarse fish should be absent. All factors affecting the achievement of these conditions are under control. 	Not present in PDZ16.			

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Petalwort <i>Petalophyllum ralfsii</i>	Humid Dune Slacks	<ul style="list-style-type: none"> Extent of feature Condition of habitat 	<ul style="list-style-type: none"> The population of petalwort is stable or increasing. Petalwort occurs in humid dune slacks in which <i>Equisetum variegatum</i> is frequent, across all sectors of the site where habitat conditions are suitable, i.e. Aberffraw and Newborough compartments. Humid dune slack with bare sand or humus crust and short vegetation characterised by <i>Equisetum variegatum</i> is present at Aberffraw and Newborough compartments where sediment and hydrological conditions permit. (see objective for humid dune slacks). Competition (including shading) from other species is controlled. All factors affecting the achievement of these conditions are under control. 	<p>Abermenai to Aberffraw Dunes is an extensive complex of sand dunes, dune slacks, marsh, shingle and cliffs in south-west Anglesey, north Wales. There is a large population of petalwort <i>Petalophyllum ralfsii</i> here that was first recorded in 1828. This historical continuity indicates that the site is especially favourable for the survival of this species. Although partly afforested, the open dunes have a very rich bryophyte flora, including the mosses <i>Amblyodon dealbatus</i>, <i>Catoscopium nigratum</i> and the liverwort <i>Southbya tophacea</i>, particularly in damp, calcareous slacks and flats.</p> <p><i>See Embryonic shifting dunes for habitat loss details.</i></p>			
Shore dock <i>Rumex rupestris</i>	Humid Dune slacks	<ul style="list-style-type: none"> Presence / absence Number of individuals Vegetation structure 	<ul style="list-style-type: none"> The population of shore dock is stable or increasing. Shore dock occurs in at least 3 locations across the site. Opportunities occur for marine dispersal of seed. Open streamside, coastal soft cliff seepages or dune slack pool habitat is adequate for its survival. Adequate freshwater supply is maintained. Bare ground or disturbed areas are maintained (e.g. by grazing animals) to permit germination. Competition (including shading) from other species is controlled. All factors affecting the achievement of these conditions are under control. 	<p>Abermenai to Aberffraw Dunes in north Wales is important as it represents shore dock <i>Rumex rupestris</i> at the far north-west of its geographical range. It is remote from other known sites for this species, and shore dock occurs in an unusual situation: along a small stream bed and on damp pond edges, formerly in duneland, now in a clearing in a conifer plantation. There are two small colonies, which held 21 flowering plants in 1994, 26 in 1995 and 53 in 1996.</p> <p><i>See Embryonic shifting dunes for habitat loss details.</i></p>			

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC							
Estuaries	NA	<ul style="list-style-type: none"> Extent Spatial distribution of estuarine communities 	<ul style="list-style-type: none"> The distribution and extent of the estuaries, and their encompassed habitats, are determined predominantly by natural structure and environmental processes. The natural habitat structures necessary for the long-term maintenance of the estuaries and their encompassed habitats and typical species are maintained. The granulometry and structure of the estuaries' sediments, and their natural variation, distribution and extent, are determined predominantly by natural sediment supply and transport processes. The quality of habitat structure is no more degraded as a consequence of human action or by materials of anthropogenic origin. The natural environmental processes necessary for the long-term maintenance of the estuaries, their encompassed habitats and their typical species are maintained. Water & sediment chemistry are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. The salinity regime and gradients within the estuaries are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. Typical species are determined predominantly by inherent population dynamics and ecological processes. The species richness, population dynamics, abundance, biomass, population structures, physiological health, reproductive capacity, recruitment, range and mobility are maintained. The management of activities or operations likely to degrade the distribution, extent, structure, function or typical species populations of the feature, is appropriate for maintaining favourable conservation status and is secure in the long-term. The management of existing commercial fisheries for typical species ensures that species exploitation is at or below maximum sustainable yield and is secure in the long-term. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>The Cefni estuary is located within PUs 16.8, 16.9 and 16.10 and comprises sandflat/mudflat and saltmarsh. The NAI policy at the mouth of the estuary (PU 16.8 and 16.10) and outer estuary will allow the estuary to respond naturally to sea level rise and any habitat lost will be a result of natural processes. The HTL policy in the inner estuary (PU 16.9; embankment and village) will potentially result in loss of saltmarsh and sandflat/mudflat habitat through coastal squeeze.</p> <p>The existing defence in PU 16.9 comprises a stone pitched embankment on the east bank of the river. The undefended bank on the west bank will allow the estuary to function more naturally.</p> <p>Although the direct loss of estuary habitat is unlikely, it is likely that there will be an alteration of extent of different estuary habitats, and although an overall balance within the estuary will be maintained, the spatial distribution of habitats may change, and there is the likelihood of reduction in the extent of intertidal mudflat in PU 16.9, which could result in the underachievement of the conservation objectives for the estuary feature. There is a potential that the habitat type that experiences reduction may be different (e.g. saltmarsh versus mudflat).</p> <p>The Braint Estuary is located within PU 16.6 and is subject to a preferred policy of NAI which would allow the estuary to naturally respond to sea level rise.</p> <p>Over time, regular tidal flooding will occur and may see the extent of the estuary move inland, though inundation confined by coastal topography. Estuary feature maintained.</p> <p>Within PU 16.6 any habitat lost will be as a result of natural processes and not as a result of the SMP policy.</p>	None required	Reduction in estuary structure and, as a result, failure to achieve the conservation objectives for estuarine features.	No

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
<p><i>Salicornia</i> and other annuals colonising mud and sand</p>	<p>NA</p>	<ul style="list-style-type: none"> • Extent • Distribution • Condition • Distribution and extent of common cordgrass <i>Spartina anglica</i> community SM6 within the pioneer saltmarsh zone 	<ul style="list-style-type: none"> • The distribution and extent of <i>Salicornia</i> and other annuals is determined predominantly by natural structure and environmental processes. • The natural habitat structures necessary for the long-term maintenance of <i>Salicornia</i> and other annuals and their typical species are maintained. • The granulometry and structure of <i>Salicornia</i> and other annuals' sediments, and their natural variation, distribution and extent, are determined predominantly by natural sediment supply and transport processes. • The geomorphology of the <i>Salicornia</i> and other annuals feature, and its natural variation, distribution and extent, are determined predominantly by the underlying geology and natural environmental processes. • The natural environmental processes necessary for the long-term maintenance of the <i>Salicornia</i> and other annuals feature and its typical species, are maintained. • The hydrographic and meteorological processes necessary for the long-term maintenance of the <i>Salicornia</i> and other annuals feature and its typical species are determined predominantly by natural environmental processes. • The salinity regime and gradients of the <i>Salicornia</i> and other annuals feature are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. • Nutrients in the water column and sediments remain within ranges that are not potentially detrimental to the long-term maintenance of the <i>Salicornia</i> and other annuals' communities, their distribution and range. • Contaminants in the water column and sediments derived from human activity remain below levels potentially detrimental to the long-term maintenance of the <i>Salicornia</i> and other annuals' communities, their distribution and range. • Dissolved oxygen levels in the water column and sediments are determined predominantly by natural environmental processes. • Communities of typical species are maintaining their conservation status on a long-term basis as viable components of the <i>Salicornia</i> and other annuals' habitats the management of activities or operations likely to degrade the distribution, extent, structure, function or typical species communities of the feature, is appropriate for maintaining favourable conservation status and is secure in the long-term. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>This is part of a complex of saltmarsh and dune habitats lying either side of the dune systems at Newborough Warren, north Wales. It is therefore important in terms of the structural integrity of the site, which has been selected primarily for a range of sand dune Annex I types. The most significant stands of <i>Salicornia</i> spp. saltmarsh occur on Malltraeth Sands in the Cefni estuary.</p> <p>This SAC features, occurs within PUs 16.6 (NAI), 16.7 (NAI), 16.8 (NAI), 16.9 (HTL) and 16.10 (NAI).</p> <p>NAI is the preferred policy at the mouth of the estuary (PU 16.8 and 16.10) and at PUs 16.6 and 16.7. The NAI policy will allow the intertidal habitats to function naturally, and will allow the saltmarsh to migrate backwards as the sandflats continue to move landwards in response to sea level rise. As both the sandflat and saltmarsh habitat are able to migrate landward, there will be no loss of habitat as a result of the SMP2 policy. Any habitat loss within these PUs will be a result of natural processes.</p> <p>The HTL policy in the inner estuary (16.9; embankment and village) where defences are already in place could result in the development of lower margins of saltmarsh habitat into mudflat, however the presence of defences would cause coastal squeeze resulting in intertidal habitat (including saltmarsh) loss through the inability to migrate landwards subject to coastal squeeze.</p> <p>The main area of saltmarsh seems to be to the southern flank of the estuary (NAI), however, despite no habitat loss recorded there could be potential minor loss to fringe habitat along the northern section of the estuary, though it is expected that this would occur at the expense of intertidal mudflat. However, in order to ensure that loss is intertidal mudflat and not saltmarsh (see below) appropriate monitoring should be implemented.</p> <p>Habitat loss calculations have concluded that there will be no loss of sandflat or saltmarsh habitat in PU 16.9 as a result of the SMP2 HTL policy.</p> <p><i>Any loss occurring to this interest feature where policy is NAI is a result of natural processes.</i></p>	<p>None required, however, monitoring should be undertaken to ensure that the extent of saltmarsh feature and distribution of saltmarsh types are not lost instead of intertidal mudflat loss.</p>	<p>No adverse effect expected</p>	<p>Yes</p>

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Mudflats and sandflats not covered by seawater at low tide	NA	<ul style="list-style-type: none"> • Extent • Distribution of biotopes • Community composition • Extent of notable biotopes • Species composition of notable biotopes 	<ul style="list-style-type: none"> • The distribution and extent of the mudflats and sandflats, and their encompassed habitat, are determined predominantly by natural structure and environmental processes. • The natural habitat structures necessary for the long-term maintenance of the mudflats and sandflats, and their encompassed habitat and typical species are maintained. • The granulometry and structure of the mudflats and sandflats' sediments, and their natural variation, distribution and extent, are determined predominantly by natural sediment supply and transport processes. • The quality of habitat structure is no more degraded as a consequence of human action or by materials of anthropogenic origin. • The natural environmental processes necessary for the long-term maintenance of the mudflats and sandflats, their encompassed habitats and their typical species are maintained. • Water & sediment chemistry are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. • The salinity regime and gradients within the mudflats and sandflats are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. • Typical species are determined predominantly by inherent population dynamics and ecological Processes the species richness, population dynamics, abundance, biomass, population structures, physiological health, reproductive capacity, recruitment, range and mobility are maintained. • The management of activities or operations likely to degrade the distribution, extent, structure, function or typical species populations of the feature, is appropriate for maintaining favourable conservation status and is secure in the long-term. • The management of existing commercial fisheries for typical species ensures that species exploitation is at or below maximum sustainable yield and is secure in the long-term. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>The HTL policy in the inner estuary (PU 16.9; embankment and village) where defences are already in place could result in the reduction in intertidal mudflat habitat due to the constraint imposed on the defences, with areas of mudflat being colonised by saltmarsh, whereas lower areas of estuarine mud would become subtidal. Overall, up to 7.12ha of mudflat could be lost throughout all epochs, with 0.17ha in epoch 1, 3.3ha in epoch 2, and 3.65ha in epoch 3.</p>	None identified	An adverse effect due to the reduction in the extent of the interest feature is expected	No

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Atlantic salt meadow (ASM)	NA	<ul style="list-style-type: none"> Extent of Atlantic salt meadow Condition of ASM Creek system and salt pan pattern Zonation of vegetation Sward structure 	<ul style="list-style-type: none"> The distribution and extent of the salt meadows is determined predominantly by natural structure and environmental processes. The natural habitat structures necessary for the long-term maintenance of the salt meadows and typical species are maintained. The granulometry and structure of the salt meadows' sediments, and their natural variation, distribution and extent, are determined predominantly by natural sediment supply and transport processes. The geomorphology of the salt meadows, and their natural variation, distribution and extent, are determined predominantly by the underlying geology and natural environmental processes. The hydrographic and meteorological processes necessary for the long-term maintenance of the salt meadows and their typical species are determined predominantly by natural environmental processes. The salinity regime and gradients within the salt meadows are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. Nutrients in the water column and sediments are within ranges that are not potentially detrimental to the long-term maintenance of the salt meadows' communities, their distribution and range. Contaminants in the water column and sediments derived from human activity remain below levels potentially detrimental to the long-term maintenance of the salt meadows' communities, their distribution and range. Dissolved oxygen levels in the water column and sediments are determined predominantly by natural environmental processes; The zonation of saltmarsh from pioneer, lower mid marsh and upper mid marsh and their transitions to fresh water and terrestrial vegetation are maintained. Communities of typical species are maintaining their conservation status on a long-term basis as viable components of the salt meadows' habitats. The species richness, community dynamics, abundance, biomass, community structures, physiological health, reproductive capacity, recruitment and range are maintained. The management of activities or operations likely to degrade the distribution, extent, structure, function or typical species communities of the feature, is appropriate for maintaining favourable conservation status and is secure in the long-term. 	See above in <i>Salicornia</i> and other annuals colonising mud and sand	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC							
Large shallow inlets and bays	NA	<ul style="list-style-type: none"> Range Structure and Function 	<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing.</p> <p>For the intertidal mudflats and sandflats feature these include;</p> <ul style="list-style-type: none"> Muddy gravel communities Dwarf eelgrass, <i>Zostera noltei</i> beds Sediment communities at Traeth Lafan 	<p><u>Coastal Squeeze / Coastal Processes:</u> The shore from Moelfre to Bangor to Conwy and Great Orme consists of a mosaic of different sediment types, which support a diverse mixture of plant and animal communities.</p> <p>This area is outside the PDZ 12 and will not therefore be affected.</p>	None required	No adverse effect expected	Yes
Sandbanks slightly covered by sea water	NA	<ul style="list-style-type: none"> Range. Structure and function. Typical species. 	<p>For the reef feature these include;</p> <ul style="list-style-type: none"> Reef communities in high energy wave-sheltered, tide-swept conditions Under-boulder, overhang and crevice communities Limestone reef communities Clay outcrop reef communities <p>For the large shallow bay feature these include;</p> <ul style="list-style-type: none"> Organically enriched muddy sediment areas <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be at or below existing statutory guideline concentrations within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant concentrations within sediments or biota below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. Restoration and recovery <p>This includes the need for restoration of some reef features such as underboulder, overhang and crevice communities, and of some mudflat and sandflat features such as the muddy gravel habitats and sheltered muddy habitats. All of these habitats are also part of the large inlets and bays feature.</p> <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> species richness population structure and dynamics, physiological health, reproductive capacity recruitment, mobility range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the 	<p><u>Coastal squeeze / Coastal processes:</u> The Site includes the Four Fathom Banks complex, which is a relatively rare type of subtidal sandbank in Wales, in that it is comparatively large, and is fairly sheltered from wave action but situated in an area of open coast. The sandbanks vary from stable muddy sands in areas that experience weak tidal streams to relatively clean well-sorted and rippled sand in the outer area of the bank where tidal streams are stronger. In very shallow waters, particularly in the inner shore areas, relatively species-rich sandy communities are dominated by polychaetes such as <i>Spio filicornis</i>. In some years when numbers of bivalves are high, internationally important flocks of common scoter <i>Melanitta nigra</i> have been observed to congregate in the area of the Four Fathom Banks complex to feed.</p> <p>NAI policies within PUs 16.6, 16.13, 16.15, 16.16, 16.18, 16.20, 16.23, 16.25, 16.26, 16.30 and 16.31 will allow the actively eroding foreshore to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease, however the condition of the sandbanks may change if eroding material is continually deposited in the area – either changing the sediment type, or raising/lowering the sandbanks; however, this will be a result of the natural processes and not a result of the SMP2 policies.</p> <p>A HTL in the PUs listed below will allow the subtidal sandbanks to respond to sea level rise at the expense/loss of the intertidal habitats. Intertidal habitat could be lost where it is unable to move landward as the extent of subtidal habitat will increase – either as a result of being covered by seawater, or through the deposition of sediment onto the existing subtidal habitats.</p> <p>16.5 = HTL/MR/NAI, 16.11 = HTL/HTL/MR, 16.12 = HTL/HTL/HTL, 16.14 = HTL/HTL/HTL, 16.17 = HTL/MR/NAI, 16.19 = HTL/HTL/HTL, 16.21 = HTL/HTL/MR, 16.22 = HTL/HTL/MR, 16.24 = HTL/HTL/HTL, 16.27 = HTL/HTL/HTL, 16.28 = HTL/HTL/MR, 16.29 = HTL/HTL/HTL, 16.33 = HTL/HTL/MR</p> <p>MR in the long term (as listed above) would ensure that coastal squeeze would not be an issue to the intertidal habitat and will ensure that subtidal sandbanks do not significantly increase in extent at the expense of the intertidal habitat.</p> <p>Given that only three of the long term HTL policy units is within the intertidal site boundary out of thirteen policy units (see intertidal below), and given the nature of the sediment patterns and movement within the Menai Strait and the Lavan Sands (and limited frontages affected), no hindrance</p>	None required, however, monitoring should be undertaken of the subtidal sandbanks to ensure that no loss of extent of the subtidal sandbanks occurs as a result of sea level rise.	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
			long term <ul style="list-style-type: none"> the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. 	to sediment movement and subtidal sandbank development is expected. Overall it is concluded that the subtidal sandbanks will be able to respond to the changing conditions and will not be adversely impact by the SMP2 policies. There is a risk that eroded material will be lost if there is an unforeseen change in the coastal processes of the area, and monitoring should be carried out in the future to ensure that no impact occurs.			
Mudflats and sandflats not covered by sea water at low tide	NA			<p><u>Coastal squeeze / Coastal processes:</u></p> <p>The intertidal mudflats and sandflats include Traeth Lafan, the shores of the Menai Strait, and the Foryd estuary. Traeth Lafan is an example of an almost fully marine extensive mud and sandflat that experiences a broad range of wave exposure, providing a range of sediment types with typical associated communities. For example, the shrimps <i>Haustorius arenarius</i> and <i>Bathyporeia sarsi</i> are found in mobile clean sand, whilst bivalves such as the cockle <i>Cerastoderma edule</i>, the gaper <i>Mya arenaria</i> and Baltic tellin <i>Macoma balthica</i> are common in more sheltered fine and muddy sand. The sand-mason worm <i>Lanice conchilega</i> is found in more tide-swept areas. The mixed sediment shores between Beaumaris and Lleiniog are highly productive shores that are rich in animal and plant species. These shores include a nationally important biotope that is rare in the UK. The nationally scarce dwarf eelgrass <i>Zostera noltei</i> is also found at this site.</p> <p>The majority of the coastline within this site comprises mudflat or sandflat. However, the extent of the SAC does not include all intertidal sand/mudflats within PDZ 16.</p> <p>The following PUs contain sandflats/mudflats that fall within the SAC boundary:</p> <p>16.5 = HTL/MR/NAI (sandflat and saltmarsh) 16.6 = NAI/NAI/NAI (sandflat) 16.9 = HTL/HTL/HTL (mudflat) 16.11 = HTL/HTL/MR (sandflat and saltmarsh) 16.12 = HTL/HTL/HTL (mudflat and sandflat) 16.13 = NAI/NAI/NAI (mudflat and shingle) 16.17 = HTL/MR/NAI (sandflat) 16.18 = NAI/NAI/NAI (mudflat) 16.24 = HTL/HTL/HTL (mudflat) 16.25 = NAI/NAI/NAI (sandflat) 16.30 = NAI/NAI/NAI (mudflat) 16.31 = NAI/NAI/NAI (sandflat) 16.33 = HTL/HTL/MR (sandflat)</p> <p>The loss of habitat within PUs 16.6, 16.13, 16.18, 16.25, 16.30 and 16.31 will be a result of natural processes and not as a result of the SMP2 policies.</p> <p>HTL policy in PU 16.5, part of 16.11, and 16.33 will result in a loss of intertidal habitat as the sandflats/mudflats are constrained as sea levels rise. Approximately 1.21ha of intertidal sandflat could be lost as a result of HTL for PUs 16.5, 16.11, and 16.33 in epoch 1, whilst in epoch 2 up to 3.87ha could be lost as a result of HTL for PUs 16.11 and 16.33.</p> <p>HTL in PUs 16.12, 16.14, 16.17, 16.19, 16.21, 16.22, 16.24, 16.27, 16.28, and 16.29 though resulting in constraint to intertidal habitat will not adversely affect the site feature as</p>	Potentially move defences landward were feasible at a local level to allow intertidal habitat to roll back in line with sea level rise, reducing the extent of site feature affected.	The loss of up to 5.08ha of intertidal mudflat and sandflat feature would result in an adverse effect.	No

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				<p>they would affect intertidal habitat outside the Site boundary.</p> <p>The NAI policy in epoch 3 for PUs 16.5 and 16.17 will enable the intertidal habitat to respond naturally to the sea level rise – therefore any of loss of habitat in epoch 3 from these PUs will be a result of natural processes and not the SMP2 policy.</p>			
Reefs	NA		NA	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>The reefs of the Menai Strait and Conwy Bay between mainland Wales and Anglesey include the tidal rapids of the Menai Strait, and limestone reefs along the south-east Anglesey coast and around Puffin Island and the Great and Little Ormes. The environmental conditions of the Menai Strait are unusual. The water is relatively turbid, containing a relatively high level of suspended material, and although the area is largely sheltered from wave action tidal streams are strong, reaching up to 8 knots (4m/s^{-1}) in places during spring tides. As a result, the rocky reefs of the Strait are dominated by a diverse and unusual mixture of animals that feed mainly by filtering their food from the seawater.</p> <p>Bedrock reefs are primarily located within PUs 16.14, 16.15, 16.16, 16.18 and 16.26 where the policy option are:</p> <p>16.14 = HTL/HTL/HTL 16.15 = NAI/NAI/NAI 16.16 = NAI/NAI/NAI 16.18 = NAI/NAI/NAI 16.26 = NAI/NAI/NAI</p> <p>NAI policies will allow the intertidal sand and mudflats to continue to supply sediment to the subtidal reefs and supply sediment to the upper foreshore therefore allowing both the subtidal and intertidal reefs to maintain their extent.</p> <p>A HTL at PU 16.14 will cause habitat loss of the intertidal area in the long term as sea levels rise and the shore is squeezed, however, the intertidal is outside the Site boundary and consequently the nearshore reef features would not be expected to decrease in potential habitat area.</p> <p>Intertidal reef habitat and shallow subtidal reef habitat is present in PU 16.11 where the site boundary is located alongside potential constraint (of HTL policy) in epochs 1 and particularly 2, which could result in the reduction or constraint to reef habitat.</p> <p>Although other PUs are located adjacent to the Site boundary, on the whole the intertidal extents are not within the site boundary, and consequently the intertidal or shallow subtidal reefs will have sufficient intertidal habitat within which to migrate up in response to sea level rise, and no loss of extent of reef features is expected.</p> <p>No data was available to quantify the loss of this particular interest feature.</p>	<p>None required, however, monitoring of the reef habitats should be undertaken to ensure that no loss of extent occurs as a result of sea level rise.</p>	<p>Loss of extent or structure of reef habitat in epoch 2.</p>	No

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Traeth Lafan / Lavan Sands, Conway Bay SPA							
Internationally important Article 4.2 Species (wintering): Oystercatcher <i>Haematopus ostralegus</i> , curlew <i>Numenius arquata</i>	<p>Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)</p> <p>Salt marshes. Salt pastures. Salt steppes</p>	<ul style="list-style-type: none"> Number of wintering oystercatchers The extent of intertidal flats and the broad-scale spatial distribution of their constituent sediment and community types is maintained The abundance and distribution of cockles – 15mm are maintained at levels sufficient to support the population at 4000 individuals 	<ul style="list-style-type: none"> The 5 year mean peak of the number of wintering oystercatchers is at least 4,000. The abundance and distribution of cockles of 15mm or larger and other suitable food are maintained at levels sufficient to support the population with a 5 year mean peak of 4,000 individuals. Oystercatchers are not disturbed in ways that prevent them spending enough time feeding for survival. Roost sites, including high tide roost sites, remain suitable for oystercatchers to roost undisturbed. The management and control of activities or operations likely to adversely affect the oystercatchers, is appropriate for maintaining the feature in favourable condition and is secure in the long term. 	<p><u>Coastal squeeze/ Coastal processes:</u></p> <p>Traeth Lafan / Lavan Sands is located in Conway Bay close to Bangor in north-west Wales. It is a large intertidal area of sand- and mud-flats lying at the eastern edge of the Menai Straits. The area has a range of exposures and a diversity of conditions, enhanced by freshwater streams that flow across the flats. The site is of importance for wintering waterbirds, especially Oystercatcher <i>Haematopus ostralegus</i>. In conditions of severe winter weather, Traeth Lafan acts as a refuge area for Oystercatchers displaced from the nearby Dee Estuary.</p> <p>Along the SPA coastline, the preferred management option is for NAI, therefore allowing for the sand banks to respond to sea level rise.</p> <p>Limited HTL would arise at the far eastern end of this unit, with areas available for localised set back. Consequently, and given the accreting nature of this area, no loss of intertidal sandflat is expected and therefore no supporting habitat would be affected.</p> <p>Given the lack of measurable effect on the supporting habitat, there would be no affect on the favourable condition of the oystercatcher and curlew populations.</p>	None identified	No adverse effect on integrity due to no change in supporting habitat for the site bird populations	No

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 17 PDZ 17 – Holy Island and West Anglesey: Twyn y Parc to Twyn Cliperau

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Y Twyni o Abermenai Aberffraw/ Abermenai to Aberffraw Dunes SAC							
Embryonic shifting dunes	NA	<ul style="list-style-type: none"> Extent Quality 	<ul style="list-style-type: none"> The distribution and extent of embryonic shifting dunes in late summer is determined by the availability of naturally accreting sand and strand line organic material. However, we would not expect all this potential embryonic dune habitat area to be vegetated in any one year and embryonic dunes may be absent in some years. Continuous absence over the six-year reporting cycle would cause the condition to be considered unfavourable. The potential for the embryonic shifting dunes element of the typical zonation, from beach to fixed dune, is intact along the soft coastal frontage. This includes an unrestricted supply of sediment, opportunity for aeolian transport and naturally occurring organic strandline material. The typical species of the strandline vegetation include <i>Atriplex</i> spp., <i>Beta vulgaris</i>, <i>Cakile maritime</i>, <i>Honkenya peploides</i>, <i>Salsola kali</i>. The typical species of the embryonic dune vegetation include <i>Elytrigia juncea</i> and/or <i>Leymus arenarius</i>. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Within PDZ 17, only PUs 17.2, 17.3 and 17.4 are adjacent to this SAC; and of which PU 17.2 and 17.4 have a preferred policy option of NAI. Therefore the sand dunes will be able to respond naturally to sea level rise.</p> <p>HTL in epoch 1 for PU 17.3 could potentially constrain the dune development; however policy intent for HTL in epoch 1 is only along the existing quay wall which does not constrain or influence sediment movement and dune development. Therefore it is unlikely to affect embryonic dunes.</p> <p>No Regulation 33 mapping is available to identify the specific location of these habitats. However, it can be assumed that the front dune habitat will be able to continue to develop, but the rear dunes may become constrained, however overall this dune feature will not be impacted.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes
Shifting dunes along the shoreline with <i>Ammophila arenaria</i> ('white dunes')	NA	<ul style="list-style-type: none"> Extent Quality 	<ul style="list-style-type: none"> Shifting dunes with <i>Ammophila arenaria</i> are present along the dune front facing prevailing (southwest) winds where sediment supply is adequate. There should be no decrease in the total (aggregate) area of qualifying dune habitats for which this site was designated (ie the sum total of qualifying dune habitat should not diminish). The extent and location of individual dune habitat features may be subject to periodic and seasonal variation. The shifting dunes element of the typical zonation from beach to fixed dune is intact along the soft coastal frontage. Bare ground is present. The typical species of the shifting dune vegetation include <i>Ammophila arenaria</i>, <i>Leymus arenarius</i>, <i>Elymus farctus</i>, <i>Eryngium maritimum</i>, <i>Euphorbia portlandica</i>, <i>Euphorbia paralias</i>, and <i>Calystegia soldanella</i>. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>The site contains one of the largest areas of lyme-grass <i>Leymus arenarius</i> shifting dune community in Wales. The mobile dunes at the southern end of the site support an abundance of sea-holly <i>Eryngium maritimum</i>, and there is well-developed zonation of dune types, including both seaward transitions between mobile dune and foredune, and landward transitions to fixed dune and dune slack.</p> <p>Within PDZ 17, only PUs 17.2, 17.3 and 17.4 are adjacent to this SAC; and of which PU 17.2 and 17.4 have a preferred policy option of NAI. Therefore it is expected that the sand dunes will be able to respond naturally to sea level rise.</p> <p>HTL in epoch 1 for PU 17.3 could potentially constrain the dune development; however policy intent for HTL in epoch 1 is only along the existing quay wall which does not constrain or influence sediment movement and dune development. Therefore, it is unlikely to affect shifting dunes.</p> <p>No Regulation 33 mapping is available to identify the specific location of these habitats. However, the front dune habitat will be able to continue to develop and respond naturally to sea level rise and overall this dune feature will</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				not be impacted. This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 17.			
Fixed dunes with herbaceous vegetation ('grey dunes')	NA	<ul style="list-style-type: none"> Extent Quality 	<ul style="list-style-type: none"> The distribution of fixed dunes within the site may vary in response to natural dynamic processes and changes to other qualifying dune habitats for the site. There should be no decrease in the total area of fixed dunes with herbaceous vegetation. The fixed dunes element of the typical zonation from beach to fixed dune is intact along the soft coastal frontage. Bare ground is present. The typical species of the fixed dune vegetation include <i>Cerastium fontanum</i>, <i>Crepis capillaris</i>, <i>Cladonia spp.</i>, <i>Peltigera spp.</i>, <i>Erodium cicutarium</i>, <i>Geranium molle</i>, <i>Luzula campestris</i>, <i>Odontites verna</i>, <i>Pilosella officinarum</i>, <i>Plantago lanceolata</i>, <i>Prunella vulgaris</i>, <i>Festuca rubra</i>, <i>Galium verum</i>, <i>Anacamptis pyramidalis</i>, <i>Thymus polytrichus</i>, <i>Sedum acre</i>, <i>Veronica chamaedrys</i>, <i>Carex arenaria</i>, <i>C. flacca</i>, <i>Euphrasia officinalis</i>, <i>Hypnum cupressiforme</i>, <i>Hypochaeris radicata</i>, <i>Linum catharticum</i>, <i>Lotus corniculatus</i>, <i>Ononis repens</i>, <i>Rhinanthus minor</i>, <i>Rhytiadelphus squarrosus</i>, <i>R. triquetrus</i>, <i>Tortula muralis</i> <i>Viola canina</i>, <i>V. riviniana</i> and <i>V. tricolour</i>. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Within PDZ 17, only PUs 17.2, 17.3 and 17.4 are adjacent to this SAC; and of which PU 17.2 and 17.4 have a preferred policy option of NAI. Therefore it is expected that the sand dunes will be able to respond naturally to sea level rise – and any loss will be a result of natural processes and not the SMP.</p> <p>No Regulation 33 mapping is available to identify this specific habitat. This habitat could potentially be constrained by HTL for PU 17.3 in Epoch 1, if the habitat is located within or influenced by PU 17.3. However, policy intent for HTL in epoch 1 is only along the existing quay wall which does not constrain or influence sediment movement and fixed dune development. Therefore, it is unlikely to affect fixed dunes.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes
Dunes with <i>Salix repens ssp. argentea</i> (<i>Salicion arenariae</i>)	NA	<ul style="list-style-type: none"> Extent Quality 	<ul style="list-style-type: none"> The distribution of dunes with <i>Salix repens ssp argentea</i> is consistent with the typical dune zonation and where topographic conditions are suitable. The location of dunes with <i>Salix repens ssp argentea</i> within the site may vary in response to natural dynamic processes and changes to other qualifying dune habitats for the site. There should be no decrease in the total (aggregate) area of qualifying dune habitats for which this site was designated (i.e., the sum total of qualifying dune habitat should not diminish). The extent of individual dune habitat features may be subject to periodic and seasonal variation. <i>Salix repens</i> is at least frequent and generally 5 - 30cm tall. Opportunities for the initiation of embryonic dune slacks by wind erosion exist. Bare ground is present. The groundwater level is appropriate in winter and summer. Groundwater quality is unaffected by pollution. The typical species include <i>Salix repens</i>, <i>Carex arenaria</i>, <i>C. flacca</i>, <i>Euphrasia officinalis</i>, <i>Festuca rubra</i>, <i>Lotus corniculatus</i>, <i>Ononis repens</i>, <i>Equisetum variegatum</i>, <i>Epipactis palustris</i>, <i>Epipactis leptochila spp dunensis</i> and <i>Pilosella officinarum</i>. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Within PDZ 17, only PUs 17.2, 17.3 and 17.4 are adjacent to this SAC; and of which PU 17.2 and 17.4 have a preferred policy option of NAI. Therefore it is expected that the sand dunes will be able to respond naturally to sea level rise – and any loss will be a result of natural processes and not the SMP.</p> <p>No Regulation 33 mapping is available to identify this specific habitat. This habitat could potentially be constrained by HTL for PU 17.3 in Epoch 1, if the habitat is located within or influenced by PU 17.3. However, policy intent for HTL in epoch 1 is only along the existing quay wall which does not constrain or influence sediment movement and dunes with <i>Salix repens</i> development. Therefore, it is unlikely to affect the dune feature.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Humid dune slacks	NA	<ul style="list-style-type: none"> Quality 	<ul style="list-style-type: none"> The distribution of humid dune slacks is consistent with the typical dune zonation and where topographical conditions are suitable. The location of humid dune slacks within the site may vary in response to natural dynamic processes and changes to other qualifying dune habitats for the site. There should be no decrease in the total (aggregate) area of qualifying dune habitats for which this site was designated (i.e. the sum total of qualifying dune habitat should not diminish). The extent and location of individual dune habitat features may be subject to periodic and seasonal variation. All humid dune slack communities should be present, from embryonic dune slacks with a high % of bare ground to more closed vegetation with <i>Salix repens</i>. Opportunities for the initiation of embryonic dune slacks (by wind erosion) exist. Bare ground is present. The ground water level is appropriate in winter and summer. Ground water quality is unaffected by pollution. The typical species include <i>Salix repens</i>, <i>Carex arenaria</i>, <i>C flacca</i>, <i>Equisetum variegatum</i>, <i>Lotus corniculatus</i>, <i>Ononis repens</i>, <i>Potentilla anserina</i>, <i>Galium palustre</i>, <i>Mentha aquatica</i>, <i>Hydrocotyle vulgaris</i>, <i>Campyllum stellatum</i>, <i>Prunella vulgaris</i>, <i>Ranunculus flammula</i>, <i>Calliergon cuspidatum</i>, <i>Anagallis tenella</i>, <i>Parnassia palustris</i>, <i>Selaginella selaginoides</i>, <i>Dactylorhiza incarnata</i> and <i>Epipactis palustris</i>. Petalwort occurs in humid dune slacks in which <i>Equisetum variegatum</i> is frequent at Aberffraw and Newborough compartments. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion:</u></p> <p>The Site represents humid dune slacks in north Wales. There are large areas of open dune vegetation and many Humid dune slacks remain, although there have been changes in the water table that are partly attributable to the growth of the commercial forest. The changes have influenced the development of humid dune slacks, which nonetheless retain most the essential features of the habitat type.</p> <p>Within PDZ 17, only PUs 17.2, 17.3 and 17.4 are adjacent to this SAC; and of which PU 17.2 and 17.4 have a preferred policy option of NAI. Therefore it is expected that the sand dunes will be able to respond naturally to sea level rise – and any loss will be a result of natural processes and not the SMP.</p> <p>No Regulation 33 map was available to identify this specific habitat. This habitat could potentially be constrained by HTL for PU 17.3 in Epoch 1, if the habitat is located within or influenced by PU 17.3. However, policy intent for HTL in epoch 1 is only along the existing quay wall which does not constrain or influence sediment movement or humid dune slack development. Therefore, it is unlikely to affect the dune feature as no constraint is expected.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes
Natural eutrophic lakes with <i>Magnopotamion</i> or <i>Hydrocharition</i> -type vegetation	NA	<ul style="list-style-type: none"> Extent of habitat Condition of feature Presence of alien invasive species 	<ul style="list-style-type: none"> The distribution of the lakes reflects their physiographic status as dune-dammed lakes of shallow valleys. The extent (area) of the habitat is 30ha, except if reduced by natural succession to swamp or bog. The catchment of the lakes continues to provide adequate quality and quantity of water. Appropriate water level is maintained throughout the year, (seasonal fluctuation +/- 30cm). Water quality is characteristic of maritime, high alkalinity shallow lakes, such as to maintain pH 7-9, alkalinity 1500-2500µeq/l, dissolved oxygen and peak annual Total Phosphorus <50µg/l. Chlorophyll α values are low, and sufficient to allow both lakes to be passed as 'Good' or better for a 'high alkalinity shallow lake' using Water Framework Directive classification methods. The typical species are submerged aquatic plants including <i>Elatine hydropiper</i>, <i>Potamogeton trichoides</i>, <i>P. pectinatus</i>, <i>P. perfoliatus</i>, <i>P. lucens</i>, <i>Ranunculus circinatus</i>, <i>Eleocharis acicularis</i>, <i>Myriophyllum spicatum</i>, <i>Callitriche hermaphroditica</i>, and <i>Chara</i> spp.. Emergent aquatic plants, typically <i>Phragmites australis</i>, <i>Schoenoplectus lacustris</i>, <i>Sparganium erectum</i>, <i>Typha latifolia</i>, <i>Alisma plantago-aquatica</i>, and <i>Littorella uniflora</i> should be present on the shoreline. Invasive or disruptive species such as <i>Crassula helmsii</i> or coarse fish should be absent. All factors affecting the achievement of these conditions are under control. 	<p>An area of freshwater is located at the end of the Abermenai to Aberffraw Dunes SAC. This lake is not subject to any SMP policy and adjacent PUs are unlikely to have an impact on the integrity of the feature. Any response to sea level rise will occur naturally.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Petalwort <i>Petalophyllum ralfsii</i>	Humid dune slacks	<ul style="list-style-type: none"> Extent of feature Condition of habitat 	<ul style="list-style-type: none"> The population of petalwort is stable or increasing. Petalwort occurs in humid dune slacks in which <i>Equisetum variegatum</i> is frequent, across all sectors of the site where habitat conditions are suitable, i.e. Aberffraw and Newborough compartments. Humid dune slack with bare sand or humus crust and short vegetation characterised by <i>Equisetum variegatum</i> is present at Aberffraw and Newborough compartments where sediment and hydrological conditions permit (see objective for humid dune slacks). Competition (including shading) from other species is controlled. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Within PDZ 17, only PUs 17.2, 17.3 and 17.4 are adjacent to this SAC; and of which PU 17.2 and 17.4 have a preferred policy option of NAI. Therefore it is expected that the sand dunes will be able to respond naturally to sea level rise – and any loss will be a result of natural processes and not the SMP.</p> <p>No Regulation 33 map was available to identify this specific habitat. This habitat could be constrained inland in Epoch 1, if the habitat is located within or influenced by PU 17.3. However, policy intent for HTL in epoch 1 is only along the existing quay wall which does not constrain or influence sediment movement or petalwort communities and their development.</p> <p>This petalwort supporting habitat will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes
Shore dock <i>Rumex rupestris</i>	Rocky, sandy and raised beaches. Shore platforms. Lower slopes of cliffs. Rarely on dune slacks.	<ul style="list-style-type: none"> Presence / absence Number of individuals Vegetation structure 	<ul style="list-style-type: none"> The population of shore dock is stable or increasing. Shore dock occurs in at least 3 locations across the site. Opportunities occur for marine dispersal of seed. Open streamside, coastal soft cliff seepages or dune slack pool habitat is adequate for its survival. Adequate freshwater supply is maintained. Bare ground or disturbed areas are maintained (e.g. by grazing animals) to permit germination. Competition (including shading) from other species is controlled. All factors affecting the achievement of these conditions are under control. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Within PDZ 17, only PUs 17.2, 17.3 and 17.4 are adjacent to this SAC; and of which PU 17.2 and 17.4 have a preferred policy option of NAI. Therefore it is expected that the sand dunes will be able to respond naturally to sea level rise – and any loss will be a result of natural processes and not the SMP.</p> <p>The front and developing dune system are not likely to be impacted by the HTL policy in epoch 1 for PU 17.3 as the feature is not located on the side of the estuary of PU 17.3 and no constraint is therefore expected to arise from the policy intent of HTL on the existing quay wall, consequently the supporting habitats and their function will not be affected.</p> <p>This shore dock supporting habitat will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC							
Estuaries	NA	<ul style="list-style-type: none"> Extent Spatial distribution of estuarine communities 	<ul style="list-style-type: none"> The distribution and extent of the estuaries, and their encompassed habitats, are determined predominantly by natural structure and environmental processes. The natural habitat structures necessary for the long-term maintenance of the estuaries and their encompassed habitats and typical species are maintained. The granulometry and structure of the estuaries' sediments, and their natural variation, distribution and extent, are determined predominantly by natural sediment supply and transport processes. The quality of habitat structure is no more degraded as a consequence of human action or by materials of anthropogenic origin. The natural environmental processes necessary for the long-term maintenance of the estuaries, their encompassed habitats and their typical species are maintained. Water & sediment chemistry are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. The salinity regime and gradients within the estuaries are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. Typical species are determined predominantly by inherent population dynamics and ecological processes. The species richness, population dynamics, abundance, biomass, population structures, physiological health, reproductive capacity, recruitment, range and mobility are maintained. The management of activities or operations likely to degrade the distribution, extent, structure, function or typical species populations of the feature, is appropriate for maintaining favourable conservation status and is secure in the long-term. The management of existing commercial fisheries for typical species ensures that species exploitation is at or below maximum sustainable yield and is secure in the long-term. 	Not present in PDZ 17.	None required	No adverse effect expected	Yes
<i>Salicornia</i> and other annuals colonising mud and sand	NA	<ul style="list-style-type: none"> Extent Distribution Condition Distribution and extent of common cordgrass <i>Spartina anglica</i> community SM6 within the pioneer saltmarsh zone 	<ul style="list-style-type: none"> The distribution and extent of <i>Salicornia</i> and other annuals is determined predominantly by natural structure and environmental processes. The natural habitat structures necessary for the long-term maintenance of <i>Salicornia</i> and other annuals and their typical species are maintained. The granulometry and structure of <i>Salicornia</i> and other annuals' sediments, and their natural variation, distribution and extent, are determined predominantly by natural sediment supply and transport processes. The geomorphology of the <i>Salicornia</i> and other annuals feature, and its natural variation, distribution and extent, are determined predominantly by the underlying geology and natural environmental processes. The natural environmental processes necessary for the long-term maintenance of the <i>Salicornia</i> and other annuals feature and its typical species, are maintained. The hydrographic and meteorological processes necessary for the long-term maintenance of the <i>Salicornia</i> and other annuals feature and its typical species are determined predominantly by natural environmental processes. The salinity regime and gradients of the <i>Salicornia</i> and other annuals feature are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. Nutrients in the water column and sediments remain within ranges that are not potentially detrimental to the long-term maintenance of the <i>Salicornia</i> and other annuals' communities, their distribution and range. Contaminants in the water column and sediments derived from human activity remain below levels potentially detrimental to the long-term maintenance of the <i>Salicornia</i> and other annuals' communities, their distribution and range. Dissolved oxygen levels in the water column and sediments are determined predominantly by natural environmental processes. Communities of typical species are maintaining their conservation status on a long-term basis as viable components of the <i>Salicornia</i> and other annuals' habitats the management of activities or operations likely to degrade the distribution, extent, structure, function or typical species communities of the feature, is appropriate for maintaining favourable conservation status and is secure in the long-term. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Within PDZ 17, only PUs 17.2, 17.3 and 17.4 are adjacent to this SAC; and of which PU 17.2 and 17.4 have a preferred policy option of NAI. Therefore it is expected that the sand dunes will be able to respond naturally to sea level rise – and any loss will be a result of natural processes and not the SMP.</p> <p>On the whole, it is likely that the saltmarsh fronting the dunes will develop with sea level rise; however, HTL in epoch 1 at Aberffraw itself was identified as a potential constraint to saltmarsh development. However, given the nature of the low water channel alongside much of the PU and given the steep slope of the land to the west, even in a natural scenario, there would remain a natural constraint to the saltmarsh expansion.</p> <p>The MR planned in epoch 2 and 3 will alleviate the constraints on the natural development of the system and therefore allowing natural development of the coast in the long term.</p> <p><u>The sandflats are located within PU 17.2 where there is a preferred policy of NAI over all 3 epochs, therefore any loss of habitat will occur as a result of natural processes and not the SMP2 policies.</u></p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Mudflats and sandflats not covered by seawater at low tide	NA	<ul style="list-style-type: none"> • Extent • Distribution of biotopes • Community composition • Extent of notable biotopes • Species composition of notable biotopes 	<ul style="list-style-type: none"> • The distribution and extent of the mudflats/ sandflats, and their encompassed habitat, are determined predominantly by natural structure and processes. • The natural habitat structures necessary for the long-term maintenance of the mudflats and sandflats, and their encompassed habitat and typical species are maintained. • The granulometry and structure of the mudflats and sandflats' sediments, and their natural variation, distribution and extent, are determined predominantly by natural sediment supply and transport processes. • The quality of habitat structure is no more degraded as a consequence of human action or by materials of anthropogenic origin. • The natural environmental processes necessary for the long-term maintenance of the mudflats and sandflats, their encompassed habitats and their typical species are maintained. • Water & sediment chemistry are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. • The salinity regime and gradients within the mudflats and sandflats are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. • Typical species are determined predominantly by inherent population dynamics and ecological Processes the species richness, population dynamics, abundance, biomass, population structures, physiological health, reproductive capacity, recruitment, range and mobility are maintained. • The management of activities or operations likely to degrade the distribution, extent, structure, function or typical species populations of the feature, is appropriate for maintaining favourable conservation status and is secure in the long-term. • The management of existing commercial fisheries for typical species ensures that exploitation is at or below maximum sustainable yield and secure in the long-term. 				
Atlantic salt meadow (ASM)	NA	<ul style="list-style-type: none"> • Extent of Atlantic salt meadow • Condition of ASM Creek system and salt pan pattern • Zonation of vegetation • Sward structure 	<ul style="list-style-type: none"> • The distribution and extent of the salt meadows is determined predominantly by natural structure and environmental processes. • The natural habitat structures necessary for the long-term maintenance of the salt meadows and typical species are maintained. • The granulometry and structure of the salt meadows' sediments, and their natural variation, distribution and extent, are determined predominantly by natural sediment supply and transport processes. • The geomorphology of the salt meadows, and their natural variation, distribution and extent, are determined predominantly by the underlying geology and natural environmental processes. • The hydrographic and meteorological processes necessary for the long-term maintenance of the salt meadows and their typical species are determined predominantly by natural environmental processes. • The salinity regime and gradients within the salt meadows are determined predominantly by natural hydrodynamic, hydrological and meteorological processes. • Nutrients in the water column and sediments are within ranges that are not potentially detrimental to the long-term maintenance of the salt meadows' communities, their distribution and range. • Contaminants in the water column and sediments derived from human activity remain below levels potentially detrimental to the long-term maintenance of the salt meadows' communities, their distribution and range. • Dissolved oxygen levels in the water column and sediments are determined predominantly by natural environmental processes; • The zonation of saltmarsh from pioneer, lower mid marsh and upper mid marsh and transitions to fresh water/terrestrial vegetation are maintained. • Communities of typical species are maintaining their conservation status on a long-term basis as viable components of the salt meadows' habitats. • The species richness, community dynamics, abundance, biomass, community structures, physiological health, reproductive capacity, recruitment and range are maintained. • The management of activities or operations likely to degrade the distribution, extent, structure, function or typical species communities of the feature, is appropriate for maintaining favourable conservation status and is secure in the long-term. 				

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Glannau Ynys Gybi/ Holy Island Coast SAC							
Vegetated sea cliffs of the Atlantic and Baltic coasts	NA	<ul style="list-style-type: none"> Extent of the vegetated sea cliffs of the Atlantic and Baltic coasts (including cliff & crevice vegetation, maritime grassland and maritime heath). Condition of the vegetated sea cliffs of the Atlantic and Baltic coasts (including cliff & crevice vegetation, maritime grassland and maritime heath). 	<ul style="list-style-type: none"> Cliff and crevice vegetation, maritime grassland and maritime heath occurs throughout the site in appropriate areas and their relative extent and zonation are determined by topography, exposure, grazing and natural stochastic events (e.g. storms). The cliff vegetation is composed of native plants such as sea spurrey <i>Spergularia rupicola</i> Sea lavenders (<i>Limonium britannicum</i>, <i>L. procerum</i>, <i>L. binervosum</i>) and sea samphire <i>Crithmum maritimum</i>. Non-native plants, such as Hottentot fig <i>Carpobrotus edulis</i> or purple dew-plant <i>Disphyma crassifolium</i> are preferably absent or at least not spreading. Maritime grassland occupies higher ledges on the coastal cliffs and cliff-top. The following plants are common in the maritime grassland: red fescue <i>Festuca rubra</i>, thrift <i>Armeria maritima</i>; spring squill <i>Scilla verna</i> and sea plantain <i>Plantago maritima</i> Maritime Heathland occupies areas inland of the maritime grassland. The following plants are common in the maritime heathland: heather <i>Calluna vulgaris</i>; bell heather <i>Erica cinerea</i> Western gorse <i>Ulex gallii</i>, thrift <i>Armeria maritima</i>, sea plantain <i>Plantago maritima</i>, buck's horn plantain <i>Plantago coronopus</i> or spring squill <i>Scilla verna</i>. Competitive species indicative of under-grazing, particularly bracken <i>Pteridium aquilinum</i> and gorse <i>Ulex europaeus</i> and grass species indicative of improvement including creeping bent <i>Agrostis stolonifera</i>, cock's foot <i>Dactylus glomerata</i>, perennial rye-grass <i>Lolium perenne</i> and Yorkshire fog <i>Holcus lanatus</i> are largely absent from the heath. Sustainable populations of the plants which make up the Atlantic sea cliff rare plant assemblage will be present, notably, South Stack fleawort <i>Tephrosia integrifolia</i>, Sea lavenders (<i>Limonium britannicum</i>, <i>L. procerum</i>, <i>L. binervosum</i>) Golden hair lichen <i>Teloschistes flavicans</i> and Ciliate strap lichen <i>Heterodermia leucomelos</i>. All factors affecting the achievement of these conditions, including grazing intensity and burning, will be under control. 	<p>The cliff feature of this SAC is located within PU 17.14 where NAI is the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation, and response of intertidal mudflat and sandflat and dune habitats to sea level rise.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes
European dry heaths	NA	<ul style="list-style-type: none"> Extent of dry heath Condition of dry heath Distribution of dry heath 	<ul style="list-style-type: none"> Dry heath covers no less than the present mapped extent (to be determined) The following plants are common in the dry heath: heather <i>Calluna vulgaris</i>; bell heather <i>Erica cinerea</i>, western gorse <i>Ulex gallii</i>. Competitive species indicative of under-grazing, particularly bracken <i>Pteridium aquilinum</i>, purple moor-grass <i>Molinia caerulea</i> and western gorse <i>Ulex gallii</i> are kept in check. 70% of dry heath will be "good condition" dry heath. The dry heath provides abundant and accessible food for breeding chough. The dry heath supports sustainable (flowering) populations of dodder. Spotted rock rose occurs in at least 5 distinct loci (presently South Stack, Porth Dafarch north, Porth y Garan, Pany yr Hyman path, Pant yr Hyman heath) of at least 200 plants each. Juniper occurs in at least 3 locations totalling 50 plants. The dry heath supports a viable population of silver studded blue. All factors affecting the achievement of these conditions are under control. 	<p>Glannau Ynys Gybi/ Holy Island Coast is the most important site in north Wales for maritime forms of European dry heaths. The main NVC types are H7 <i>Calluna vulgaris</i> – <i>Scilla verna</i> heath and H8 <i>Calluna vulgaris</i> – <i>Ulex gallii</i> heath. The dry heathland is associated with small areas of wet heath and forms part of a complete zonation from maritime grassland through maritime heath to inland heath to inland heath with bracken <i>Pteridium aquilinum</i> to bramble <i>Rubus fruticosus</i> scrub. The heath is an important locus for spotted rock-rose <i>Tuberaria guttata</i>.</p>	None required	No adverse effect expected	Yes
Northern Atlantic wet heaths with <i>Erica tetralix</i>	NA	<ul style="list-style-type: none"> Extent of Wet heath Condition of wet heath Distribution of wet heath 	<ul style="list-style-type: none"> Wet heath covers no less than the present mapped extent (to be determined) The following plants are common in the wet heath: heather <i>Calluna vulgaris</i>; cross-leaved heath <i>Erica tetralix</i>, bog moss Sphagnum spp. devil's bit scabious <i>Succisa pratensis</i> and <i>Narthecium ossifragum</i>. Competitive species indicative of under-grazing, particularly bracken <i>Pteridium aquilinum</i>, purple moor-grass <i>Molinia caerulea</i> and western gorse <i>Ulex gallii</i> are kept in check. 70% of wet heath will be "good condition" wet heath. The wet heath supports sustainable (flowering) populations of marsh gentian, three-lobed water crowfoot, and pillwort. The wet heath supports a viable population of bog bush cricket. The wet heath contributes potential support of a meta-population of marsh fritillary. All factors affecting the achievement of these conditions are under control. 	<p>The cliff feature of this SAC is located within PU 17.14 where NAI is the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation.</p> <p>This interest feature will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Ynys Feurig, Cemlyn Bay and The Skerries SPA							
Internationally important Article 4.1 Species (breeding): Roseate tern <i>Sterna dougallii</i> , common tern <i>Sterna hirundo</i> , arctic tern <i>Sterna paradisaea</i> , Sandwhich tern <i>Sterna sandvicensis</i>	Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	<ul style="list-style-type: none"> Population size Productivity 	<ul style="list-style-type: none"> The number of breeding terns within the SPA is stable or increasing. The number of chicks successfully fledged in the SPA and beyond is sufficient to help sustain the population. The range and distribution of terns within the SPA and beyond is not constrained or hindered. The extent of supporting habitats used by terns is stable or increasing. Supporting habitats are of sufficient quality to support the requirements of terns. There are appropriate and sufficient food sources for terns within access of the SPA. Actions or events likely to impinge on the sustainability of the population are under control. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>Policies for PUs 17.6 (HTL/HTL/MR) and 17.7 (HTL/HTL/HTL) are located adjacent to the SPA, however, they will affect the habitat features present on or around Ynys Feurig SPA within is within the NAI policy of PU 17.8.</p> <p>This tern supporting habitat will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes
	Shingle. Sea cliffs. Islets						
	Heathland and scrubland						
	Bogs, marshes, fens						
	Salt marshes. Salt pastures. Salt steppes						
Glannau Ynys Gybi / Holy Island Coast SPA							
Internationally important Article 4.1 Species (breeding and wintering): Chough <i>Pyrhocorax pyrrhocorax</i>	Heathland and scrub	<ul style="list-style-type: none"> Breeding population Breeding population Foraging habitat condition 	<ul style="list-style-type: none"> The breeding population of Chough within the SPA is at least 18 pairs, of which at least 12 should be within the Glannau Ynys Gybi / Tre Wilmot SSSI and at least 6 should be within the Glannau Rhoscolyn SSSI. The non-breeding population of Chough is at least 18 individuals or 2.5 % of the GB wintering population. Sufficient suitable habitat (including Atlantic sea cliffs, maritime grassland, maritime heath, wet heath and dry heath) is present and in appropriate condition to support the breeding populations. All factors affecting the achievement of these conditions are under control. 	<p>The cliff feature of this SAC is located within PU 17.14 where NAI is the preferred policy for this whole unit, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the supporting habitats would be allowed to erode naturally and develop through natural succession.</p> <p>This Chough supporting habitat will not be lost or adversely affected due to the SMP2 policies in PDZ 17.</p>	None required	No adverse effect expected	Yes
	Shingle. Sea cliffs. Islets.						
	Humid grassland. Mesophile grassland						
	Bogs, marshes and fens						

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 18: PDZ 18 North Anglesey: Twyn Cliperau to Trwyn Cwmrwd

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Bae Cemlyn/ Cemlyn Bay SAC							
Coastal lagoons	NA	<ul style="list-style-type: none"> Extent Species population measures 	<ul style="list-style-type: none"> There is no loss of area other than that due to natural processes. The specialised plant and animal communities within the lagoon remain. All factors affecting the achievement of these conditions are under control. 	<p><u>Saline intrusion / Coastal Squeeze / Coastal Processes:</u></p> <p>Cemlyn lagoon on the north coast of Anglesey, north Wales, is considered to be the best example of a saline coastal lagoon in Wales. The lagoon is separated from the sea by a shingle bank with a narrow channel at the western end, across which a sluice system was built in the 1930s. Seawater exchange occurs mainly through the sluice and by percolation through the shingle bank, although in extreme storms coinciding with spring tides waves break over the top of the shingle bank.</p> <p>Within the Cemlyn Bay SAC the preferred policy option is for MR in epoch 1 with NAI the preferred policy option in epochs 2 and 3.</p> <p>The MR policy intent is to manage the natural change over epoch 1 and that the overall intent of NAI of epochs 2 and 3 would allow for natural development of the whole area, with the initial management there to ensure that this occurs gradually and allows for a gradual transition of conditions. MR is intended to provide for properties to adapt in response to the future impacts of sea level rise, however, in terms of the attributes and targets the policy intent is not to directly affect lagoon habitat through footprint disturbance, but through maintenance and eventual removal of the weir structure in epoch 1. This will allow the management of water levels to move closer to the natural hydrological variation that would occur with the weir removed, and thus provide the plant and animal communities within the lagoon to adapt. However, uncertainty remains, as losses or extinctions could occur to lagoon communities if too rapid or uncontrolled alteration of lagoon hydrology occurred due to inappropriate management of the weir, though potentially communities could also respond rapidly to these changes.</p> <p>NAI in Epochs 2 and 3 is likely to result in a greater reduction in area of the lagoon habitat. Furthermore, potential breaches could occur which would alter the physical and chemical characteristics of the lagoon, and could result in significant changes to the lagoon plant and animal communities. This long term change would arise due to the natural erosion and breach processes (which may not necessarily occur) and would not be as a result of the SMP.</p> <p>Potentially lagoon communities are likely to change during epoch 1. However, alteration to</p>	<p>In order to appropriately manage the change in lagoon communities, a strategy identifying the appropriate weir management of water levels and incursion over epoch 1 in order to achieve the natural lagoon system in epoch 2 should be carried out and implemented. The strategy should be undertaken with CCW in order to ensure that succession of communities and development toward the natural community structure occurs within appropriate timescales.</p>	No adverse effect expected in Epoch 1 as a result of SMP policy.	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
				lagoon extent would be as a result of natural coastal geomorphological processes, for example acting on and influencing the movement of the shingle ridge landward of its current position. The changes to the communities could occur rapidly if not managed appropriately resulting in greater losses of communities and longer timescales for re-development of the natural succession, which would result in an adverse effect on the integrity of the site lagoon feature.			
Perennial vegetation of stony banks	NA	<ul style="list-style-type: none"> Habitat extent Habitat quality Physical structure: functionality and sediment supply 	<ul style="list-style-type: none"> The extent of the vegetation of shingle banks is maintained unless altered by natural (e.g. storm) events. Typical component species of vegetation of shingle banks are maintained. Invasive alien species (e.g. <i>Fallopia japonica</i>) are absent. The management of activities or operations likely to damage or degrade the population dynamics, natural range and supporting habitat of the feature is appropriate for maintaining favourable conservation status and is secure in the long-term. 	<p>It is unlikely that MR would need to disturb the shingle banks or the species present on them during epoch 1. However, until details of the activities are determined, potential disturbance could arise; however, the extent of disturbance cannot be identified at this stage. Consequently, an adverse effect could occur in the short-term.</p> <p>NAI during epoch 2 and 3 will result in the natural movement and succession of the shingle banks and the vegetation communities.</p>	Ensure no disturbance to shingle ridge occurs during MR activities.	No adverse effect expected in Epoch 1 as a result of SMP policy.	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Ynys Feurig, Cemlyn Bay and The Skerries SPA							
Internationally important Article 4.1 Species (breeding): Roseate tern <i>Sterna dougallii</i> , common tern <i>Sterna hirundo</i> , arctic tern <i>Sterna paradisaea</i> , Sandwhich tern <i>Sterna sandvicensis</i>	Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins)	<ul style="list-style-type: none"> Population size Productivity 	<ul style="list-style-type: none"> The number of breeding terns within the SPA is stable or increasing. The number of chicks successfully fledged in the SPA and beyond is sufficient to help sustain the population. The range and distribution of terns within the SPA and beyond is not constrained or hindered. The extent of supporting habitats used by terns is stable or increasing. Supporting habitats are of sufficient quality to support the requirements of terns. There are appropriate and sufficient food sources for terns within access of the SPA. Actions or events likely to impinge on the sustainability of the population are under control. 	<u>Coastal Squeeze / Coastal Processes / Saline intrusion:</u> Within the Cemlyn Bay SPA the preferred policy option is for MR in epoch 1 with NAI the preferred policy option in epochs 2 and 3 (PU18.6). The MR strategy would be to manage the natural change over epoch 1 and that the overall intent of NAI of epochs 2 and 3 would allow for natural development of the whole area, with the initial management there to ensure that this occurs gradually and allows for a gradual transition of conditions. MR is not expected to result in a loss of the cumulative supporting habitat extents, but may result in minor change in the balance of intertidal, marsh, heath, and lagoon habitats, though not expected to result in a change to essential features (e.g. nesting area or food resource) for the species for which the site is designated. In the long term there will be a considerable change to the habitat due to the set back of the shingle ridge; reducing the area of lagoon and increased over-topping of the ridge. However, this would be as a result of natural processes within the area and not as a result of the SMP. It is unknown whether the ridge will breach and whether the coastal lagoon feature will be maintained in epoch 2 and 3, however, if it does occur it will be a result of natural processes and not as a result of the SMP2 policy.	None required	No adverse effect.	Yes
	Shingle. Sea cliffs. Islets.						
	Heathland and scrubland						
	Bogs, marshes, fens						
	Salt marshes. Salt pastures. Salt steppes.						

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Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 19: PDZ 19 – East Bays: Trwyn Cwmrwd to Trwyn Penmon

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC							
Large shallow inlets and bays	NA	<ul style="list-style-type: none"> Range Structure and Function 	<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the large shallow bay feature these include;</p> <ul style="list-style-type: none"> Organically enriched muddy sediment areas. <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant concentrations within sediments or biota below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. Restoration and recovery. <p>This includes the need for restoration of some reef features such as underboulder, overhang and crevice communities, and of some mudflat and sandflat features such as the muddy gravel habitats and sheltered muddy habitats. All of these habitats are also part of the large inlets and bays feature.</p> <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> species richness population structure and dynamics, physiological health, reproductive capacity recruitment, mobility range 	<p><u>Coastal Squeeze / Coastal Processes:</u> The shore from Moelfre to Bangor to Conwy and Great Orme consists of a mosaic of different sediment types, which support a diverse mixture of plant and animal communities.</p> <p>This feature is present in the offshore area of this PDZ.</p> <p>No constraint is predicted to the various habitats of the shallow inlets and bays feature (see below), and hence the structure and function is not likely to change other than through natural processes and development as a result of sea level rise.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
			As part of this objective it should be noted that: <ul style="list-style-type: none"> • populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term • the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. 				

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Sandbanks slightly covered by sea water	NA		<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing.</p> <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> • geology, • sedimentology, • geomorphology, • hydrography and meteorology, • water and sediment chemistry, • biological interactions. <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> • species richness • population structure and dynamics, • physiological health, • reproductive capacity • recruitment, • mobility • range. 	<p><u>Coastal squeeze / Coastal processes:</u> Menai Strait and Conwy Bay between mainland Wales and Anglesey includes the Four Fathom Banks complex, which is a relatively rare type of subtidal sandbank in Wales, in that it is comparatively large, and is fairly sheltered from wave action but situated in an area of open coast. The sandbanks vary from stable muddy sands in areas that experience weak tidal streams to relatively clean well-sorted and rippled sand in the outer area of the bank where tidal streams are stronger. In very shallow waters, particularly in the inner shore areas, relatively species-rich sandy communities are dominated by polychaetes such as <i>Spio filicornis</i>. In some years when numbers of bivalves are high, internationally important flocks of common scoter <i>Melanitta nigra</i> have been observed to congregate in the area of the Four Fathom Banks complex to feed.</p> <p>The subtidal sandbanks within PDZ 19 are located over 1km offshore and will therefore be able to adapt naturally to sea level rise and the continued feed of material resulting from the predominantly NAI policy for this coastal unit will maintain the sandbanks. The HTL policies within PU 19.5, 19.10 and 19.12 will not directly or indirectly affect the subtidal sandbanks, as they are located in the backshore behind the upper intertidal and are not expected to affect local or larger scale hydrodynamic processes or sediment movement.</p>	None required	No adverse effect expected	Yes
Mudflats and sandflats not covered by sea water at low tide	NA	<ul style="list-style-type: none"> • Range. • Structure and function. • Typical species. 	<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the intertidal mudflats and sandflats feature these include;</p> <ul style="list-style-type: none"> • Muddy gravel communities. • Dwarf eelgrass, <i>Zostera noltei</i> beds. • Sediment communities at Traeth Lafan. <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> • geology, • sedimentology, • geomorphology, • hydrography and meteorology, • water and sediment chemistry, • biological interactions. <p>This includes the need for restoration of some mudflat and sandflat features such as the muddy gravel habitats and sheltered muddy habitats.</p> <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> • species richness • population structure and dynamics, • physiological health, • reproductive capacity • recruitment, • mobility • range. 	<p><u>Coastal squeeze / Coastal processes:</u> The intertidal mudflats and sandflats within the site boundary are only located in the Menai Straits, and only shallow subtidal and low intertidal areas are present within this PDZ. HTL policies for PUs 19.5, 19.10, and 19.12 are located at the upper end of the intertidal zone; in the case of Porth Moelfre this is around 40m outside the site boundary, at Benllech this is 200m outside the site boundary, and for Red Wharf Bay it is over 600m outside the site boundary. The HTL intends for epochs 1 and 2 would not extend into the site boundary and therefore no direct loss of intertidal habitat would occur, furthermore, because of the upper shore location of the HTL frontages, no alterations to sediment processes or hydrodynamic processes are expected and therefore no alteration to the habitats in the site boundaries some distance away. The HTL policies will also not prevent the shallow subtidal and low intertidal habitat from migrating landward in parallel with sea level rise, therefore no alteration to the natural development and structure of the intertidal habitat feature within this PDZ is expected.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Large shallow inlets and bays	NA		<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the large shallow bay feature these include;</p> <ul style="list-style-type: none"> Organically enriched muddy sediment areas. <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, biological interactions. <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant concentrations within sediments or biota below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. Restoration and recovery <p>This includes the need for restoration of some reef features such as underboulder, overhang and crevice communities, and of some mudflat and sandflat features such as the muddy gravel habitats and sheltered muddy habitats. All of these habitats are also part of the large inlets and bays feature.</p> <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> species richness population structure and dynamics, physiological health, reproductive capacity recruitment, mobility range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. 	<p><u>Coastal Squeeze / Coastal processes:</u></p> <p>The preferred management options within PDZ 19 range from NAI, HTL and MR, with the majority of the open coastline being subject to NAI.</p> <p>In the PUs where NAI will be the policy option in the long term and will allow the bay to continue to erode more naturally, therefore making an improvement on its current erosion behaviour.</p> <p>NAI is the preferred policy in all 3 epochs within PUs 19.1, 19.3, 19.6, 19.8, 19.9, 19.11, 19.13, 19.15, 19.16 and 19.17 where any loss of habitat will be a result of the natural processes and not the SMP2 policy.</p> <p>HTL is the preferred policy at the following PUs:</p> <p>19.5 = HTL/HTL/MR 19.10 = HTL/HTL/MR 19.12 = HTL/HTL/MR</p> <p>These PUs lie outside the SAC boundary. Whilst HTL could constrain intertidal habitats, none are located within the SAC site boundary and coupled with MR (creation of intertidal habitat) outside the SAC boundary there will be no adverse effect on the integrity of the SAC. The large shallow inlets and bays feature will not therefore reduce in extent (but could potentially increase with sea level rise) or distribution of communities and habitats as a result of the HTL policies because of their location outside the site boundary, and the fact that they would not influence or constrain the development of site features in parallel with sea level rise.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Submerged or partially submerged sea caves	NA			Not present in PDZ 19.	None required	No adverse effect expected	Yes
Reefs	NA		<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include;</p> <ul style="list-style-type: none"> • Reef communities in high energy wave-sheltered, tide-swept conditions. • Under-boulder, overhang and crevice communities. • Limestone reef communities. • Clay outcrop reef communities. <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include;</p> <ul style="list-style-type: none"> • geology, • sedimentology, • geomorphology, • hydrography and meteorology, • water and sediment chemistry, • biological interactions. <p>This includes the need for restoration of some reef features such as underboulder, overhang and crevice communities.</p> <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> • species richness • population structure and dynamics, • physiological health, • reproductive capacity • recruitment, • mobility • range. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>The reefs of the Menai Strait and Conwy Bay between mainland Wales and Anglesey include the tidal rapids of the Menai Strait, and limestone reefs along the south-east Anglesey coast and around Puffin Island and the Great and Little Ormes. The environmental conditions of the Menai Strait are unusual. The water is relatively turbid, containing a relatively high level of suspended material, and although the area is largely sheltered from wave action tidal streams are strong, reaching up to 8 knots (4m/s⁻¹) in places during spring tides. As a result, the rocky reefs of the Strait are dominated by a diverse and unusual mixture of animals that feed mainly by filtering their food from the seawater.</p> <p>NAI policies will allow the actively eroding cliffs to continue to erode, supplying sediment (including cobbles, rocks and boulders) to the foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease. Erosion and exposure of the rocky cliffs will also provide continued cliff exposure for bedrock reefs.</p> <p>HTL policies occur where there is no reef (PUs 19.10 and 19.12) or limited reef (PU 19.5). However, all HTL policies and intents occur outside the SAC boundary and in the upper shore. The intent of HTL and would not alter the sediment movement and hydrodynamic processes in the intertidal zone and wider subtidal or adjacent areas, therefore it is concluded that there is no adverse impact to the reef habitat.</p> <p>MR in the long term would ensure that coastal squeeze would not be an issue and could result in additional intertidal habitat outside the SAC site boundary that could support reef features.</p>	None required	No adverse effect expected	Yes
Ynys Seiriol / Puffin Island SPA							
Internationally important Article 4.2 Species (breeding): Cormorant <i>Phalacrocorax carbo</i> (North-western Europe)	Shingle. Sea cliffs. Islets Humid grassland. Mesophile grassland Heathland and scrub	<ul style="list-style-type: none"> • Population size • Reproductive success 	<ul style="list-style-type: none"> • The number of breeding cormorants within the SPA are stable or increasing. • The abundance and distribution of prey species are sufficient to support this number of breeding pairs and for successful breeding. • The management and control of activities or operations likely to adversely affect the Cormorants, is appropriate for maintaining the feature in favourable condition and is secure in the long term. 	<p>The preferred policy option for Puffin Island is NAI. The cliffs are undefended and will be able to respond naturally to sea level rise.</p> <p>No significant impact as a result of the SMP policy will occur.</p> <p>No Habitat loss will occur as a result of the SMP2 policy within the Puffin Island SPA.</p>	None required	No adverse effect expected	Yes

Annex G-IV – Assessment Tables of the West Wales SMP2 on Natura 2000 Sites

Table 20 PDZ 20 – Llanfairfechan to Llanrwst

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Great Orme's Head/ Pen y Gogarth SAC							
European dry heaths	NA	<ul style="list-style-type: none"> Extent of Dry Heath Condition of Dry Heath 	<ul style="list-style-type: none"> The dry heath occupies at least 25% of the total site area. The dry heath is given the opportunity to expand at the expense of bracken and gorse but not at the expense of semi-natural dry grassland. The dry heath is co-dominated by heather, bell heather and western gorse. At least 33% of the dry heath is species-rich where the following plants are present; common rock-rose, dropwort, sheep's-fescue, glaucous sedge, harebell, wild thyme and common bird's-foot-trefoil. Pioneer and building phases of heath vegetation are present. Competitive species indicative of lack of management, bracken <i>Pteridium aquilinum</i>, gorse <i>Ulex europaeus</i> and native shrub and tree species are kept in check. All factors affecting the achievement of these conditions are under control. 	<p><u>Erosion:</u></p> <p>These SAC habitats are located on the cliffs within PDZ 20 which are located within PUs 20.12, 20.13 and 20.14 where the preferred policy in NAI. Therefore any loss of habitat as a result of erosion will occur due to natural processes and not as a result of the SMP2 policy.</p>	None required	No adverse effect expected	Yes
Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>Festuco-Brometalia</i>)	NA	<ul style="list-style-type: none"> Extent of Semi-natural Dry Grasslands Condition of Semi-natural Dry Grasslands 	<ul style="list-style-type: none"> The semi-natural dry grasslands occupy at least 35% of the total site area. The semi-natural dry grasslands are given the opportunity to expand at the expense of bracken and gorse but not at the expense of dry heath. The semi-natural dry grasslands are a species-rich mixture of characteristic herbs, grasses and sedges that include hoary rock-rose, common rock-rose, salad burnet, wild thyme, dropwort, common bird's-foot-trefoil, sheep's fescue, crested hair-grass, quaking grass, meadow oat-grass, glaucous sedge and spring sedge. Terricolous lichens, acrocarpous mosses and bare rock and soil are present in the open short turf grassland community. Species indicative of agricultural improvement and/or trampling are rare or absent. Native shrub and tree species and bracken are rare or absent. Invasive non-native species such as low growing and mat-forming <i>Cotoneasters</i> are absent. All factors affecting the achievement of these conditions are under control. 				
Vegetated sea cliffs of the Atlantic and Baltic coasts	NA	<ul style="list-style-type: none"> Extent of vegetated sea cliffs vegetation Condition of vegetated sea cliffs vegetation 	<ul style="list-style-type: none"> The extent of the sea cliffs and their associated short turf maritime grassland will occupy not more than 5% of the site, excepting natural catastrophic cliff collapse. Cliff and crevice vegetation will occur naturally on suitable cliff sections throughout the site. The vegetation will be composed of native plants such as sea cabbage <i>Brassica oleracea</i>. The expansion of climbing plants such ivy <i>Hedera helix</i> and the spread of non-native red valerian <i>Centranthus ruber</i> will be discouraged. Short turf maritime grassland will be dominated by red fescue and characteristic species such as thrift and buck's-horn plantain. All factors affecting the achievement of these conditions are under control. 	<p><u>Restriction of coastal erosion:</u></p> <p>NAI is the preferred policy for PUs 20.12 and 20.13 which encompasses the majority of the Great Orme's Head cliff habitat, therefore no direct or indirect effects as a result of coastal management policy is expected.</p> <p>No significant effect in the long term as the vegetated cliffs would be allowed to erode naturally, which would allow natural succession of vegetation.</p>	None required	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Y Fenai a Bae Conwy/ Menai Strait and Conwy Bay SAC							
Large shallow inlets and bays	NA	<ul style="list-style-type: none"> • Range • Structure and Function 	<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the large shallow bay feature these include;</p> <ul style="list-style-type: none"> • Organically enriched muddy sediment areas. <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include: geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, and biological interactions. This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> • at or below existing statutory guideline concentrations within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. • Contaminant levels in the water column and sediments derived from human activity to be: • at or below existing statutory guideline concentrations • below levels that would potentially result in increase in contaminant concentrations within sediments or biota • below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. • Restoration and recovery <p>This includes the need for restoration of some reef features such as underboulder, overhang and crevice communities, and of some mudflat and sandflat features such as the muddy gravel habitats and sheltered muddy habitats. All of these habitats are also part of the large inlets and bays feature.</p> <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> • species richness • population structure and dynamics, • physiological health, • reproductive capacity • recruitment, • mobility • range <p>As part of this objective it should be noted that:</p> <ul style="list-style-type: none"> • populations of typical species subject to existing commercial fisheries need to be at an abundance equal to or greater than that required to achieve maximum sustainable yield and secure in the long term • the management and control of activities or operations likely to adversely affect the habitat feature, is appropriate for maintaining it in favourable condition and is secure in the long term. 	<p><u>Coastal Squeeze / Coastal Processes:</u></p> <p>The shore from Moelfre to Bangor to Conwy and Great Orme consists of a mosaic of different sediment types, which support a diverse mixture of plant and animal communities.</p> <p>This feature is present in the offshore area of this PDZ.</p> <p>Although there will be no direct loss of shallow inlets and bays feature as a result of policies, constraint induced by HTL and subsequent loss of intertidal habitat (mudflat, sandflat and reef) in PU 20.1 would reduce the structure of these elements and as such result in the underachievement of the conservation objectives.</p>	None identified, however, monitoring should be undertaken of the shallow inlets and bays features to ensure that no loss of range occurs as a result of sea level rise.	A reduction in the structure or range of habitats is likely to occur.	No

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Sandbanks slightly covered by sea water	NA	<ul style="list-style-type: none"> • Range. • Structure and function. • Typical species. 	<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing.</p> <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include: geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, and biological interactions.</p> <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> • species richness • population structure and dynamics, • physiological health, • reproductive capacity • recruitment, • mobility • range. 	<p><u>Coastal squeeze / Coastal processes:</u> Menai Strait and Conwy Bay between mainland Wales and Anglesey includes the Four Fathom Banks complex, which is a relatively rare type of subtidal sandbank in Wales, in that it is comparatively large, and is fairly sheltered from wave action but situated in an area of open coast. The sandbanks vary from stable muddy sands in areas that experience weak tidal streams to relatively clean well-sorted and rippled sand in the outer area of the bank where tidal streams are stronger.</p> <p>NAI policies within PUs 20.12 and 20.13 will allow the actively eroding foreshore to continue to erode, supplying sediment to the upper foreshore so that sea level rise will not cause the extent of the intertidal exposures to decrease, however the condition of the sandbanks may change if eroding material is continually deposited in the area – either changing the sediment type, or raising/lowering the sandbanks; however, this will be a result of the natural processes and not a result of the SMP2 policies.</p> <p>A HTL in the PUs listed below will allow the subtidal sandbanks to respond to sea level rise at the expense/loss of the intertidal habitats. As the intertidal habitats are squeezed and the habitat lost where it is unable to move landward, the extent of the subtidal habitat will increase – through direct creation of subtidal sandbanks as the intertidal sandbanks are covered by seawater, or through the deposition of sediment onto the existing habitats.</p> <p>20.1 = HTL/HTL/HTL, 20.2 = HTL/HTL/HTL, 20.3 = HTL/HTL/MR, 20.9 = HTL/HTL/MR, 20.10 = HTL/HTL/HTL, 20.11 = HTL/HTL/MR</p> <p>MR in the long term (as listed above) would ensure that coastal squeeze would not be an issue to the intertidal habitat and will ensure that subtidal sandbanks do not significantly increase in extent at the expense of the intertidal habitat.</p> <p>Overall it is concluded that the subtidal sandbanks will be able to respond to the changing conditions and will not be adversely impact by the SMP2 policies. There is a risk that eroded material will be lost if there is an unforeseen change in the coastal processes of the area, and monitoring should be carried out in the future to ensure that no impact occurs.</p>	None required, however, monitoring should be undertaken of the subtidal sandbanks to ensure that no loss of extent of the subtidal sandbanks occurs as a result of sea level rise.	No adverse effect expected	Yes

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Mudflats and sandflats not covered by sea water at low tide	NA	<ul style="list-style-type: none"> Range. Structure and function. Typical species. 	<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the intertidal mudflats and sandflats feature these include;</p> <ul style="list-style-type: none"> Muddy gravel communities. Dwarf eelgrass, <i>Zostera noltei</i> beds. Sediment communities at Traeth Lafan. <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include: geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, and biological interactions.</p> <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant concentrations within sediments or biota below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. Restoration and recovery <p>This includes the need for restoration of some mudflat and sandflat features such as the muddy gravel habitats and sheltered muddy habitats.</p> <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> species richness population structure and dynamics, physiological health, reproductive capacity recruitment, mobility range. 	<p><u>Coastal squeeze / Coastal processes:</u> The majority of the coastline within this SAC comprises mudflat or sandflat. However, the extent of the SAC does not include all intertidal sand/mudflats within all the PUs in PDZ 20.</p> <p>The following PUs contain only small areas of sandflats/mudflats that fall within the SAC boundary: 20.1 = HTL/HTL/HTL 20.2 = HTL/HTL/HTL 20.3 = HTL/HTL/MR 20.11 = HTL/HTL/MR</p> <p>All of the intertidal sandflats within this PUs with the exception of PU 20.1 are outside the SAC boundary; however, small patches of sandflats that are not covered by low tide are included in the other 3 PUs listed above.</p> <p>HTL policy in epoch 1 within PUs 20.1, 20.2, 20.3 and 20.11 will result in a loss of intertidal habitat as the sandflats/mudflats respond to sea level rise. However, given the limited if any extent of intertidal habitat within the boundary of the SAC these extents will not be prevented from developing naturally as a result of the HTL policies for PUs 20.2, 20.3, and 20.11.</p> <p>HTL is proposed for all epochs in PU 20.1. This will result in a loss of intertidal sandflat as the sandflats are constrained. Although no intertidal sandflat is expected to be lost in epoch 1, up to 0.03ha could be lost in epoch 2, and 0.01ha in epoch 3. This would affect the achievement of favourable condition in relation to the intertidal sandflat extent.</p>	None identified	An adverse effect on site integrity is expected	No

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Reefs	NA	<ul style="list-style-type: none"> Range. Structure and function. Typical species. 	<p><u>Range</u> The overall distribution and extent of the habitat features within the site, and each of their main component parts is stable or increasing. For the reef feature these include;</p> <ul style="list-style-type: none"> Reef communities in high energy wave-sheltered, tide-swept conditions. Under-boulder, overhang and crevice communities. Limestone reef communities. Clay outcrop reef communities. <p><u>Structure and Function</u> The physical biological and chemical structure and functions necessary for the long-term maintenance and quality of the habitat are not degraded. Important elements include: geology, sedimentology, geomorphology, hydrography and meteorology, water and sediment chemistry, and biological interactions.</p> <p>This includes a need for nutrient levels in the water column and sediments to be:</p> <ul style="list-style-type: none"> at or below existing statutory guideline concentrations within ranges that are not potentially detrimental to the long term maintenance of the features species populations, their abundance and range. Contaminant levels in the water column and sediments derived from human activity to be: at or below existing statutory guideline concentrations below levels that would potentially result in increase in contaminant concentrations within sediments or biota below levels potentially detrimental to the long-term maintenance of the features species populations, their abundance or range. Restoration and recovery <p>This includes the need for restoration of some reef features such as underboulder, overhang and crevice communities.</p> <p><u>Typical Species</u> The presence, abundance, condition and diversity of typical species is such that habitat quality is not degraded. Important elements include:</p> <ul style="list-style-type: none"> species richness population structure and dynamics, physiological health, reproductive capacity recruitment, mobility range. 	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>Intertidal reef occurs at the mouth of the estuary within PDZ 20, and is primarily located adjacent to PUs 20.1, 20.4, 20.9 and 20.10 where the policy option are:</p> <p>20.1 = HTL/HTL/HTL 20.4 = HTL/HTL/HTL 20.10 = HTL/HTL&MR/MR 20.11 = HTL/HTL/HTL</p> <p>The offshore intertidal and subtidal reefs will continue to develop naturally with sea level rise given the area available for translation elsewhere in the intertidal zone.</p> <p>A HTL at PU 20.1 may result in loss of intertidal and a subsequent constraint to reef development albeit only limited to the upper shore. HTL at PUs 20.4, 20.10, and 20.11 will cause reduction of the extent of intertidal sandflat but not of reef habitat as this is not located immediately adjacent to the shore where HTL would occur, and consequently sufficient and appropriate area for translation is expected, and no alteration to the hydrodynamic processes in the existing channel within which the reefs like is expected.</p>	<p>None required, however, monitoring should be undertaken of the unaffected reef habitats to ensure that no loss of extent of the subtidal sandbanks occurs as a result of sea level rise.</p>	<p>A limited loss of reef habitat is expected in epochs 2 and 3 resulting in under achievement of the conservation objectives for the reef feature.</p>	No

Qualifying feature	Supporting Habitat	Attribute	Target	Potential impacts	Avoidance or mitigation measures	Residual impact	Conclude no adverse effect on integrity?
Traeth Lafan / Lavan Sands, Conway Bay SPA							
Internationally important Article 4.2 Species (wintering): Oystercatcher <i>Haematopus ostralegus</i> , curlew <i>Numenius arquata</i>	<ul style="list-style-type: none"> Tidal rivers. Estuaries. Mud flats. Sand flats. Lagoons (including saltwork basins). 	<ul style="list-style-type: none"> Number of wintering oystercatchers. The extent of intertidal flats and the broad-scale spatial distribution of their constituent sediment and community types is maintained. The abundance and distribution of cockles – 15mm are maintained at levels sufficient to support the population at 4000 individual. 	<ul style="list-style-type: none"> The 5 year mean peak of the number of wintering oystercatchers is at least 4,000. The abundance and distribution of cockles of 15mm or larger and other suitable food are maintained at levels sufficient to support the population with a 5 year mean peak of 4,000 individuals. Oystercatchers are not disturbed in ways that prevent them spending enough time feeding for survival. Roost sites, including high tide roost sites, remain suitable for oystercatchers to roost undisturbed. The management and control of activities or operations likely to adversely affect the oystercatchers, is appropriate for maintaining the feature in favourable condition and is secure in the long term. <p>Traeth Lafan / Lavan Sands is located in Conway Bay close to Bangor in north-west Wales. It is a large intertidal area of sand- and mud-flats lying at the eastern edge of the Menai Straits. The area has a range of exposures and a diversity of conditions, enhanced by freshwater streams that flow across the flats. The site is of importance for wintering waterbirds, especially Oystercatcher <i>Haematopus ostralegus</i>. In conditions of severe winter weather, Traeth Lafan acts as a refuge area for Oystercatchers displaced from the nearby Dee Estuary.</p>	<p><u>Coastal squeeze / Coastal processes:</u></p> <p>The SPA only encompasses a small area of PU 20.1 where the preferred policy is HTL over all 3 epochs. This area may be impacted by coastal squeeze and a total loss of 0.04ha of intertidal sandflat in epochs 2 and 3 (epoch 2 = 0.03ha, epoch 3 = 0.01ha) will occur in front of the defence.</p> <p>This loss of intertidal habitat would also occur within PU 16.33 and would result in a reduction in the supporting habitat (sandflat) for SPA species. Although the total area of intertidal sandflat is small in relation to the overall area, the loss could affect the favourable condition of the oystercatcher and curlew populations.</p>	None identified	Adverse effect on integrity could arise	No
	<ul style="list-style-type: none"> Salt marshes. Salt pastures. Salt steppes. 			Not present in PDZ 20.			

Annex V: Policy Summaries

PDZ 1

M.A.1 SOUTH WEST PENINSULA AND ISLANDS: From St Anne's Head to Borough Head

Policy Unit		Policy Plan			
		25	55	105	Comment
1.1	Mainland	NAI	NAI	NAI	Local access issues.
1.2	St Bride's	NAI	NAI	NAI	Management of loss of wall and access.
1.3	Skokholm and Skomer	NAI	NAI	NAI	Access issues.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 2

M.A.2 LITTLE HAVEN AND BROAD HAVEN: From Borough Head to Emmet Rock

Policy Unit		Policy Plan			
		25	55	105	Comment
2.1	Borough Hd. to the Point	NAI	NAI	NAI	Possible need to realign road to Little Haven.
2.2	Little Haven	HTL	HTL	MR	Improvement to defences standard would not be anticipated over the short and medium term. The use and structure of the lower village would need to be examined.
2.3	The Settlands	NAI	NAI	NAI	Potential long term loss of coast road.
2.4	Southern and central Broad Haven	HTL	HTL	MR	Consider options for realignment in the area of Broadhaven Bridge.
2.5	Broad Haven North	HTL	MR	NAI	Lost of road.
2.6	Haroldston Hill	HTL	HTL	MR	Maintain access from the north.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

M.A.3 NOLTON HAVEN AND NEWGALE: From Emmet Rock to Dinas Fach

Policy Unit		Policy Plan			
		25	55	105	Comment
2.7	Haroldston Cliff	NAI	NAI	NAI	
2.8	Nolton Haven	HTL	MR	MR	The intent is to maintain access with local works to sustain the road.
2.9	Rickets Head	NAI	NAI	NAI	
2.10	Newgale Sands south	MR	MR	MR	Manage the realignment and loss to road, while protecting access from the south.
2.11	Newgale Sands north	MR	MR	NAI	Manage shingle on the road but with the long term intent of allowing the shingle ridge to behave naturally.
2.12	Newgale village	HTL	MR	MR	Manage the cliffs and position of the stream to sustain the upper village.
2.13	Penycwm cliffs	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 3**M.A.4 ST DAVID'S PENINSULA TO STRUMBLE HEAD: From Dinas Fach to Pen Anglas**

Policy Unit		Policy Plan			Comment
		25	55	105	
3.1	Dinas Fach to Pen Anglas	NAI	NAI	NAI	Overarching policy unit setting the base intent for the zone.
3.2	Lower Solva	HTL	HTL	MR	Adaptation planning for the area needs to be developed.
3.3	Solva Harbour	HTL	HTL	HTL	This policy would be subject to a collaborative approach to funding.
3.4	Porth Clais Outer	HTL	NAI	NAI	This would not preclude local management subject to normal approvals.
3.5	Porth Clais Inner	HTL	HTL	HTL	This policy would require collaborative planning and funding.
3.6	St Justinian's	NAI	NAI	NAI	This policy would not preclude management of the RNLI Station and ferry service subject to normal approvals.
3.7	Ramsey Island	NAI	NAI	NAI	This policy would not preclude improvement to maintain access, subject to normal approvals.
3.8	Whitesands Bay	HTL	MR	MR	Managed long term process of retreat.
3.9	Abereiddi	MR	MR	MR	Managed long term process of retreat.
3.10	Porth Gain	HTL	HTL	HTL	Significant funding issues.
3.11	Aber Castle	HTL	MR	MR	Maintain the use of the area and support the local community be setting back local defences.
3.12	Aber Mawr	NAI	NAI	NAI	Monitor as an example of natural response to Sea Level Rise.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 4**M.A.5 FISHGUARD AND GOODWICK: From Pen Anglas to Castle Point.**

Policy Unit		Policy Plan			Comment
		25	55	105	
4.1	Pen Anglas to Pen Cw	NAI	NAI	NAI	
4.2	Fishguard Harbour	HTL	HTL	HTL / ATL	Maintain operation of the port and improve defences. Potential for advance the line to improve sustainability of the head of the harbour through possible joint funding.
4.3	The Parrog and Goodwick Moor	HTL	MR	MR	Potential for opening up the estuary with the road taken across as a bridge.
4.4	Penyraber	NAI	NAI	NAI	
4.5	Hill Terrace	HTL	HTL	HTL	Support to coastal slope.
4.6	Lower Town centre	HTL	HTL	MR	Redesign of river entrance and development plan for the core of the village in association with highway authority. Subject to joint funding.
4.7	Lower Town Quay	HTL	HTL	HTL	Subject to joint funding.
4.8	Castle Point Cliffs	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

M.A.6 DINAS HEAD AND ADJACENT CLIFFS: From Castle Point to Carreg Germain

Policy Unit		Policy Plan			
		25	55	105	Comment
4.9	Castle Point to Pwllgwaelod	NAI	NAI	NAI	
4.10	Pwllgwaelod Bay	HTL	NA	NAI	Local maintenance prior to removal of defence.
4.11	Dinas Head	NAI	NAI	NAI	
4.12	Cwm-yr-Eglwys	HTL	HTL	HTL	Subject to funding, with the intent to manage and improve the beach and foreshore.
4.13	Cwm-yr-Eglwys to Carreg Germain	NAI	NAI	NAI	

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

M.A.7 NYFER ESTUARY AND NEWPORT SANDS: From Carreg Germain to Pen-y-Bal

Policy Unit		Policy Plan			
		25	55	105	Comment
4.14	Newport Parrog West	MR	MR	MR	Support local private defence.
4.15	Newport Parrog	HTL	HTL	MR	Subject to further detailed study. The default policy in the third Epoch would be NAI.
4.16	Nyfer Estuary	NAI	NAI	NAI	This would not preclude local management.
4.17	The Bennet	NAI	NAI	NAI	
4.18	Newport Sands	HTL	MR	NAI	Retreat defence line in balance with roll back of the Bennet.
4.19	Newport Bay Cliffs	NAI	NAI	NAI	Maintaining natural function of Cliffs and SSSI.

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

PDZ 5**M.A.8 CARDIGAN CLIFFS WEST:** From Pen-y-Bal to Cemaes Head.

Policy Unit		Policy Plan			
		25	55	105	Comment
5.1	Pen-y-Bal to Cemaes Head	NAI	NAI	NAI	

M.A.9 TEIFI ESTUARY: From Cemaes Head to Gwbert and through to north St Dogmaels.

Policy Unit		Policy Plan			
		25	55	105	Comment
5.2	Cemaes Head to Trwyn Carreg-ddu	NAI	NAI	NAI	This would not preclude local management of the jetty at Penrhyn Castle.
5.3	Poppit Dunes and Pen-yr-Ergyd	MR	MR	MR	Requirement for a detailed integrated management plan. Default policy of NAI.
5.4	Inner Estuary west	NAI	NAI	NAI	
5.5	St Dogmaels north	HTL	HTL	HTL	With the intent to maintain access road.
5.6	Bryn-y-mor	NAI	NAI	NAI	
5.7	Coronation Drive	HTL	HTL	MR	Adaptive approach to support fringe habitat development.
5.8	Gwbert Road	HTL	HTL	HTL	
5.9	Gwbert Cliffs	NAI	NAI	NAI	

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

M.A.10 CARDIGAN: From St Dogmaels to Cardigan

Policy Unit		Policy Plan			Comment
		25	55	105	
5.10	St Dogmaels and Castle Farm	NAI	NAI	NAI	
5.11	Cardigan North	HTL	HTL	HTL	Requirement for planning control and consideration of flood risk issues in redevelopment of the area.
5.12	Cardigan South	HTL	HTL	HTL	Requirement for planning control and consideration of flood risk issues in redevelopment of the area.
5.13	Upstream of Bridge North	MR	MR	MR	Retired defence to road.
5.14	Upstream of Bridge North	MR	MR	MR	Subject to nature conservation interest.

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

M.A.11 MWNT AND ABERPORTH CLIFFS: From Cardigan Island to Pencribach

Policy Unit		Policy Plan			Comment
		25	55	105	
5.15	Mwnt and Aberporth Cliffs	NAI	NAI	NAI	Adaptive management of access and facilities at Mwnt.

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

PDZ 6**M.A.12 ABERPORTH AND VILLAGES: From Craig Filain to New Quay Head**

Policy Unit		Policy Plan			Comment
		25	55	105	
6.1	Aberporth Cliffs	NAI	NAI	NAI	Overarching policy setting the base intent for the zone.
6.2	Aberporth	HTL	HTL	HTL	
6.3	Aberporth to Ynys – Lochtyn, Cliffs	NAI	NAI	NAI	Overarching policy setting the base intent for the zone.
6.4	Tresaith	HTL	MR	MR	Potential removal of defences to southern end.
6.5	Penbryn	NAI	NAI	NAI	Adapt access.
6.6	Llangrannog	HTL	MR	MR	Integrated approach to re-development of the village sea front.
6.7	Ynys-Lochtyn to New Quay Head	NAI	NAI	NAI	Overarching policy setting the base intent for the zone.
6.8	Cwmtydu	HTL	HTL	NAI	Further discussion with respect to historic environment.

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

PDZ 7**M.A.13 NEW QUAY BAY: From New Quay Head to Llanina Point**

Policy Unit		Policy Plan			Comment
		25	55	105	
7.1	New Quay Head to Traeth Dolau	MR	MR	NAI	MR this would not preclude private defence to the fish factory + may require minor works to maintain road. Private works to stabilise cliff would be subject to appropriate approvals.
7.2	Traeth y Dolau, New Quay Harbour to Penpolian	HTL	HTL	HTL	
7.3	New Quay Bay	MR	MR	MR	Manage the retreat of this cliff, Local cliff drainage and local defence could allow adaptation.
7.4	Llanina Point	MR	MR	MR	Managing this headland as sea levels rise to ensure it behaves as a control point for the bay.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

M.A.14 CEI BACH: From Llanina Point to Gilfach yr Halen

Policy Unit		Policy Plan			Comment
		25	55	105	
7.5	Cei Bach	HTL	HTL	MR	Maintaining existing defences in the short term, gradually allowing natural processes to deepen the bay in the longer term.
7.6	Carreg Ddu	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 8**M.A.15 ABERAERON AND ABERARTH: From Gilfach yr Halen to North Cliffs of Aberarth**

Policy Unit		Policy Plan			Comment
		25	55	105	
8.1	Gilfach yr Halen to Pen y Gloyn	NAI	NAI	NAI	Currently undefended, undeveloped cliffs.
8.2	Aberaeron South Beach	HTL	HTL	MR	Maintain defences, consider realignment southern end of the defence in the future. Long term management of this area would be linked to long term management of Aberaeron North.
8.3	Aberaeron Harbour	HTL	HTL	HTL	Maintain and raise existing defences over the period of the SMP. Future management would need to consider the real possibility of major change in this approach. The need for such change would critically depend on the rate of sea level rise.
8.4	Aberaeron North Beach	HTL	HTL	HTL	As above.
8.5	Aberaeron to Aberarth	NAI	NAI	NAI	
8.6	Aberarth	HTL	MR	MR	Maintain and amend defence around the mouth of the Arth, allow southern coast to erode back.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

M.A.16 CEI BACH: From North Aberarth to Llanrhystud

Policy Unit		Policy Plan			Comment
		25	55	105	
8.7	North Aberarth to Morfa Mawr	NAI	NAI	NAI	Undefended, undeveloped cliffs allow cliff retreat with the potential need to realigning the road.
8.8	Llanon and Llansantffraid	MR	MR	MR	This would not preclude time limited private defence as part of managing retreat of the shoreline, subject to normal approvals.
8.9	Llanrhystud Bay	MR	MR	MR	This would not preclude time limited private defence as part of managing retreat of the shoreline, subject to normal approvals.
8.10	Llanrhystud bay to Carreg Ti Pw	NAI	NAI	NAI	

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

PDZ 9

M.A.17 ABERYSTWYTH: From Carreg Ti Pw to Constitution Hill

Policy Unit		Policy Plan			Comment
		25	55	105	
9.1	Carreg Ti Pw to Allt Wen	NAI	NAI	NAI	
9.2	Tan y Bwlch	MR	MR	NAI	The long term intent would be to allow a breach through to the Ystwyth but to manage this initially in discussion with landowners with respect to long term management of the new inlet.
9.3	Aberystwyth Harbour	HTL	HTL	HTL	This would be subject to joint funding and involve adaptation of operational use.
9.4	Glanrafon Terrace	HTL	HTL	MR	There will need to be a planned response to development of the Trefechan area.
9.5	Rheidol Valley South	MR	MR	MR	Local adaptation to increased risk.
9.6	Rheidol Valley North	HTL	HTL	HTL	This would include raising defences but beyond the period of the SMP there may need to be further adaptation.
9.7	South Marine Terrace	HTL	HTL	HTL	Management approach is expected to change to managing the alignment of the shoreline and committing to beach recharge.
9.8	Castle Hill	HTL	HTL	HTL	Management approach is expected to change to managing wave exposure.
9.9	Marine Terrace and Victoria Terrace	HTL	HTL	HTL / ATL	Management approach is expected to change to managing the alignment of the shoreline and committing to beach recharge, with the possible opportunity for reclaiming land to control the shoreline.
9.10	Constitution Hill to Clarach	NAI	NAI	NAI	

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

M.A.18 CLARACH AND WALLOG: From Constitution Hill to Sarn Gynfelyn

Policy Unit		Policy Plan			Comment
		25	55	105	
9.11	Clarach Bay	MR	MR	MR	This would require working with the local community and landowners to allow adaptation.
9.12	Glan y Mor Cliffs	NAI	NAI	NAI	
9.13	Wallog	NAI	NAI	NAI	No active intervention, but does not preclude private works to Wallog House in the short term subject to necessary approvals.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 10**M.A.19 DYFI SOUTH:** From Upper Borth through to Pennal, including Machynlleth

Policy Unit		Policy Plan			Comment
		25	55	105	
10.1	Upper Borth	MR	MR	MR	A suitable buffer zone would be established to allow future cliff recession.
10.2	Borth Village	HTL	HTL	MR	Increase width and resilience of the shoreline behaviour.
10.3	Borth Golf Course	HTL	MR	MR	Manage the transition between the southern section of the shoreline and the Ynyslas dunes.
10.4	Ynyslas	MR	NAI	NAI	
10.5	Afon Leri	HTL	HTL	MR	Manage flood defence initially with the intention of allowing failure in the third epoch, subject to caveats given in the text.
10.6	Cors Fochno	HTL	HTL	MR	Manage flood defence initially with the intention of allowing failure in the third epoch, subject to caveats given in the text.
10.7	Dyfi Junction	HTL	HTL	MR	With the intent to maintain the transport routes.
10.8	Morben Hall	HTL	HTL	HTL	
10.9	Machynlleth	HTL	MR	MR	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

M.A.20 DYFI NORTH, TYWYN AND THE DYSYNNI: From Pennal to Tonfanau

Policy Unit		Policy Plan			Comment
		25	55	105	
10.10	Pennal Valley	MR	MR	MR	.
10.11	Gogarth	HTL	HTL	HTL	
10.12	Dyfi North	HTL	HTL	HTL	Management of road and rail defences.
10.13	Aberdyfi	HTL	HTL	HTL	
10.14	Aberdyfi Dunes	MR	MR	MR	Support natural dune defence and adapt use within the Golf Course.
10.15	Penllyn	MR	MR	MR	Allow natural function of the seaward face. Maintain defence to the railway line and road.
10.16	Tywyn	HTL	HTL	HTL	
10.17	Dysynni Railway	HTL	HTL	HTL	Consideration of future managed realignment to entrance to the Dysynni.
10.18	Dysynni Estuary	HTL	MR	MR	Developed with land owners.
10.19	Tonfanau	MR	MR	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 11**MA 21 SOUTHERN CLIFFS: From Tonfanau to Friog Cliffs**

Policy Unit		Policy Plan			Comment
		25	55	105	
11.1	Rola	HTL	HTL	HTL	This relates specifically to defence of the railway line.
11.2	Llwyngwriol	MR	MR	MR	This realignment is in relation to facilitating realignment of land use, with the intent to maintain the natural function of the shoreline.
11.3	Friog Cliffs	HTL	HTL	HTL	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 22 MAWDDACH ENTRANCE - SOUTH: From Friog Cliffs to Arthog

Policy Unit		Policy Plan			Comment
		25	55	105	
11.4	Ro Wen Coast	HTL	MR	NAI	This would involve relocation of property owners and businesses from Fairbourne.
11.5	Ro Wen Spit	MR	MR	NAI	
11.6	Fairbourne Embankment	HTL	MR	NAI	
11.7	Friog	HTL	HTL	HTL	This refers to the railway line behind Fairbourne.
11.8	Morfa Mawddach	HTL	HTL	HTL	This would secure a cut off defence to the back of the area to the rear of Fegla Islands.
11.9	Fegla	HTL	MR	MR	Local consideration would be given to defence of properties on the Fegla Islands and to Arthog.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 23 MAWDDACH ESTUARY: From Arthog to Porth Aberamffra

Policy Unit		Policy Plan			Comment
		25	55	105	
11.10	Mawddach south bank	MR	MR	MR	
11.11	Penmaenpool	HTL	HTL	HTL	
11.12	Upper estuary	MR	MR	MR	This would require further investigation.
11.13	Mawddach north	MR	MR	MR	The intent is solely to manage risk to the road.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 24 BARMOUTH: From Porth Aberamffra to Llanaber Point

Policy Unit		Policy Plan			Comment
		25	55	105	
11.14	Barmouth South	HTL	HTL	HTL	
11.15	Barmouth North	HTL	MR	MR	This may include relocation of properties.
11.16	Llanaber	HTL	HTL	HTL	This needs to be considered in term of management to the above policy unit.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 25 DYFFRYN ARDUDWY: From Llanaber Point to Mochras

Policy Unit		Policy Plan			Comment
		25	55	105	
11.17	Egryn Marsh	MR	NAI	NAI	
11.18	Sunnysands	MR	MR	MR	Suggested time-stepped approach involving time/impact limited defence approval.
11.19	Islawfordd	MR	MR	MR	Suggested time-stepped approach involving time/impact limited defence approval.
11.20	Morfa Dyffryn	NAI	NAI	NAI	

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

PDZ 12

MA 26 ARTRO ESTUARY: From Mochras to Llandanwg Headland

Policy Unit		Policy Plan			Comment
		2025	2055	2105	
12.1	Mochras	NAI	NAI	NAI	Relocation of assets during epoch 2.
12.2	Artro Southern Spit	HTL	MR	MR	Maintain control of the spit while considering overall management plan.
12.3	Artro Estuary South	HTL	MR	MR	Local management of defences subject to developing a management plan. The default policy would be for NAI.
12.4	Artro Estuary East	HTL	HTL	HTL	Maintain defence to the road and railway.
12.5	Llandanwg Dunes	MR	MR	MR	Local management of defences subject to developing a management plan. The default policy would be for NAI.
12.6	Llandanwg Headland	HTL	HTL	HTL	

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

MA 27 HARLECH AND THE DWYRYD ESTUARY: From Llandanwg Headland to the Cob

Policy Unit		Policy Plan			Comment
		2025	2055	2105	
12.7	Morfa Harlech	NAI	NAI	NAI	This would preclude any actions to intervene with natural processes.
12.8	Harlech Valley	HTL	HTL	HTL	Develop a water level and spatial management plan, considering drainage issues, potential for habitat recreation and long term sustainable management of flood risk at Lower Harlech.
12.9	Talsarnau	HTL	MR	MR	Realignment either to railway line in the north or to the old cliff line.
12.10	Briwet and Dwyryd Gorge	NAI	NAI	NAI	Maintain toll road and railway line.
12.11	Upper Dwyryd Estuary	MR	NAI	NAI	Local management of defences to maintain main roads.
12.12	Penrhyndeudraeth Headland	NAI	NAI	NAI	This might not preclude local private management of defences subject to normal approvals.

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

MA 28 PORTHMADOG: From the Cob to Graig Ddu

Policy Unit		Policy Plan			Comment
		2025	2055	2105	
12.13	The Cob and Porthmadog	HTL	HTL	HTL	Further investigation of improving defences to town as identified by the CFMP.
12.14	Borth-y-Gest	HTL	HTL	HTL	Consideration of adapting road to ensure long term safe access to community.
12.15	Samson Bay	NAI	NAI	NAI	
12.16	Morfa Bychan	MR	MR	MR	Sustain natural dune defence with management of access. Develop a long term management plan for adaptation within Holiday Park area and potential future requirement of management of flood risk to village.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 29 CRICCIETH EAST AND EASTERN SHINGLE BANKS: From Graig Ddu to Criccieth Castle

Policy Unit		Policy Plan			Comment
		2025	2055	2105	
12.17	Criccieth Shingle Banks	HTL	MR	MR	Consideration of potential to realign the railway.
12.18	Criccieth Harbour	HTL	HTL	MR	Look to realign the shoreline to the frontage through development of the Harbour pier and eastern end of The Esplanade to retain the beach.
12.19	Castle Headland	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 30 CRICCIETH WEST: From Criccieth Castle to Pen ychain

Policy Unit		Policy Plan			Comment
		2025	2055	2105	
12.20	Criccieth West	HTL	HTL	HTL	
12.21	Y Dryll	NAI	NAI	NAI	
12.22	Dwyfor	MR	NAI	NAI	Consider impact on railway.
12.23	Glanllynnau Cliffs	NAI	NAI	NAI	Maintain geological exposure.
12.24	Afon Wen	HTL	MR	MR	Concerns over long term sustainability. Consider possible realignment in land of the railway.
12.25	Pen ychain East	NAI	NAI	NAI	This might not preclude local private management of defences subject to normal approvals.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 13**MA 31 PWLLHELI AREA: From Pen ychain to Mynydd Tir-cwmwd**

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
13.1	Pen ychain and western section of the Bay	NAI	NAI	NAI	
13.2	Abererch	HTL	MR	MR	Subject to national consideration of railway.
13.3	Glan Y Don	HTL	HTL	HTL	Allow buffer zone for natural behaviour of the dunes.
13.4	Pwllheli Harbour and entrance	HTL	HTL	HTL	.
13.5	Pwllheli Centre	HTL	HTL	HTL	Spatial planning for potential long term adaptation.
13.6	South Beach	HTL	HTL	HTL	Allow and manage development of the dunes.
13.7	Golf Course	HTL	MR	MR	Detailed study to allow transition between Traeth Crugan and South Beach.
13.8	Traeth Crugan	HTL	MR	MR	Intent to create new entrance estuary to the Afon Penrhos and to manage new defence to the core of Pwllheli.
13.9	Llanbedrog	NAI	NAI	NAI	This would not preclude local management of the slipway area.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 32 ABERSOCH AREA: From Mynydd Tir-cwmwd to Penrhyn Du

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
13.10	Mynydd Tir cwmwd	NAI	NAI	NAI	
13.11	The Warren	HTL	MR	MR	Progressive management of the retreating shoreline.
13.12	Abersoch	HTL	MR	MR	Consider opening up tidal flooding of the Afon Soch and planning of future use of the entrance.
13.13	Penbennar	HTL	HTL	HTL	Local private management of defences.
13.14	Borth Fawr Central	HTL	MR	NAI	Opportunity for adaptation.
13.15	Machroes	HTL	MR	NAI	This would not preclude local management of the road.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 33 PORTH CEIRIAD HEADLAND AND ST TUDWALS ISLAND : From Penrhyn Du to Trwyn Cilan

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
13.16	Machroes Headland	NAI	NAI	NAI	
13.17	ST Tudwal's Islands	NAI	NAI	NAI	
13.18	Porth Ceiriad	NAI	NAI	NAI	
13.19	Cilan Headland	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 14**MA 34 HELLS MOUTH: From Trwyn Cilan to Trwyn Talfarach**

Policy Unit		Policy Plan			Comment
		25	55	105	
14.1	Mynydd Cilan West	NAI	NAI	NAI	
14.2	Hells Mouth South	NAI	NAI	NAI	Local readjustment and dune management.
14.3	Hells Mouth Centre	NAI	NAI	NAI	
14.4	Hells Mouth North	NAI	NAI	NAI	Future realignment or loss of road.
14.5	Rhiw	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 35 PORTH YSGO: From Trwyn Talfarach to Trwyn Penrhyn

Policy Unit		Policy Plan			Comment
		25	55	105	
14.6	Ysgo	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 36 ABERDARON: From Trwyn Penrhyn to Pen y Cil

Policy Unit		Policy Plan			Comment
		25	55	105	
14.7	Aberdaron East	NAI	NAI	NAI	Consider how the transition between Aberdaron Village frontage and this unit is managed to allow adaptation.
14.8	Aberdaron Village and coastal slope	HTL	MR	HTL	Develop Managed Realignment within a framework for sustainable development of the village. Address transport issues.
14.9	Mynydd Uwch	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 37 YNYS ENLLI

Policy Unit		Policy Plan			Comment
		25	55	105	
14.10	Ynys Enlli	NAI	NAI	NAI	Consider adaptation to landing stage.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 38 SOUTH WEST LLEYN: From Pen y Cil to Carreg Du

Policy Unit		Policy Plan			Comment
		25	55	105	
14.11	South West Lleyrn	NAI	NAI	NAI	Local management would not be precluded to allow adaptation of use within a principle of allowing natural evolution of the coast.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 15**MA 39 NORTH LLYN BAYS:** From Carreg Ddu to Trwyn y Tal

Policy Unit		Policy Plan			Comment
		25	55	105	
15.1	Carreg Ddu to Trwyn y Tal	NAI	NAI	NAI	Overarching policy setting the base intent for the zone.
15.2	Porth Dinllaen, including Morfa Nefyn	HTL	MR	MR	This would require detailed planning for adaptation at Porth Dinllaen and managed retreat at the access at Morfa Nefyn.
15.3	Porth Nefyn West	HTL	HTL	MR	Overarching policy setting the base intent for the zone.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 40 NORTH LLYN SHORELINE: From Trwyn y Tal to Trwyn Maen Dylan

Policy Unit		Policy Plan			Comment
		25	55	105	
15.4	Trwyn y Tal to Trwyn Maen Dylan	NAI	NAI	NAI	Overarching policy setting the base intent for the zone.
15.5	Trefor	MR	MR	MR	A detailed local plan would be needed to sustain amenity value of the area.
15.6	Aberdesach	MR	MR	MR	Local management of the shingle bank and river discharge to sustain natural defence of the area.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 16**MA 41 OUTER ESTUARY WEST:** From Trwyn Maen Dylan to Llanddwyn Island (including Foryd and Abermenai)

Policy Unit		Policy Plan			Comment
		25	55	105	
16.1	Pontllyfni	NAI	NAI	NAI	This would not preclude maintenance of private defence during the first epoch. Review flood risk to main road and sewage works.
16.2	Pontllyfni to Dinas Dinlle	NAI	NAI	NAI	Maintain sediment supply to the north.
16.3	Dinas Dinlle	HTL	MR	MR	Manage transition between Dinas Dinlle Head and open coast with the intent to manage flood risk to village on higher ground.
16.4	Morfa Dinlle	MR	MR	NAI	Develop management to self sustaining dune frontage. This would not specifically preclude management of the local area at Fort Belan subject to normal approvals.
16.5	Foryd Bay	HTL	MR	NAI	Manage flood defence initially with the intention of returning the bay to a naturally functioning system.
16.6	Traeth Abermenai	NAI	NAI	NAI	This would include further examination of potential flood risk to Dwyran, with the intent to provide defence.
16.7	Abermenai Spit and Traeth Llanddwyn	NAI	NAI	NAI	Removal of forestry to allow width for coastal adjustment.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 42 MALLTRAETH AND CEFNI: From Llanddwyn Island to Pen-y parc

Policy Unit		Policy Plan			Comment
		25	55	105	
16.8	Newborough Forest	NAI	NAI	NAI	
16.9	Embankment and Village	HTL	HTL	HTL	Local consideration for adaption to the front defence to the village with sea level rise.
16.10	Bodowen Cliffs	NAI	NAI	NAI	

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

MA 43 INNER WESTERN SECTION OF THE MENAI STRAIT: From Foryd Bay to the Britannia Bridge and to the Mermaid Inn

Policy Unit		Policy Plan			Comment
		25	55	105	
16.11	Ffordd Yr Aber to Afon Carogg	HTL	HTL	MR	Subject to highway funding, with future adaption of property and access.
16.12	Caernarfon	HTL	HTL	HTL	Review the need for raising defence, co-ordinated with fluvial flood management.
16.13	Waterloo Port to Glan y Mor -Y Felinheli	NAI	NAI	NAI	This would not preclude local management through private funding subject to normal approvals.
16.14	Y Felinheli	HTL	HTL	HTL	Review flood risk with sea level rise.
16.15	Glan-y-mor Lodge to Bridge	NAI	NAI	NAI	
16.16	Bridge to Barras	NAI	NAI	NAI	
16.17	Barras to Mermaid Inn	HTL	MR	NAI	Intent to maintain access but with future need for adaptation to increased flood risk.

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

MA 44 SOUTH EASTERN SHORE TO YNYS MON: From Britannia Bridge to Penmon Point

Policy Unit		Policy Plan			Comment
		25	55	105	
16.18	Llanfair Bay	NAI	NAI	NAI	
16.19	Porthaethwy	HTL	HTL	HTL	Local management to defences to maintain historic frontage.
16.20	Pont Cadnant to Gallows Point	NAI	NAI	NAI	This would not preclude private works subject to normal approvals.
16.21	Beaumaris West	HTL	HTL	MR	Maintain defence but with the potential opportunity for realignment.
16.22	Beaumaris East	HTL	HTL	MR	Adapt defences to improve defence with the intent of using the width of the Green to landscape flood defence.
16.23	Drumlin	NAI	NAI	NAI	
16.24	Llanfaes	HTL	HTL	HTL	Maintain local access road.
16.25	Llanfaes to Penmon	NAI	NAI	NAI	Potential need to realign road.

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

MA 45 BANGOR: From Britannia Bridge to Afon Ogwen

Policy Unit		Policy Plan			Comment
		25	55	105	
16.26	Bridge to Garth	NAI	NAI	NAI	
16.27	Garth Point and Dock Yard	HTL	HTL	HTL	
16.28	Hirael	HTL	HTL	MR	Consider options for re-development and flood proofing.
16.29	Porth Penrhyn	HTL	HTL	HTL	Subject to alternative funding.
16.30	Penrhyn Headland	NAI	NAI	NAI	

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

MA 46 TRAETH LAFAN AND LLANFAIRFECHAN From Afon Ogwen to Llanfairfechan

Policy Unit		Policy Plan			Comment
		25	55	105	
16.31	Afon Ogwen to Madryn	NAI	NAI	NAI	
16.32	Afon Aber	MR	MR	HTL	Adapt defences to maintain natural sediment drift with long term intent to protect transport route from potential flooding.
16.33	Llanfairfechan	HTL	HTL	MR	Maintain defences with long term aim to adjust to a more favourable alignment.

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

PDZ 17**MA 47 ABERFFRAW AND COAST:** From Twyn y Parc to Porth Trecastell

Policy Unit		Policy Plan			Comment
		2025	2055	2105	
17.1	Twyn y Parc headland	NAI	NAI	NAI	
17.2	Traeth Mawr	NAI	NAI	NAI	Maintain natural function of dune system and estuary.
17.3	Aberffraw	HTL	MR	MR	Adapt road and quay to support natural function of the estuary.
17.4	Aberffraw Cliffs	NAI	NAI	NAI	This might not preclude appropriate management of the road at Porth Trecastell.

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

MA 48 RHOSNEIGR: From Porth Trecastell to Traeth Cymyran

Policy Unit		Policy Plan			Comment
		2025	2055	2105	
17.5	Porth Trecastell to Rhosneigr	MR	MR	NAI	This would not preclude management of defences at Cerrig Defaid in the first two epochs.
17.6	Rhosneigr	HTL	HTL	MR	Develop long term realignment to a sustainable headland.
17.7	Crigyll Valley South	HTL	HTL	HTL	Local defence to main access road.
17.8	Treath Crigyll and Traeth Cymyran	NAI	NAI	NAI	Relocation of facilities to RAF Valley.

Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment

MA 49 WEST HOLY ISLAND: From Traeth Cymyran to Holyhead

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
17.9	General policy for Southwest	MR	MR	MR	Management to local bays is defined below.
17.10	Borthwen	MR	MR	NAI	This would not preclude local private defence subject to normal approvals.
17.11	Porth Diana	HTL	HTL	HTL	Adaptation of defence in the long term to sustain the beach.
17.12	Trearddur	HTL	HTL	HTL	Adaptation of defence in the long term to sustain the beach.
17.13	Porth Dafarch	HTL	HTL	HTL	Adaptation of defence in the long term to sustain the beach.
17.14	Northwest Coast	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 50 HOLYHEAD AND PENRHOS: From Holyhead to the Stanley Embankment

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
17.15	Holyhead	HTL	HTL	HTL	
17.16	Penrhos Bay	MR	MR	MR	Examination of potential flood risk.
17.17	Penrhos Headland	NAI	NAI	NAI	This would not preclude local private defence subject to normal approvals.
17.18	Stanley Embankment	HTL	HTL	HTL	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 51 INLAND SEA: From Traeth Cymyran to the Stanley Embankment

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
17.19	General policy for Inland Sea	MR	MR	MR	Local defence to sustain Four Mile Bridge and local defence against flood within hinterland.
17.20	Valley	HTL	HTL	HTL	Long term planning to reduce residual flood risk.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 52 NEULANDS AND AFON ALAW: From the Stanley Embankment to Twyn Cliperau

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
17.21	Newlands	MR	MR	MR	Co-ordinated approach to slowing erosion.
17.22	Afon Alaw	MR	MR	MR	Long term planning to reduce residual flood risk.
17.23	Traeth Gribin to Twyn Cliperau	MR	MR	MR	This would not preclude local private defence subject to normal approvals.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 18**MA 53 NORTHWEST YNYS MON: From Twyn Cliperau to Wylfa Head**

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
18.1	Twyn Cliperau to Wylfa Head	NAI	NAI	NAI	Overarching policy for whole area, with local policy as set out below.
18.2	Porth Tywyn-mawr	NAI	NAI	NAI	
18.3	Porth Trefadog	MR	NAI	NAI	
18.4	Porth Trwyn	NAI	NAI	NAI	
18.5	Porth Swtan	NAI	NAI	NAI	
18.6	Cemlyn Bay and Headland	MR	NAI	NAI	
18.7	Wylfa Power Station	HTL	HTL	HTL	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 54 CEMAES BAY: From Wylfa Head to Trwyn y Parc

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
18.8	Cemaes Bay west	NAI	NAI	NAI	
18.9	Ffordd y Traeth	HTL	HTL	MR	
18.10	Cemaes Harbour	HTL	HTL	HTL	
18.11	Treath Mawr Promenade	HTL	HTL	MR	
18.12	Pig y Barcud Cliffs	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 55 NORTHEAST YNYS MON: From Trwyn y Parc to Trwyn Cwmrwd

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
18.13	Trwyn y Parc to Trwyn Cwmryd	NAI	NAI	NAI	Overarching policy for whole area, with local policy as set out below.
18.14	Porth Wen Brickworks	MR	MR	NAI	
18.15	Porth -Llechog	HTL	HTL	MR	
18.16	Trwyn Costog	MR	MR	MR	
18.17	Amlwch	HTL	HTL	HTL	
18.18	Porth Elian	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 19**MA 56 DULAS BAY:** From Trwyn Cwmrwd to Ynys Moelfre

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
19.1	General	NAI	NAI	NAI	Overarching policy for whole area, with local policy as set out below.
19.2	Portobello	MR	MR	NAI	
19.3	Traeth Dulas	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 57 MOELFRE: From Ynys Moelfre to Penrhyn

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
19.4	Porth Lydan	MR	MR	MR	
19.5	Porth Moelfre	HTL	HTL	MR	
19.6	Moelfre to Traeth Bychan	NAI	NAI	NAI	
19.7	Treath Bychan Centre	MR	NAI	NAI	
19.8	Traeth Bychan South	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 58 TRAETH COCH: From Trwyn y Parc to Trwyn Cwmrwd

Policy Unit		Policy Plan			
		2025	2055	2105	Comment
19.9	Borth Wen Cliffs	NAI	NAI	NAI	
19.10	Benllech Beach Road	HTL	HTL	MR	
19.11	Trwyn Dwlban	NAI	NAI	NAI	
19.12	Red Wharf Bay	HTL	HTL	MR	
19.13	Croesfryn	NAI	NAI	NAI	
19.14	Afon Nodwydd	MR	MR	MR	
19.15	Llanddona Beach	NAI	NAI	NAI	
19.16	Trwyn Penmon Cliffs	NAI	NAI	NAI	
19.17	Puffin Island	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

PDZ 20**MA 59 SOUTHERN SHORELINE:** From Llanfairfechan To Penmaen- Bach

Policy Unit		Policy Plan			Comment
		25	55	105	
20.1	Gerizim	HTL	HTL	HTL	
20.2	Penmaenmawr	HTL	HTL	HTL	Joint funding approach to sustain use of the promenade, road and railway.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 60 INNER ESTUARY AND ASSOCIATED SHORELINE: Conwy Morfa through to the bridges and from the bridges north to Traeth Melyn

Policy Unit		Policy Plan			Comment
		25	55	105	
20.3	Conwy Morfa	HTL	HTL	MR	Possible realignment forward, to be considered in conjunction with management at Deganwy.
20.4	Conwy Marina	HTL	HTL	HTL	
20.5	Conwy	HTL	HTL	HTL	
20.6	Gyffin Valley	HTL	HTL	MR	
20.7	Causeway	HTL	HTL	HTL	
20.8	Deganwy	HTL	HTL	MR	Decisions in relation to the railway line and from a spatial planning perspective. MR to be considered in conjunction with management at Conwy Morfa.
20.9	Deganwy Point	HTL	HTL / MR	MR	MR to be considered in conjunction with management at Conwy Morfa and the unit above.
20.10	Traeth Melyn	HTL	HTL	HTL	Subject to maintaining the railway line. The default policy would MR.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 61 OUTER ESTUARY EAST: Traeth Melyn to Great Orme Head

Policy Unit		Policy Plan			Comment
		25	55	105	
20.11	West Shore and Golf Course	HTL	HTL	MR	With the intent to sustain and improve flood defence in line with sea level rise to Llandudno.
20.12	Gogarth	NAI	NAI	NAI	This would not preclude private defence subject to normal approvals.
20.13	Great Orme Head	NAI	NAI	NAI	
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

MA 62 UPPER ESTUARY: The Causeway through to Llanrwst

Policy Unit		Policy Plan			Comment
		25	55	105	
20.14	West to Tal-y-Cafn	NAI	NAI	NAI	
20.15	Llandudno Junction and Ganol Estuary	HTL	HTL	MR	With the intent to sustain defence in line with sea level rise. Realignment would be through the Nature Reserve.
20.16	Glan Conwy	HTL	HTL	HTL	Subject to maintaining the railway line.
20.17	Glan Conwy to Tal-y-Cafn	HTL	HTL	HTL	Subject to maintaining the railway line.
20.18	Tal-y-Cafn	HTL	MR	MR	Retire defence to the railway line.
20.19	Tal-y-Cafn to Llanrwst	HTL	MR	NAI	The intent would be to relocate the railway line to the edge of the tidal flood plain. Under the long term policy local defence to villages would be considered further.
Key: HTL - Hold the Line, ATL - Advance the Line, NAI – No Active Intervention, MR – Managed Realignment					

Annex VI: Sabellaria Assessment

Policy Units with Sabellaria alveolata reef present

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
4.3	HTL	MR	MR	Not in European Site. Present in the lower shore in the centre of the unit, one area covering <0.02ha.	No defences would be situated on or near to the area of reef due its presence in the lower shore in the western half of the unit. Defence line occurs over 80m away from the upper shore and would not constrain the natural movement of reef species vertically up the shore in Epoch 1, and there is no measurable change as a result of coastal squeeze expected in Epoch 1. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL or MR actions on the upper shore in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL or MR policies.
4.4	NAI	NAI	NAI	Not in European Site.	No active intervention, hence natural change only would occur.
4.13	NAI	NAI	NAI	Not in European Site.	No active intervention, hence natural change only would occur.
4.18	HTL	MR	NAI	Not in European Site. Mid to lower shore toward the north edge of the unit, three areas covering <0.03ha.	HTL in Epoch 1 would not prevent movement of reef vertically up the shore in response to natural forces, and would not affect the coastal processes and sediment transport relative to existing situation. NAI is Epochs 2 and 3 will result in no active intervention, hence natural change only would occur.
4.19	NAI	NAI	NAI	Not in European Site.	No active intervention, hence natural change only would occur.
5.2	NAI	NAI	NAI	Within Cardigan Bay SAC.	No active intervention, hence natural change only would occur.
6.2	HTL	HTL	HTL	On rocks/substrate either side of the small bay/beach, extending from mid to lower shore in profile, two areas covering <0.31ha. Within Cardigan Bay SAC.	No defences would be situated on or near to the area of reef due its presence in the lower shore. Defence line occurs over 60m away from the reef on the upper shore and would not constrain the natural movement of reef species vertically up the shore. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions on the upper shore in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies.
6.3	NAI	NAI	NAI	Both sides of unit. Within Cardigan Bay SAC.	No active intervention, hence natural change only would occur.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
6.4	HTL	MR	MR	Present only at the far western edge of the policy unit in the lower shore, one area covering <0.01ha. Within Cardigan Bay SAC.	No defences would be situated on or near to the area of reef due its presence in the lower shore at the far end of the unit. Defence line occurs over 110m away from the reef on the upper beach, and would not constrain the natural movement of reef species vertically up the shore in Epoch 1, as there is no measurable change as a result of coastal squeeze expected in Epoch 1. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL or MR actions on the upper shore in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL or MR policies. Adjacent policies are for NAI, continuing to provide sediment to the system.
6.7	NAI	NAI	NAI	Within Cardigan Bay SAC.	No active intervention, hence natural change only would occur.
7.2	HTL	HTL	HTL	Far north edge of the Policy Unit, and located at the lower shore, one area covering <0.01ha. Within Cardigan Bay SAC.	No defences would be situated on or near to the area of reef due its presence in the lower shore. Defence line occurs over 40m away on the upper beach, and would not constrain the natural movement of reef species. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from any HTL actions on the upper shore in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies. Adjacent policies are for NAI, continuing to provide sediment to the system.
7.4	MR	MR	MR	Extensive area extending from mid shore to lower shore along the eastern edge of the unit, two areas covering <1.6ha. Within Cardigan Bay SAC.	No defences would be situated on or near to the area of reef due its presence in the lower shore at the far end of the unit. Defence line is nearest at 20m but mainly further away on the upper beach, and MR actions would not constrain the natural movement of reef species vertically up the shore. No change to cross-shore movement of sediment is expected, and no alteration to the coastal processes or sediment transport is expected in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of the MR policies. Adjacent policies are for MR or NAI, continuing to provide sediment to the system.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
7.5	HTL	HTL	MR	Extensive area extending from mid shore to lower shore along the western edge of the unit, one area covering <0.97ha. Within Cardigan Bay SAC.	No defences would be situated on or near to the area of reef due its presence in the lower shore at the far end of the unit. Defence line generally occurs in excess of 30m, and limited if any coastal squeeze is expected such that there is sufficient space for natural movement of the reef during Epochs 1 and 2 vertically up the shore. No change to cross shore sediment movement is expected, no alteration to the coastal processes or sediment transport is expected to result from HTL or MR actions on the upper shore in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL or MR policies. Adajcent policies are for NAI or MR, continuing to provide sediment to the system.
7.6	NAI	NAI	NAI	Within Cardigan Bay SAC.	No active intervention, hence natural change only would occur.
8.1	NAI	NAI	NAI	Within Cardigan Bay SAC.	No active intervention, hence natural change only would occur.
8.2	HTL	HTL	MR	Along almost entire length of mid to lower shore of this unit, two areas covering <1.99ha. Within Cardigan Bay SAC.	No defences would be situated on or near to the area of reef due its presence in the lower shore at the far end of the unit. Defence line generally occurs in excess of 40m, and limited if any coastal squeeze is expected such that there is sufficient space for natural movement of the reef during Epochs 1 and 2 vertically up the shore. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL or MR actions on the upper shore in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL or MR policies. Adajcent policies are for NAI, continuing to provide sediment to the system.
8.4	HTL	HTL	HTL	Along almost entire length of lower shore of this unit, one area covering <5.13ha. Within Cardigan Bay SAC.	No defences would be situated on or near to the area of reef due its presence in the lower shore. Defence line occurs over 30m away from the breakwaters and 130m from the upper beach, and would not constrain the natural movement of reef species vertically up the shore. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions at this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies.
8.5	NAI	NAI	NAI	Within Cardigan Bay SAC.	No active intervention, hence natural change only would occur.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
8.6	HTL	MR	MR	Present in the lower shore in the western half of the unit fronting the groynes, one area covering <0.86ha. Within Cardigan Bay SAC.	No defences would be situated on or near to the area of reef due its presence in the lower shore in the western half of the unit. Defence line occurs over 40m away from the upper shore and would not constrain the natural movement of reef species vertically up the shore in Epoch 1, and there is no measurable change as a result of coastal squeeze expected in Epoch 1. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL or MR actions on the upper shore in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL or MR policies.
8.7	NAI	NAI	NAI	Not in European Site.	No active intervention, hence natural change only would occur.
8.8	MR	MR	MR	Not in European Site. Present but midshore down to sublittoral and covering most apart from the central part of the unit, eight areas covering c.10.75ha.	No defences would be situated on or near to the area of reef due its presence in the lower shore at the far end of the unit. Defence line is nearest at 10m but mainly further away, and MR actions would not constrain the natural movement of reef species vertically up the shore. There would be no change to cross-shore movement of sediment, and no alteration to the coastal processes or sediment transport is expected. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of the MR policies in this unit.
8.9	MR	MR	MR	Not in European Site. Present in the midshore down to sublittoral extending along the unit with the exception of the centre where no reef is present, and two areas covering <11.9ha.	No defences would be situated on or near to the area of reef due its presence in the lower shore at the far end of the unit. Defence line is nearest at 50m, and MR actions would not constrain the natural movement of reef species vertically up the shore. There would be no barrier to cross-shore movement of sediment, and no alteration to the coastal processes or sediment transport is expected in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of the MR policies.
8.1	NAI	NAI	NAI	Not in European Site.	No active intervention, hence natural change only would occur.
9.1	NAI	NAI	NAI	Not in European Site.	No active intervention, hence natural change only would occur.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
9.3	HTL	HTL	HTL	Not in European Site. Along the lower shore to the northwest of the pier, one area covering c.0.38ha.	No defences would be situated on or near to the area of reef due its presence in the lower shore. Pier is over 30m away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies.
9.7	HTL	HTL	HTL	Not in European Site. Along the lower shore of the north and south sides of the unit, two areas covering c.1.57ha.	No defences would be situated on or near to the area of reef due its presence in the lower shore. Defence line is over 40m away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies.
9.8	HTL	HTL	HTL	Not in European Site. Present along whole unit on the intertidal substrates of the mid to lower shore, one large extent covering c.3.73ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. Defence line is over 30m away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
9.9	HTL	HTL	HTL/A	Not in European Site. Present in the central area of the site in the lower shore, and at the north edge of the unit, five areas covering c.0.97ha	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore in Epochs 1 and 2, and given the likely advance line policy it is not expected that this would encroach on the central and northern reef colonies. Defence line is over 20m away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through Epochs 1 and 2. However, ATL could potentially result in the loss of biogenic reef, depending on location of the defence line which could affect some or all of the reef in the unit frontage by direct footprint loss. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL and ATL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL and ATL policies.
9.10	NAI	NAI	NAI	Not in European Site. Present along whole unit frontage in the lower shore, one area covering c. 3.72ha.	No active intervention, hence natural change only would occur.
9.11	MR	MR	MR	On the very edge of the northern boundary in the low shore and subtidal, one area covering <0.36ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. Defence line is over the southern section of the frontage away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of MR policies.
9.12	NAI	NAI	NAI	Across the entire unit frontage in the mid to lower shore, three areas covering c. 5.73ha.	No active intervention, hence natural change only would occur.
9.13	NAI	NAI	NAI	Two areas either side of the sand spit and within the lower shore, covering c. 2.35ha.	No active intervention, hence natural change only would occur.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
10.1	MR	MR	MR	Scattered along the unit frontage in the low and mid shore, 14 areas covering c. 6.43ha.	No defences would be situated on or near to the area of reef due its presence in the lower shore. Mangement is soley directed at adaption of land use to the crest of the cliff and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from MR actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of MR policies.
10.2	HTL	HTL	MR	One very small extent in the lower shore at the southernmost edge of the unit covering <0.02ha.	No defences would be situated on or near to the area of reef due its presence in the lower shore at the southern end of the unit. Defence focusses on provison of a natuarl beach held on the upper foreshore and limited if any coastal squeeze is expected such that there is sufficient space for natural movement of the reef during Epochs 1 and 2 vertically up the shore. No change to critical cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport within teh lower foreshore is expected to result from HTL or MR actions on the upper shore in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL or MR policies. Adajcent policies are for NAI, continuing to provide sediment to the system.
10.16	HTL	HTL	HTL	One very small area toward the southern end of the unit within the mid shore, covering <0.01ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. Defence line is to the north of the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies. Adajcent policies are for NAI, continuing to provide sediment to the system.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
10.17	HTL	HTL	HTL	One very small area apparently in the upper shore adjacent to a sluice in the central part of the unit, covering <0.01ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. Defence line is away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies.
10.19	MR	MR	NAI	One large area in the mid to lower shore at the north end of the unit, covering c. 1.47ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. Defence line is away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies. Adjacent policies are for NAI, continuing to provide sediment to the system.
11.1	HTL	HTL	HTL	One very large extent often covering most of the intertidal area across most of the frontage and one small area in the lower shore at the southern end of the unit, covering c. 27.74ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. Local defence line is away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies. Adjacent policies are for NAI, continuing to provide sediment to the system.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
11.2	MR	MR	MR	Two areas covering the mid to lower shore across most of the unit frontage, and covering c. 13.90ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. Local defence line is away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from MR actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of MR policies. Adajcent policies are for NAI, continuing to provide sediment to the system.
11.3	HTL	HTL	HTL	Six areas covering the mid to lower shore across most of the unit frontage, and covering c. 7.05ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. Local defence line is away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HLT policies. Adajcent policies are for NAI, continuing to provide sediment to the system.
12.1	NAI	NAI	NAI	Two areas in the low to mid shore scattered through the unit frontage and covering c. 4.75ha.	No active intervention, hence natural change only would occur.
12.2	HTL	MR	MR	One area in the lower to mid shore on the central seaward facing intertidal area of the unit, covering c. 1.28ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. An adaptive approach to defence is recommended away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HLT policy. Adajcent policies are for MR, continuing to provide sediment to the system.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
12.5	MR	MR	MR	Two areas in the lower shore at the north end of the seaward face of the unit, covering c. 0.92ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. An adaptive approach to defence is recommended away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from MR actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of MR policy. Adjacent policies are for MR, continuing to provide sediment to the system.
12.6	HTL	HTL	HTL	Two areas in the lower to mid shore of the coarser grained intertidal area fronting the majority of the railway line in the southern two thirds of the unit, covering c. 3.61ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. Local defence line is away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HLT policies. Adjacent policies are for MR, continuing to provide sediment to the system.
12.16	MR	MR	MR	One very small area in the mid shore fronting Craig Ddu, and covering <0.01ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. An adaptive approach to defence is recommended away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from MR actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of MR policy. Adjacent policies are for MR, continuing to provide sediment to the system.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
12.18	HTL	HTL	MR	Three small areas scattered in the lower shore of the unit frontage and covering <0.12ha.	No defences would be situated on or near to the area of reef due its presence in the lower shore at the southern end of the unit. Defence focusses on provision of a natural beach held on the upper foreshore and limited if any coastal squeeze is expected such that there is sufficient space for natural movement of the reef during Epochs 1 and 2 vertically up the shore. No change to critical cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport within teh lower foreshore is expected to result from HTL or MR actions on the upper shore in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL or MR policies. Adajcent policies are for NAI, continuing to provide sediment to the system.
12.20	HTL	HTL	HTL	One small area in the mid shore at the far western extent of the unit frontage and covering <0.06ha.	No defences would be situated on or near to the area of reef due its presence in the lower shore. Defence line is to the east, away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from HTL actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of HTL policies.
12.21	NAI	NAI	NAI	Three areas covering the mid to low shore across most of the frontage though particularly in the eastern half in the mid shore and western extent in the lower shore, and covering c. 5.87ha.	No active intervention, hence natural change only would occur.
12.22	MR	NAI	NAI	Ten areas scattered to the west of the Afon Dwyfor estuary, becoming more coherent to the west such that the entire intertidal zone supports Sabellaria, and total coverage in the unit of c. 13.06ha.	No defences would be situated on or near to the area of reef due its presence in the lower to mid shore. An adaptive approach to defence is recommended away from the biogenic reef, and would not constrain the natural movement of reef species vertically up the shore through all the epochs. No change to cross shore sediment movement is expected, and no alteration to the coastal processes or sediment transport is expected to result from MR actions in this unit. Substrates suitable for colonisation by naturally moving reef species will not be lost or obstructed as a result of MR policy. Adajcent policies are for MR, continuing to provide sediment to the system.

Policy Unit	Epoch 1	Epoch 2	Epoch 3	Notes on Extent	Impact
12.23	NAI	NAI	NAI	Two connected areas in the mid to lower shore at the eastern side of the unit connecting to the PU 12.22 community, and covering c. 2.56ha.	No active intervention, hence natural change only would occur.
12.25	NAI	NAI	NAI	One very small area in the lower shore at a central location in the unit, approximately 140m seaward of MHWS and covering <0.01ha.	No active intervention, hence natural change only would occur.

Annex VII: Test for Alternative Options

1 TEST OF ALTERNATIVE SOLUTIONS

1.1.1 The SMP partnership (which includes the local authorities, CCW, and the Environment Agency Wales) has identified the least damaging alternative to managing the coastline and its designated habitats over the next 100 years.

1.1.2 The following test for no alternative solutions has therefore been based on the consideration of alternative options that may be more expensive, more difficult to achieve, less convenient to implement, but must not be unrealistic alternatives that are clearly not technically feasible. The policy development stage of the SMP process examined the four potential strategic policy options with respect to coastal management measures. Consequently, the Policy Units have been examined with respect to the effects of the alternative options on each of the *Natura 2000* Sites where a significant adverse effect on their integrity is identified. Subsequently, an initial examination of the strategic alternative options has been undertaken below of the four policy options.

No Active Intervention (NAI)

1.1.3 Where no existing defences are present within a policy unit, and where no significant social and economic assets are at risk, NAI has been selected during the SMP process. NAI would ensure that natural coastal processes occur with no intervention from human actions, and therefore is considered to be natural change. **Table G-VII.1** Error! Reference source not found. identifies the various policy units where NAI has been selected for the European Sites where an adverse effect on integrity has been identified.

Table G-VII.1 Policy Units where NAI is Selected

Site	Policy Unit	Epochs
Pembrokeshire Marine SAC	1.1 to 1.3	All epochs
	2.1	All epochs
	2.3	All epochs
	2.5	Epoch 3
	2.7	All epochs
	2.9	All epochs
	2.11	Epoch 3
	2.13	All epochs
	3.1	All epochs
	3.4	Epochs 2 and 3
	3.6 and 3.7	All epochs
Lleyn Peninsula and the Sarnau SAC	9.12 and 9.13	All epochs
	10.4	Epochs 2 and 3
	10.19	Epoch 3
	11.4 to 11.6	Epoch 3
	11.17	Epochs 2 and 3
	11.20	All epochs
	12.1	All epochs
	12.7	All epochs
	12.10	All epochs
	12.11	Epochs 2 and 3
	12.12	All epochs

Site	Policy Unit	Epochs
	12.15 12.19 12.21 12.22 12.23 12.25 13.1 13.9 and 13.10 13.14 13.15 13.16 to 13.19 14.1 to 14.7 14.9 to 14.11 15.1	All epochs All epochs All epochs Epochs 2 and 3 All epochs All epochs All epochs All epochs Epoch 3 Epoch 3 All epochs All epochs All epochs All epochs
Anglesey Coast: Saltmarsh SAC	16.6 to 16.8 16.10	All epochs All epochs
Menai Strait and Conwy Bay SAC	16.4 and 16.5 16.6 to 16.7 16.13 16.15 and 16.16 16.17 16.18 16.20 16.23 16.25 and 16.26 16.30 and 16.31 19.1 19.6 19.7 19.8 and 19.9 19.11 19.13 19.15 to 19.17 20.12 and 20.13	Epoch 3 All epochs All epochs All epochs Epoch 3 All epochs All epochs All epochs All epochs All epochs All epochs All epochs All epochs All epochs Epochs 2 and 3 All epochs All epochs All epochs All epochs All epochs
Traeth Lafan / Lavan Sands, Conwy SPA	16.27 16.30 and 16.31 20.1	All epochs All epochs All epochs

Managed Realignment

- 1.1.4 Where existing defences are present and/or where important infrastructure is present within a policy unit, and where negligible scale effects or constraints are on balance unlikely to occur (even if the assessment has identified a quantified extent), managed realignment is considered the appropriate option in order to allow for the relocation and realignment of structures, or to allow removal of potentially contaminating sites. Managed realignment would provide space for intertidal habitats to move landward in parallel with sea level rise, though in some circumstances realignment could provide a greater area for intertidal habitats to develop than would be lost were they constrained by the defence (and by the designated site boundary).

These areas will be identified as potential compensation sites later. Managed realignment provides increasing 'space' for natural processes to develop and continue. Error! Reference source not found. **Table G-VII.2**Error! Reference source not found. identifies the various policy units where MR has been selected (for some or all Epochs) within the PDZs where an adverse effect on integrity has been identified for European Sites.

Table G-VII.2 Policy Units where MR is Selected

Site	Policy Unit	Epochs
Pembrokeshire Marine SAC	2.2	Epoch 3
	2.4	Epoch 3
	2.5	Epoch 2
	2.6	Epoch 3
	2.8	Epochs 2 and 3
	2.10	All epochs
	2.11	Epochs 1 and 2
	2.12	Epochs 2 and 3
	3.2	Epoch 3
	3.8	Epochs 2 and 3
	3.9	All epochs
Lleyn Peninsula and the Sarnau SAC	9.11	All epochs
	10.1	All epochs
	10.2	Epoch 3
	10.3	Epochs 2 and 3
	10.4	Epoch 1
	10.5 to 10.7	Epoch 3
	10.9	Epochs 2 and 3
	10.10	All epochs
	10.14 and 10.15	All epochs
	10.18	Epochs 2 and 3
	10.19	Epochs 1 and 2
	11.2	All epochs
	11.4	Epoch 2
	11.5	Epochs 1 and 2
	11.6	Epoch 2
	11.9	Epochs 2 and 3
	11.10	All epochs
	11.12	Epochs 2 and 3
	11.13	All epochs
	11.15	Epochs 2 and 3
	11.17	Epoch 1
	11.18 and 11.19	All epochs
	12.2 and 12.3	Epochs 2 and 3
	12.5	All epochs
	12.9	Epochs 2 and 3
	12.11	Epoch 1
12.16	All epochs	
12.17	Epochs 2 and 3	
12.18	Epoch 3	
	12.22	Epoch 1

Site	Policy Unit	Epochs
	12.24 13.2 13.7 and 13.8 13.11 and 13.12 13.14 and 13.15 14.8 15.2	Epochs 2 and 3 Epochs 2 and 3 Epochs 2 and 3 Epochs 2 and 3 Epoch 2 Epoch 2 Epochs 2 and 3
Anglesey Coast: Saltmarsh SAC	n/a	n/a
Menai Strait and Conwy Bay SAC	16.4 16.5 16.11 16.17 16.21 and 16.22 16.28 16.32 16.33 19.4 19.5 19.7 19.10 19.12 19.14 20.3 20.9 20.11	Epochs 1 and 2 Epoch 2 Epoch 3 Epoch 2 Epoch 3 Epoch 3 Epochs 1 and 2 Epoch 3 All epochs Epoch 3 Epoch 1 Epoch 3 Epoch 3 All epochs Epoch 3 Epochs 2 and 3 Epoch 3
Traeth Lafan / Lavan Sands, Conwy SPA	16.28 16.32 16.33	Epoch 3 Epochs 1 and 2 Epoch 3

Hold The Line

- 1.1.5 Where existing defences are present and/or where significant national and local infrastructure (transport, economic, and social) is present within a policy unit which cannot be replaced or adapted to prevent impacts on a European Site or its features, Hold the Line is considered the appropriate option, and further justification would be necessary under IROPI. Given the strategic level of this assessment, there are often ways of reducing the scale of impacts within units through the nature and type of defence actions used, or even with localised realignment. Where justified through a test for IROPI, compensatory habitat would need to be identified for these areas. Error! Reference source not found. **Table G-VII.3**Error! Reference source not found. identifies the various policy units where HTL has been selected (for some or all Epochs) within the PDZs where an adverse effect on integrity has been identified for European Sites.

Table G-VII.3 Policy Units where HTL is Selected

Site	Policy Unit	Epochs
Pembrokeshire Marine SAC	2.2	Epochs 1 and 2
	2.4	Epochs 1 and 2

Site	Policy Unit	Epochs
	2.5	Epoch 1
	2.6	Epochs 1 and 2
	2.8	Epoch 1
	2.12	Epoch 1
	3.2	Epochs 1 and 2
	3.3	All epochs
	3.4	Epoch 1
	3.5	All epochs
	3.8	Epoch 1
Lleyn Peninsula and the Sarnau SAC	10.2	Epochs 1 and 2
	10.3	Epoch 1
	10.5 to 10.7	Epochs 1 and 2
	10.8	All epochs
	10.9	Epoch 1
	10.11 to 10.13	All epochs
	10.16 and 10.17	All epochs
	10.18	Epoch 1
	11.1	All epochs
	11.3	All epochs
	11.4	Epoch 1
	11.6	Epoch 1
	11.7 and 11.8	All epochs
	11.9	Epoch 1
	11.11	All epochs
	11.12	Epoch 1
	11.14	All epochs
	11.15	Epoch 1
	11.16	All epochs
	12.2 and 12.3	Epoch 1
	12.4	All epochs
	12.6	All epochs
	12.8	All epochs
	12.9	Epoch 1
	12.13 and 12.14	All epochs
	12.17	Epoch 1
	12.18	Epochs 1 and 2
	12.20	All epochs
	12.24	Epoch 1
	13.2	Epoch 1
	13.3 to 13.6	All epochs
	13.7 and 13.8	Epoch 1
	13.11 and 13.12	Epoch 1
	13.13	All epochs
	13.14 and 13.15	Epoch 1
	14.8	Epochs 1 and 3
	15.2	Epoch 1
Anglesey Coast: Saltmarsh SAC	16.9	All epochs

Site	Policy Unit	Epochs
Menai Strait and Conwy Bay SAC	16.5	Epoch 1
	16.11	Epochs 1 and 2
	16.12	All epochs
	16.14	All epochs
	16.17	Epoch 1
	16.19	All epochs
	16.21 and 16.22	Epochs 1 and 2
	16.24	All epochs
	16.27	All epochs
	16.28	Epochs 1 and 2
	16.29	All epochs
	16.32	Epoch 3
	16.33	Epochs 1 and 2
	19.5	Epochs 1 and 2
	19.10	Epochs 1 and 2
	19.12	Epochs 1 and 2
	20.1 and 20.2	All epochs
	20.3	Epochs 1 and 2
	20.4	All epochs
	20.9	Epochs 1 and 2
20.10	All epochs	
20.11	Epochs 1 and 2	
Traeth Lafan / Lavan Sands, Conwy SPA	16.27	All epochs
	16.28	Epochs 1 and 2
	16.29	All epochs
	16.32	Epoch 3
	16.33	Epochs 1 and 2
	20.1	All epochs

Advance The Line

- 1.1.6 No policy units contain a policy of Advance the Line within the PDZs where an adverse effect has been identified on a European Site or its associated features.

Policy Unit Based Alternative Options

- 1.1.7 The tables presented in **Annex G-VIII** present a unit by unit examination of which alternative options were unsuitable and why the selected option was considered suitable in light of the developed SMP policies. The tables are identified by European Site (based on those where an adverse affect on integrity has been assessed in **Section 5** and **Table 6.2** in **Appendix G**). The tables do not include policy units where NAI has been selected for all Epochs, and furthermore, where no constraint or effect to European Site features arises for a particular policy unit, the majority of these have been stated as such. The reasoning underlying these descriptions that provide the test for alternative options is based on the developed SMP policies, agreed with all parties associated with the SMP development and the feasibility of the alternative options in relation to the objectives of the SMP. The consideration is given at a strategic level, which would need to be provided in more detail when any scheme or strategy was being developed at the site level.

Annex VIII: Alternative Options Tables

Table 1 Pembrokeeshire Marine SAC

Policy Unit		Policy Plan			Comment
		25	55	105	
2.2	Little Haven	HTL	HTL	MR	Improvement to defences standard would not be anticipated over the short and medium term (Epochs 1 and 2). The realignment of defences would occur in Epoch 3 when it is considered likely that actual scheme development would occur, and therefore this would provide appropriate timescale to ascertain and adapt existing structures and uses to enable MR to occur.
2.4	Southern and Central Broad Haven	HTL	HTL	MR	Improvement to defences standard would not be anticipated over the short and medium term (Epochs 1 and 2). The realignment of defences would occur in Epoch 3 when it is considered likely that actual scheme development would occur, and therefore this would provide appropriate timescale to ascertain and adapt existing structures and uses to enable MR of the Broad Haven Bridge area.
2.5	Broad Haven North	HTL	MR	NAI	HTL in Epoch 1 is the only alternative option due to the planning and development process necessary to realign the road, which would occur in Epoch 2. MR is necessary to allow for the process of realignment, which then paves the way for NAI (no intervention) in Epoch 3.
2.6	Haroldston Hill	HTL	HTL	MR	Improvement to defences standard would not be anticipated over the short and medium term (Epochs 1 and 2). The realignment of defences would occur in Epoch 3 when it is considered likely that actual scheme development would occur, and therefore this would provide appropriate timescale to ascertain and adapt existing structures and uses to enable MR of the road connecting Broad Haven in parallel with Haroldston West.
2.8	Nolton Haven	HTL	MR	MR	HTL in Epoch 1 is the only alternative option as no specific scheme level actions are expected in Epoch 1, and also due to the planning and development process necessary to realign the road which is a significant link in the local road network. MR is necessary to allow for the process of realignment, which would occur in Epochs 2 and 3 and would provide the appropriate relief from any constraint to the movement of intertidal sandflats in parallel with sea level rise.

Policy Unit		Policy Plan			Comment
		25	55	105	
3.2	Lower Solva	HTL	HTL	MR	HTL in Epochs 1 and 2 are the only alternative option due to the planning and development process necessary to realign the road which is a major trunk road (the A487) that connects St David's to Haverfordwest (and villages and settlements in between). MR is necessary to allow for the process of realignment, which would occur in Epoch 3 and would provide the appropriate relief from any constraint to the movement of intertidal sandflats in parallel with the greatest extent of sea level rise.
3.3	Solva Harbour	HTL	HTL	HTL	NAI and MR are considered unsuitable alternatives due to the loss of or relocation of existing marine/coastal infrastructure that forms an essential element of the social and economic fabric of Solva and the related transport infrastructure.
3.4	Porth Clais Outer	HTL	NAI	NAI	HTL in Epoch 1 is the only alternative option as no specific scheme level actions are expected in Epoch 1, and also due to the adaptation process necessary to allow for the subsequent policy of NAI in Epochs 2 and 3.
3.5	Porth Clais Inner	HTL	HTL	HTL	NAI and MR are considered unsuitable alternatives due to the loss of or relocation of existing marine/coastal infrastructure and transport infrastructure that forms an essential element of the social and economic fabric of Porth Clais.
3.8	Whitesands Bay	HTL	MR	MR	HTL in Epoch 1 is the only alternative option as no specific scheme level actions are expected in Epoch 1, and also due to the planning and development process necessary to realign the car park and coastal path. MR is necessary to allow for the process of realignment, which would occur in Epochs 2 and 3 and would provide the appropriate relief from any constraint to the movement of intertidal sandflats in parallel with sea level rise.
3.9	Abereiddi	MR	MR	MR	NAI is unsuitable due to the requirement to realign road/access and adapt structures. However, MR in all epochs would provide the appropriate relief from any constraint to the movement of intertidal sandflats in parallel with sea level rise.

Table 2 Lleyn Peninsula and the Sarnau SAC

Policy Unit		Policy Plan			Comment
		25	55	105	
10.1	Upper Borth	MR	MR	MR	NAI is unsuitable due to the requirement to realign economic infrastructure due to avoid impacts from waste/potential pollutants entering the SAC as a result of erosion. However, MR in all epochs would provide the appropriate relief from any constraint to SAC features.
10.2	Borth Village	HTL	HTL	MR	No constraint to the SAC features would occur.
10.3	Borth Golf Course	HTL	MR	MR	HTL in Epoch 1 is the only alternative option as no specific scheme level actions are expected in Epoch 1, and also due to the planning and development process necessary to realign the defences. MR is necessary to allow for the process of realignment and management of the transition between the southern section of the shoreline and the Ynyslas dunes, which would occur in Epochs 2 and 3 and would provide the appropriate relief from any constraint to the movement of intertidal sandflats in parallel with sea level rise.
10.4	Ynyslas	MR	NAI	NAI	NAI is unsuitable in Epoch 1 as there would be a requirement to ensure that the dune and spit are managed and any infrastructure removed prior to the acceptance of NAI policy in Epochs 2 and 3.
10.5	Afon Leri	HTL	HTL	MR	NAI and MR are both unsuitable in Epochs 1 and 2 due to the requirement to manage the flood risk issues and presence of social and economic infrastructure, and also related health and safety issues that would need to be managed as a result.
10.6	Cors Fochno	HTL	HTL	MR	NAI and MR are both unsuitable in Epochs 1 and 2 due to the requirement to manage the development of the bog habitat to become resilient to tidal flooding, and would result in loss of significant national transport infrastructure. NAI and MR could result in the loss of priority habitat if implemented in Epochs 1 and 2. MR is appropriate for Epoch 3 in order to allow the planning and development process necessary to realign the transport infrastructure, as well as giving the bog habitat the time necessary to become resilient and improved during the management intended in Epochs 1 and 2. Saline intrusion would be managed during all epochs to allow appropriate adaption of the features of the area.

Policy Unit		Policy Plan			Comment
		25	55	105	
10.7	Dyfi Junction	HTL	HTL	MR	NAI and MR are both unsuitable in Epochs 1 and 2 as they would result in loss of significant national transport infrastructure. MR is appropriate for Epoch 3 as this allows the appropriate timescale for the planning and development process necessary to realign the transport infrastructure.
10.8	Morben Hall	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure, including railway and national trunk road, which are constrained to their existing location which inhibits realignment. However, given the location of the unit in the upper Estuary limited constraint is identified, only evident in Epoch 2.
10.9	Machynlleth	HTL	MR	MR	HTL in Epoch 1 is the only alternative option as no specific scheme level actions are expected in Epoch 1, and also due to the planning and development process necessary to realign the defences in relation to maintaining the nationally important transport infrastructure. MR is necessary to allow for the process of realignment and management of the defences to the transport infrastructure, which would occur in Epochs 2 and 3, and realignment would provide any future relief from constraint to the movement of intertidal sandflats further down the estuary in parallel with sea level rise.
10.10	Pennal Valley	MR	MR	MR	NAI is unsuitable due to the requirement to manage the realignment of any defences. However, MR in all epochs would provide the appropriate relief from any constraint to movement of intertidal SAC features in parallel with sea level rise.
10.11	Gogarth	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure, including railway and national trunk road, which are constrained to their existing location which inhibits realignment. Furthermore, limited availability for realignment occurs due to the interconnections elsewhere, and subsequent realignments would likely be necessary within areas of the SAC.

Policy Unit		Policy Plan			Comment
		25	55	105	
10.12	Dyfi North	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure, including railway and national trunk road, which are constrained to their existing location by topography. This constraint would also limit the extent of intertidal habitats that could develop if the infrastructure were not present.
10.13	Aberdyfi	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (national trunk road), as well as the social and economic infrastructure of the settlement of Aberdyfi, which is also constrained by topography. This constraint would also limit the extent of intertidal habitats that could develop if the infrastructure were not present.
10.14	Aberdyfi Dunes	MR	MR	MR	NAI is unsuitable due to the requirement to manage the natural dune defences. However, MR in all epochs would provide the appropriate relief from any constraint to movement of intertidal SAC features in parallel with sea level rise.
10.15	Penllyn	MR	MR	MR	NAI is unsuitable due to the requirement to manage the natural dune defences. However, MR in all epochs would provide the appropriate relief from any constraint to movement of intertidal SAC features in parallel with sea level rise, whilst maintaining the railway line and road further inland.
10.16	Tywyn	HTL	HTL	HTL	No constraint to the SAC features would occur.
10.17	Dysynni Railway	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (railway line). Realignment of the line is considered to be extremely constrained by local topography, geology, and availability of routing.
10.18	Dysynni Estuary	HTL	MR	MR	HTL in Epoch 1 is the only alternative option as no specific scheme level actions are expected in Epoch 1, and also due to the planning and development process necessary to realign the defences in relation to the nationally important transport infrastructure (railway line) which crosses the Dysynni. MR is necessary to allow for the process of realignment and management of the defences in relation to the transport infrastructure, which would occur in Epochs 2 and 3, which would provide relief from future constraint to the movement of intertidal sandflats. No constraint is identified in Epoch 1.

Policy Unit		Policy Plan			Comment
		25	55	105	
10.19	Tonfanau	MR	MR	NAI	NAI is unsuitable in Epochs 1 and 2 as there would be a requirement to manage existing structures prior to the acceptance of NAI policy in Epoch 3. In addition, due to the presence of national transport infrastructure inland, appropriate defences would need to be planned and developed and this process would require a supporting policy.
11.1	Rola	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (railway line). Realignment of the line is considered to be extremely constrained by local topography, geology, and availability of routing.
11.2	Llwyngwriil	MR	MR	MR	NAI is unsuitable due to the requirement to realign structures and land uses. However, MR in all epochs would provide the appropriate relief from any constraint to SAC features.
11.3	Friog Cliffs	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (railway line and national trunk road). Realignment of the line is considered to be extremely constrained by local topography, geology, and availability of routing.
11.4	Ro Wen coast	HTL	MR	NAI	NAI and MR are both unsuitable in Epoch 1 due to the requirement to manage the flood risk issues and presence of social and economic infrastructure, and also related health and safety issues related to flood risk that would need to be managed as a result. Sufficient time is necessary for the relocation of property and infrastructure from Fairbourne. MR in Epoch 2 provides the policy to ensure that realignment takes place to ensure that impacts are avoided from waste/potential pollutants from existing structures as a result of erosion and flooding, hence NAI being unsuitable in Epoch 2 but not in Epoch 3.

Policy Unit		Policy Plan			Comment
		25	55	105	
11.5	Ro Wen Spit	MR	MR	NAI	NAI is unsuitable in Epochs 1 and 2 due to the requirement to manage the flood risk issues and presence of flood defence and transport infrastructure, and also related health and safety issues related to flood risk that would need to be managed as a result. Sufficient time is necessary for the relocation of property and infrastructure from Fairbourne (linked to PU 10.5 and 10.7). MR in Epochs 1 and 2 provides the policy to ensure that realignment takes place to ensure that impacts are avoided from waste/potential pollutants from existing structures as a result of erosion and flooding, hence NAI being unsuitable in Epochs 1 and 2 but not in Epoch 3.
11.6	Fairbourne Embankment	HTL	MR	NAI	NAI and MR are both unsuitable in Epoch 1 due to the requirement to manage the flood risk issues and presence of social and economic infrastructure, and also related health and safety issues related to flood risk that would need to be managed as a result. Sufficient time is necessary for the relocation of property and infrastructure from Fairbourne (linked PU 11.5 and 11.6). MR in Epoch 2 provides the policy to ensure that realignment takes place to ensure that impacts are avoided from waste/potential pollutants from existing structures as a result of erosion and flooding, hence NAI being unsuitable in Epoch 2 but not in Epoch 3.
11.7	Friog	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (railway line). Realignment of the line is considered to be extremely constrained by local topography, geology, and availability of routing.
11.8	Morfa Mawddach	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (railway line). Realignment of the line is considered to be extremely constrained by local topography, geology, and availability of routing.
11.9	Fegla	HTL	MR	MR	NAI and MR are unsuitable in Epoch 1 as no specific scheme level actions are expected, and also due to the adaptation process necessary for the existing defences and structures. NAI is unsuitable in Epochs 2 and 3 as a policy is necessary to enable adaptation to take place, which would provide the appropriate relief from any constraint to the movement of intertidal sandflats in parallel with sea level rise.

Policy Unit		Policy Plan			Comment
		25	55	105	
11.10	Mawddach south bank	MR	MR	MR	NAI is unsuitable due to the requirement to realign or remove structures. However, MR in all epochs would enable removal of structures where required, but given the topographic constraints limited additional space for movement would be provide for SAC features.
11.11	Penmaenpool	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (national trunk road) and crossings. Realignment is considered to be extremely constrained by local topography, geology, and availability of routing, and also constraint due to topography would also affect inland movement of habitats in Epoch 3. No constraint is identified in Epochs 1 and 2.
11.12	Upper Estuary	MR	MR	MR	NAI is unsuitable due to the requirement to manage the realignment of any defences for inland national transport infrastructure (national trunk road). However, MR in all epochs would provide the appropriate relief from any constraint to movement of intertidal SAC features in parallel with sea level rise.
11.13	Mawddach North	MR	MR	MR	NAI is unsuitable due to the requirement to manage the realignment of any defences for inland national transport infrastructure (national trunk road). However, MR in all epochs would provide the appropriate relief from any constraint to movement of intertidal SAC features in parallel with sea level rise. However, existing constraint of topography would inhibit movement even without the presence of transport infrastructure and properties.
11.14	Barmouth South	HTL	HTL	HTL	No constraint to the SAC features would occur.
11.15	Barmouth North	HTL	MR	MR	No constraint to the SAC features would occur.
11.16	Llanaber	HTL	HTL	HTL	No constraint to the SAC features would occur.
11.17	Egryn Marsh	MR	NAI	NAI	No constraint to the SAC features would occur.
11.18	Sunnysands	MR	MR	MR	No constraint to the SAC features would occur.
11.19	Islawffordd	MR	MR	MR	No constraint to the SAC features would occur.
12.2	Artro Southern Spit	HTL	MR	MR	No constraint to the SAC features would occur in Epoch 1. NAI is unsuitable in Epochs 2 and 3 due to the requirement to manage the realignment of any defences and infrastructure.

Policy Unit		Policy Plan			Comment
		25	55	105	
12.3	Arthro Estuary South	HTL	MR	MR	No constraint to the SAC features would occur in Epoch 1. NAI is unsuitable in Epochs 2 and 3 due to the requirement to manage the realignment of any defences and infrastructure.
12.4	Arthro Estuary East	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (railway line). Realignment is considered to be extremely constrained by local topography, geology, and availability of routing. No constraint is identified in Epoch 1.
12.5	Llandanwg Dunes	MR	MR	MR	NAI is unsuitable due to the requirement to manage the natural dune defences. However, MR in all epochs would provide the appropriate relief from any constraint to movement of intertidal SAC features in parallel with sea level rise.
12.6	Llandanwg Headland	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (railway line). Realignment is considered to be extremely constrained by local topography, geology, and availability of routing, and also constraint due to topography would also affect inland movement of habitats in Epochs 2 and 3. No constraint is identified in Epoch 1.
12.8	Harlech Valley	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (railway line) as well as flooding to economic and transport infrastructure. Realignment is considered to be extremely constrained by local topography, geology, and availability of routing, though some small scale realignments could be implemented.
12.9	Talsarnau	HTL	MR	MR	NAI and MR are both unsuitable in Epoch 1 due to the requirement to manage the flood risk issues and presence of flood defence and transport infrastructure. Sufficient time is necessary for the relocation of defences either to the existing railway line or old cliff line. MR in Epochs 2 and 3 provides the policy to ensure that realignment takes place which provides appropriate space for intertidal habitats to develop in parallel with sea level rise.
12.11	Upper Dwyryd Estuary	MR	NAI	NAI	NAI is unsuitable in Epoch 1 due to the requirement to manage the realignment of any defences for inland national transport infrastructure (national trunk road). However, following realignment, NAI would be suitable, i.e. in Epochs 2 and 3.

Policy Unit		Policy Plan			Comment
		25	55	105	
12.13	The Cob and Porthmadog	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (national trunk road and railway line) and social and economic infrastructure, as well as result in health and safety issues related to flood risk. Realignment is considered to be extremely constrained by local topography, geology, and availability of routing, and also impacts on freshwater SAC interests. No constraint is identified in Epoch 1.
12.14	Borth-y-Gest	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of social and economic infrastructure, as well as result in health and safety issues related to flood risk. No constraint is identified in Epoch 1.
12.16	Morfa Bychan	MR	MR	MR	NAI is unsuitable due to the requirement to manage the natural dune defences and allow adaptation of the economic infrastructure. However, MR in all epochs would provide the appropriate relief from any constraint to movement of intertidal SAC features in parallel with sea level rise.
12.17	Criccieth Shingle Banks	HTL	MR	MR	No constraint to the SAC features would occur in Epoch 1. NAI is unsuitable in Epochs 2 and 3 due to the need to realign the national transport infrastructure.
12.18	Criccieth Harbour	HTL	HTL	MR	NAI and MR are unsuitable in Epochs 1 and 2 as they would result in loss of transport infrastructure and social infrastructure. The planning and development process would take time which indicates unsuitability for MR at this location in order to realign the road prior to likely constraint occurring (no constraint expected in Epoch 1). NAI is unsuitable in Epoch 3 as realignment process is necessary to provide the appropriate relief from any constraint to the movement of intertidal sandflats in parallel with the greatest extent of sea level rise.
12.20	Criccieth West	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of social and economic infrastructure, as well as result in health and safety issues related to flood risk. No constraint is identified in Epoch 1.

Policy Unit		Policy Plan			Comment
		25	55	105	
12.22	Dwyfor	MR	NAI	NAI	NAI is unsuitable in Epoch 1 due to the requirement to manage the realignment of any defences for inland national transport infrastructure (railway line). However, following realignment, NAI would be suitable, i.e. in Epochs 2 and 3.
12.24	Afon Wen	HTL	MR	MR	No constraint to the SAC features would occur in Epoch 1. NAI is unsuitable in Epochs 2 and 3 due to the requirement to manage the realignment of the national transport infrastructure.
13.2	Abererch	HTL	MR	MR	No constraint to the SAC features would occur.
13.3	Glan Y Don	HTL	HTL	HTL	No constraint to the SAC features would occur.
13.4	Pwllheli Harbour and entrance	HTL	HTL	HTL	No constraint to the SAC features would occur.
13.5	Pwllheli Centre	HTL	HTL	HTL	No constraint to the SAC features would occur.
13.6	South Beach	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of social and economic infrastructure within Pwllheli, as well as result in health and safety issues related to flood risk. No constraint is identified in Epoch 1.
13.7	Golf Course	HTL	MR	MR	No constraint to the SAC features would occur in Epoch 1. NAI is unsuitable in Epochs 2 and 3 due to the requirement to manage the realignment of structures.
13.8	Traeth Crugan	HTL	MR	MR	No constraint to the SAC features would occur in Epoch 1. NAI is unsuitable in Epochs 2 and 3 due to the requirement to manage the realignment of structures.
13.11	The Warren	HTL	MR	MR	No constraint to the SAC features would occur.
13.12	Abersoch	HTL	MR	MR	No constraint to the SAC features would occur.
13.13	Penbennar	HTL	HTL	HTL	No constraint to the SAC features would occur.
13.14	Borth Fawr Central	HTL	MR	NAI	No constraint to the SAC features would occur.
13.15	Machroes	HTL	MR	NAI	No constraint to the SAC features would occur.

Table 3 Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC

Policy Unit		Policy Plan			Comment
		25	55	105	
16.9	Embankment and village	HTL	HTL	HTL	NAI and MR are both unsuitable for all Epochs as they would result in loss of significant national transport infrastructure (national trunk road) as well as flooding to economic. However, some small scale realignments could be implemented.

Table 4 Menai Strait and Conwy Bay SAC

Policy Unit		Policy Plan			Comment
		25	55	105	
16.4	Morfa Dinlle	MR	MR	NAI	NAI is unsuitable in Epochs 1 and 2 due to the requirement to manage the natural dune defences and adaptation of inland infrastructure. However, MR would provide the appropriate relief from any constraint to movement of intertidal SAC features in parallel with sea level rise.
16.5	Foryd Bay	HTL	MR	NAI	No constraint to the SAC features would occur in Epoch 1. NAI is unsuitable in Epoch 2 due to the requirement to manage the realignment of defence structures and the dune system.
16.11	Ffordd Yr Aber to Afon Carogg	HTL	HTL	MR	NAI and MR are unsuitable in Epochs 1 and 2 as they would result in loss of transport infrastructure. The planning and development process would take time which indicates unsuitability for MR at this location in order to realign the road prior to likely constraint occurring. NAI is unsuitable in Epoch 3 as realignment process is necessary to provide the appropriate relief from any constraint to the movement of intertidal habitats in parallel with the greatest extent of sea level rise.
16.12	Caernarfon	HTL	HTL	HTL	No constraint to the SAC features would occur.
16.14	Y Felinheli	HTL	HTL	HTL	No constraint to the SAC features would occur.
16.17	Barras to Mermaid Inn	HTL	MR	NAI	No constraint to the SAC features would occur.
16.19	Porthaethwy	HTL	HTL	HTL	No constraint to the SAC features would occur.
16.21	Beaumaris West	HTL	HTL	MR	No constraint to the SAC features would occur.
16.22	Beaumaris East	HTL	HTL	MR	No constraint to the SAC features would occur.
16.24	Llanfaes	HTL	HTL	HTL	No constraint to the SAC features would occur.
16.27	Garth Point and Dock Yard	HTL	HTL	HTL	No constraint to the SAC features would occur.
16.28	Hirael	HTL	HTL	MR	No constraint to the SAC features would occur.
16.29	Porth Penrhyn	HTL	HTL	HTL	No constraint to the SAC features would occur.
16.32	Afon Aber	MR	MR	HTL	No constraint to the SAC features would occur.

Policy Unit		Policy Plan			Comment
		25	55	105	
16.33	Llanfairfechan	HTL	HTL	MR	NAI and MR are unsuitable in Epochs 1 and 2 as they would result in loss of transport infrastructure (railway line and national trunk road) as well as flood risk to transport and people. The planning and development process would take time which indicates unsuitability for MR at this location in order to realign the railway and road prior to likely constraint occurring at any noticeable scale. NAI is unsuitable in Epoch 3 as realignment process is necessary to provide the appropriate relief from any constraint to the movement of intertidal habitats in parallel with the greatest extent of sea level rise.
20.1	Gerizim	HTL	HTL	HTL	NAI and MR are unsuitable in all Epochs as they would result in loss of significant transport infrastructure (railway line and national trunk road) as well as flood risk to transport. No constraint is identified in Epoch 1.
20.2	Penmaenmawr	HTL	HTL	HTL	No constraint to the SAC features would occur.
20.3	Conwy Morfa	HTL	HTL	MR	No constraint to the SAC features would occur.
20.4	Conwy Marina	HTL	HTL	HTL	No constraint to the SAC features would occur.
20.5	Conwy	HTL	HTL	HTL	No constraint to the SAC features would occur.
20.6	Gyffin Valley	HTL	HTL	MR	No constraint to the SAC features would occur.
20.7	Causeway	HTL	HTL	HTL	No constraint to the SAC features would occur.
20.8	Deganwy	HTL	HTL	MR	No constraint to the SAC features would occur.
20.9	Deganwy Point	HTL	HTL / MR	MR	No constraint to the SAC features would occur.
20.10	Traeth Melyn	HTL	HTL	HTL	No constraint to the SAC features would occur.
20.11	West Shore and Golf Course	HTL	HTL	MR	No constraint to the SAC features would occur.
20.15	Llandudno Junction and Ganol Estuary	HTL	HTL	MR	No constraint to the SAC features would occur.
20.16	Glan Conwy	HTL	HTL	HTL	No constraint to the SAC features would occur.
20.17	Glan Conwy to Tal-y-Cafn	HTL	HTL	HTL	No constraint to the SAC features would occur.
20.18	Tal-y-Cafn	HTL	MR	MR	No constraint to the SAC features would occur.
20.19	Tal-y-Cafn to Llanrwst	HTL	MR	NAI	No constraint to the SAC features would occur.

Table 5 Traeth Lafan / Lavan Sands, Conwy SPA

Policy Unit		Policy Plan			Comment
		25	55	105	
16.32	Afon Aber	MR	MR	HTL	No constraint to the SAC features would occur.
16.33	Llanfairfechan	HTL	HTL	MR	NAI and MR are unsuitable in Epochs 1 and 2 as they would result in loss of transport infrastructure (railway line and national trunk road) as well as flood risk to transport and people. The planning and development process would take time which indicates unsuitability for MR at this location in order to realign the railway and road prior to likely constraint occurring at any noticeable scale. NAI is unsuitable in Epoch 3 as realignment process is necessary to provide the appropriate relief from any constraint to the movement of intertidal habitats in parallel with the greatest extent of sea level rise.
20.1	Gerizim	HTL	HTL	HTL	NAI and MR are unsuitable in all Epochs as they would result in loss of significant transport infrastructure (railway line and national trunk road) as well as flood risk to transport. No constraint is identified in Epoch 1.

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Annex IX: Test for IROPI

1 TEST OF IMPERATIVE REASONS OF OVERRIDING PUBLIC INTEREST (IROPI)

1.1 Introduction

1.1.1 Following the test for alternative solutions, the policies require approval for reasons of imperative overriding public interest. Acceptable reasons for IROPI are:

- Imperative, that it is both necessary and urgent;
- Overriding, that it is of such a scale of importance that the reasons outweigh the scale of harm to the integrity of the site(s);
- Of public, not private interest; and
- Of a social or economic nature unless a priority habitat or species may be affected.

1.1.2 The Flood Risk Management Operating Authorities (including the Environment Agency and coastal local authorities) seek to maximise the benefits and protection of social, economic and transport infrastructure of the region and coastline whilst protecting and enhancing the nature conservation and landscape interests, and SMPs play a very important role in this process. With predicted sea level rise and increased coastal storminess, it is forecast that flood risk and erosion will increase, resulting in increased risk to life and infrastructure within the SMP2 area. Without the SMP, risk to life and property would not be properly managed.

1.1.3 The SMP partnership (which includes the Environment Agency Wales, the local authorities, CCW, and CADW) has identified the least damaging alternative to managing the coastline and its designated habitats over the next 100 years.

1.2 Pembrokeshire Marine SAC - PDZ 2 and 3

1.2.1 As identified in **Table 1** in **Annex G-VIII**, the various combinations of HTL/MR/NAI for specific units within the Pembrokeshire Marine SAC have been selected to provide protection to social and economic infrastructure or providing controlled movement of the defence line (MR) in locations where a policy of NAI would result in considerable loss or risk to life. NAI policy selection has taken place along much of the coastline of the Pembrokeshire Marine SAC, which will allow the shoreline to respond to sea level rise by providing the opportunity for natural change to occur. The significant adverse effects arise due to the constraints posed as a result of HTL policies, whilst MR policies provide space for shoreward development of intertidal habitats and are not seen to result in significant adverse effects.

1.2.2 HTL is required to prevent loss occurring to the social and economic infrastructure in a number of settlements, as well as protecting key regional transport infrastructure (railway lines and trunk roads) from flooding or erosion for all epochs or until appropriate realignment can be implemented at places such as Little Haven, Broad Haven, Nolton Haven, Solva, and Porth Clais. MR policies have been selected at many of these locations in Epochs 2 or 3 in order to provide sufficient time and programming for national bodies to develop the appropriate methodology for realignment of settlements and related infrastructure.

- 1.2.3 The scale of the importance is clear; given the social and transport infrastructure, HTL is necessary along some frontages to protect access within and amongst surrounding communities, or to maintain the economic function of specific locations that support surrounding communities.
- 1.2.4 The protection of the economic, social and transport infrastructure is in the nation's interest, as they are essential to the national economy within the region; although there would be many private interests that would be protected this is an indirect consequence.
- 1.2.5 The nature of the reason for the policy selections are to ensure the long term conservation objectives of the SAC, but also to protect important social, economic and regional transport infrastructure, that also form a key element of the social and economic infrastructure of the surrounding areas.

1.3 Lleyn Peninsula and the Sarnau SAC - PDZ 10, 11, 12, and 13

- 1.3.1 As identified in **Table 2** in **Annex G-VIII**, the various combinations of HTL/MR/NAI for specific units within the Lleyn Peninsula and the Sarnau SAC have been selected to provide protection to social and economic infrastructure or providing controlled movement of the defence line (MR) in locations where a policy of NAI would result in considerable loss or risk to life. NAI policy selection has taken place along much of the coastline of the Lleyn Peninsula and the Sarnau SAC, which will allow the shoreline to respond to sea level rise by providing the opportunity for natural change to occur. The significant adverse effects arise due to the constraints posed as a result of HTL policies, whilst MR policies provide space for shoreward development of intertidal habitats and are not seen to result in significant adverse effects. In addition, with regard to the area of priority habitat (bog) at Cors Fochno, whilst a HTL policy has been selected this aims to prevent sudden inundation and the potential adverse impact that this is likely to have on the bog habitat; however, the policy does not preclude controlled saline intrusion to build resilience of the bog habitat feature, in preparation for proposed tidal inundation in the future under an MR policy in Epoch 3.
- 1.3.2 HTL is required to prevent loss occurring to the social and economic infrastructure in a number of settlements, as well as protecting key national and regional transport infrastructure (railway lines and trunk roads) from flooding or erosion for all epochs or until appropriate realignment can be implemented at places such as Borth, Dyfi Junction, Morben, Gogarth, Aberdyfi, Fairbourne, Porthmadog, Criccieth, Pwllheli, and the railway line within the Dysynni estuary, at Rola, and Friog, in the Morfa Mawdach, at Penmaenpool, in the Artro estuary, at Llandanwg Headland, in the Harlech Valley, along the Cob at Porthmadog. MR policies have been selected at many of these locations in Epochs 2 or 3 in order to provide sufficient time and programming for national bodies to develop the appropriate methodology for realignment of settlements and related infrastructure.
- 1.3.3 The scale of the importance is clear; given the social, economic and transport infrastructure, HTL is necessary along some frontages to protect access within and amongst surrounding communities, or to maintain the economic function of specific locations that support surrounding communities.
- 1.3.4 The protection of the economic, social and transport infrastructure is in the nation's interest, as they are essential to the national economy within the region; although there would be many private interests that would be protected this is an indirect consequence.

- 1.3.5 The nature of the reason for the policy selections are to ensure the long term conservation objectives of the SAC, but also to protect important social, economic and national transport infrastructure, that also form a key element of the social and economic infrastructure of the surrounding areas.

1.4 Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC - PDZ 16

- 1.4.1 As identified in **Table 3** in **Annex G-VIII**, the various combinations of HTL/NAI for specific units within the Anglesey Coast: Saltmarsh SAC have been selected to provide protection to social and economic infrastructure or, in the case of NAI, to allow the shoreline to respond to sea level rise by providing the opportunity for natural change. The only potentially significant effect on the Anglesey Coast: Saltmarsh arises due to constraint from HTL in PU 16.9, whilst the NAI policy allows a natural response to climate change.
- 1.4.2 HTL is required to prevent loss occurring to the social and economic infrastructure at Maltraeth, and protecting regional transport infrastructure (the A4080) from flooding or erosion for all epochs.
- 1.4.3 The scale of the importance is clear; given the social, economic and transport infrastructure, HTL is necessary to protect access within and amongst surrounding communities, and to maintain the economic function of Maltraeth that supports surrounding communities.
- 1.4.4 The protection of the economic, social and transport infrastructure is in the nation's interest, as they are essential to the national economy within the local area and the island; although there would be many private interests that would be protected this is an indirect consequence.
- 1.4.5 The nature of the reason for the policy selections are to ensure the long term conservation objectives of the SAC, but also to protect important social, economic and transport infrastructure, that form a key element of the social and economic infrastructure of the surrounding areas.

1.5 Menai Strait and Conwy Bay SAC - PDZ 16 and 20

- 1.5.1 As identified in **Table 4** in **Annex G-VIII**, the various combinations of HTL/MR/NAI for specific units within the Menai Strait and Conwy Bay SAC have been selected to provide protection to social and economic infrastructure or providing controlled movement of the defence line (MR) in locations where a policy of NAI would result in considerable loss or risk to life. NAI policy selection has taken place along much of the coastline of the Menai Strait and Conwy Bay SAC, which will allow the shoreline to respond to sea level rise by providing the opportunity for natural change to occur. The significant adverse effects arise due to the constraints posed as a result of HTL policies, whilst MR policies provide space for shoreward development of intertidal habitats and are not seen to result in significant adverse effects.

- 1.5.2 HTL is required to prevent loss occurring to the social and economic infrastructure in a number of settlements, as well as protecting key national and regional transport infrastructure (railway lines and trunk roads) from flooding or erosion for all epochs or until appropriate realignment can be implemented at places such as along the coast north of Foryd, Llanfairfechan, and the railway line and A55 between Bangor and Llanfairfechan. MR policies have been selected at many locations in Epochs 2 or 3 in order to provide sufficient time and programming for national bodies to develop the appropriate methodology for realignment of settlements and related infrastructure.
- 1.5.3 The scale of the importance is clear; given the social, economic and transport infrastructure, HTL is necessary along some frontages to protect access within and amongst surrounding communities or even at the regional and national level, or to maintain the economic function of specific locations that support surrounding communities.
- 1.5.4 The protection of the economic, social and transport infrastructure is in the nation's interest, as they are essential to the national economy within the region; although there would be many private interests that would be protected this is an indirect consequence.
- 1.5.5 The nature of the reason for the policy selections are to ensure the long term conservation objectives of the SAC, but also to protect important social, economic and national transport infrastructure, that also form a key element of the social and economic infrastructure of the surrounding areas.
- 1.6 Traeth Lafan / Lavan Sands SPA - PDZ 16 and 20**
- 1.6.1 As identified in **Table 5** in **Annex G-VIII**, the various combinations of HTL/MR/NAI for specific units within the Lavan Sands SPA have been selected to provide protection to social and economic infrastructure or providing controlled movement of the defence line (MR) in locations where NAI would result in considerable loss or risk to life. NAI policy selection has taken place along much of the coastline of the Lavan Sands SPA, which will allow the shoreline to respond to sea level rise by providing the opportunity for natural change to occur. The significant adverse effects arise due to the constraints posed as a result of HTL policies, whilst MR policies provide space for shoreward development of intertidal habitats and are not seen to result in significant adverse effects.
- 1.6.2 HTL is required to prevent loss occurring to the social and economic infrastructure in a number of settlements, as well as protecting key national and regional transport infrastructure (railway lines and trunk roads) from flooding or erosion for all epochs or until appropriate realignment can be implemented at Llanfairfechan, and the railway line and A55 between Bangor and Llanfairfechan. MR policies have been selected in two policy units in order to provide sufficient time and programming for national bodies to develop the appropriate methodology for realignment of settlements and related infrastructure.
- 1.6.3 The scale of the importance is clear; given the social, economic and transport infrastructure, HTL is necessary along some frontages to protect access within and amongst surrounding communities or even at the regional and national level, or to maintain the economic function of specific locations that support surrounding communities.

- 1.6.4 The protection of the economic, social and transport infrastructure is in the nation's interest, as they are essential to the national economy within the region; although there would be many private interests that would be protected this is an indirect consequence.
- 1.6.5 The nature of the reason for the policy selections are to ensure the long term conservation objectives of the SPA, but also to protect important social, economic and national transport infrastructure, that also form a key element of the social and economic infrastructure of the surrounding areas.

Annex X: Potential Compensation

1 POTENTIAL COMPENSATORY HABITAT

1.1 Introduction

1.1.1 Subject to approval from the Welsh Assembly Government to the test for IROPI, where habitats and species are being adversely affected, compensatory measures must be identified to ensure the ecological coherence of the *Natura 2000* network is protected. For the current level of information available to this strategy, quantitative data is not yet considered to be wholly accurate to accord the appropriate quantities to the year 2105, and ongoing work at lower levels of development (Strategy and Scheme levels) and subsequent review to the SMP will continue to improve the accuracy of both quantities and effects. Based on the summary of features affected in **Table 6.2** in **Appendix G**, broad brush compensatory habitat requirements have been identified as necessary at this strategic level. As mentioned in a number of places within this document, these values are considered to be the worst case or 'conservative' quantities and types that are likely to reduce as time and further studies are completed. Consequently, the compensatory habitat requirements will themselves be conservative and these will be monitored and revised as necessary during subsequent SMP reviews.

1.1.2 **Table G-X.1** presents the compensatory habitat targets for this SMP, based on the detailed assessments **Annex G-IV** and the work carried out and presented in **Sections 5** and **6** of **Appendix G**, alongside GIS extraction of each Site and the location specific data from the topographic and bathymetric model created for the SMP2. The compensatory habitat requirement is that which will be required with the preferred policies being implemented, and many of them would be expected to be created from the Managed Realignment policies and locations.

Table G-X.1 Summary of Predicted Compensatory Habitat Requirements

Designated Site	Habitat Type	Habitat area to be compensated (ha)		
		Epoch 1	Epoch 2	Epoch 3
Pembrokeshire Marine SAC	Intertidal habitats (sandflat)	1.05	1.43	0.11
Lleyn Peninsula and the Sarnau SAC	Intertidal habitats (sandflat, mudflat, and saltmarsh)	12.54	218.01	75.27
Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh SAC	Intertidal habitats (mudflat)	0.17	3.30	3.65
Menai Strait and Conwy Bay SAC (including requirement for Traeth Lafan / Lavan Sands, Conwy SPA)	Intertidal habitats (sandflat)	1.21	3.87	0.01
All Sites	Intertidal habitats	14.97	226.61	79.04

na = actual extent unknown but is related to the loss of intertidal habitat identified within the Site for the PDZ.

* supporting habitat is related to the intertidal habitat loss in the same unit for the relevant SAC.

1.1.3 Overarching development of the compensatory habitat required will be developed through the Environment Agency Wales' Regional Habitat Creation Programme (RHCP), which the local authorities will sign up to. The RHCP will provide a strategic 'resource' of compensatory habitat.

1.1.4 The determination of which habitats will be lost and which would develop landward of their existing locations as a result of sea level rise does not (and at this stage and with the current level of information available cannot) take into account a number of site-specific factors. These factors include: the future extent and subsequent colonisation and communities of saltmarsh habitats, future erosion and accretion, and success of managed realignment schemes. Consequently, continued monitoring of habitats and topography / bathymetry should be undertaken at constant intervals to continue to inform the future SMPs and effects on the *Natura 2000* Sites.

1.1.5 Detailed studies and monitoring of the various managed realignment proposals in the near and medium term future will provide more detailed predictions of the benefits that will arise from these policies, and long term monitoring will confirm this. However for this strategy, a review of the potential areas available for managed realignment and creation of compensatory habitat has been undertaken. **Annex G-XI** presents the review and identification of potentially suitable compensatory habitat. Due to the strategic nature of this document, it is essential that it is accepted that the compensatory habitats available is seen as indicative for a wide variety of reasons and a number of assumptions, these are:

- The detail of mapping at this strategic level is poor, therefore the quantities are to provide an indicative extent rather than a 'guaranteed' level;
- Topography at this level is not fine in detail and therefore changes in potential extents could vary significantly at site level;
- The habitats present in managed realignment areas may change over time, and in some occurrences more habitat would be created than identified, with a lesser chance of a lesser extent of habitat being created;
- The compensatory areas do not take into account changing sediment patterns;
- The compensatory areas do not take into account the changing freshwater hydrology that could occur over time (both as a result of sea level rise or future man-made interventions or activities);
- The compensatory habitats identified are not selected based on landowner, however, they are selected based on whether key infrastructure is present (i.e. would not cover the area of infrastructure). The identification has been undertaken in most cases by avoiding areas of existing infrastructure even if the policy intent is for that infrastructure to be re-located or realigned, and therefore extents are considered to be at the low end;
- The identification of sites did not consider (except with one policy unit and the availability of a required compensatory habitat type) extensive earthworks as part of the compensation. However, this therefore wholly underestimates the potential habitat extents available for compensation;
- Given the extensive area that minor variations of sea level could significantly alter the habitat losses and compensatory requirements, the focus of the identification process was to identify land area which could become 'intertidal' as part of existing MR proposals, on top of that realignment component necessary to prevent an adverse effect at the given policy unit. The 'amount' of habitat extent left over therefore was what is identified as compensatory habitat;

- The identification of compensatory habitat has focussed on the provision of available area to alter the existing habitat to 'intertidal' or where existing land (undesigned) could be acted on to enhance or create specific terrestrial or freshwater habitats that need to be replaced. This stance has been taken due to the huge area available as part of the study area and that compensatory habitat can in effect be created anywhere and given the huge land areas, topography, hydrology across these areas, those habitats considered to be affected as result of SMP policy could be developed somewhere in these areas;
- The success and extent and type of habitat achieved at a compensation site can be significantly influenced by site specific factors and decisions (such as the extent of earthworks to be undertaken) which can 'force' the required habitat to be created (e.g. surface removal to lower ground levels to increase the extent of lower intertidal habitat);
- The identification of compensatory habitats does not take into account any other environmental receptor (such as recreation and amenity assets, non-designated ecological assets, archaeological assets, etc); and
- If any site identified for compensatory habitat is considered inappropriate for reasons that are site specific, it is considered that alternative appropriate site(s) for the required compensation are available within the SMP study area.

1.1.6 The following summarise the compensatory habitat indications as identified in **Annex G-XI** by European Site:

- Pembroke Marine SAC: no specific sites were identified as providing compensation within the coastal frontage of the SAC, consequently, it is considered that compensatory habitat identified in the Lley Peninsula and the Sarnau SAC coastal frontage would provide the appropriate compensatory habitat. However, this does not take into account very small works within the Pembroke Marine SAC coastal frontage that may at strategy or site level provide the relevant compensatory habitat.
- Lley Peninsula and the Sarnau SAC: around 12.02ha of intertidal sandflat, mudflat, and saltmarsh habitats are required in Epoch 1, and the review process identified a capability of around **330ha** in the coastal frontage of the SAC in this Epoch; in Epoch 2, 218.01ha is required against a potential capability of over **1,200ha**; and for Epoch 3, 80.19ha is required against a potential capability of over **1,570ha**. The requirements identified have included the Pembroke Marine SAC compensatory habitat requirement. However, it is clear that a significant extent of sites available for compensation is available, which would avoid any risk of not achieving the required targets of compensation.

- Anglesey Coast: Saltmarsh SAC: around 0.17ha of intertidal sandflat, mudflat, and saltmarsh habitats are required in Epoch 1, however the review process could not identify any capacity in the SACs coastal frontage or even nearby, so either the capacity is provided via the Llyn Peninsula and the Sarnau SAC or the Menai Strait and Conwy Bay SAC compensatory habitat availability. In Epoch 2 a 3.3ha extent is required, and the Abermenai and Aberffraw Dunes SAC contained a potential capability of over **51ha** in this epoch; whilst for Epoch 3 the requirement of 3.65ha would also be set against a potential capability of over **127ha** in the Abermenai and Aberffraw Dunes SAC coastal frontage. It is evident that more than sufficient areas available for compensation are available at other SACs in the SMP study area, which would avoid any risk of not achieving the required targets of compensation.
- Menai Strait and Conwy Bay SAC (including Lavan Sands, Conwy SPA): around 1.21ha of intertidal sandflat habitat is required in Epoch 1, and the review process identified a capability of around **1.7ha** in the coastal frontage of the SAC in this Epoch; in Epoch 2, 3.90ha is required against a potential capability of over **2.35ha**; and for Epoch 3, 0.01ha is required against a potential capability of over **7.9ha**. Given the slight shortfall in Epoch 2, it is considered wholly possible that earthworks and design could ensure that at least the 3.87ha extent needed could be created, or alternatively offset by the compensatory habitat available in the Llyn Peninsula and the Sarnau SAC, which would avoid any risk of not achieving the required targets of compensation.

- 1.1.7 The planned and potential realignments identified within this plan will provide over and above the overall level of compensation of intertidal habitat lost through coastal squeeze as a result of the SMP policies (22 times in Epoch 1, 5.3 times in Epoch 2, and 20 times in Epoch 3). Therefore although landownership and many other factors cannot be considered at this strategic stage, there is no likely underachievement expected provided adequate planning and implementation of the compensatory habitat requirements is carried out and supported by the national government and its agencies.
- 1.1.8 Terrestrial, freshwater, or dune habitats that could be lost as a result of the compensatory habitat creation are summarised in **Table G-X.2**, based on the review and assessment carried out in **Annex G-XI**. However, clarification of these types and extents can only be identified when scheme specific applications are being developed.
- 1.1.9 Considering that a number of European Sites and their features would be lost as a result of work to improve and protect existing habitats which would be significantly affected by SMP policies, and which have been justified on the test of alternative options and IROPI, further compensatory habitat requirement has therefore been necessary. This was also recorded within **Annex G-XI; Table 3** in the Annex indicates the total available based on the appraisal reported in **Table 2** of the Annex. The planned and potential areas that are considered suitable provide a sufficiently large pool of land bank to obtain and create the compensatory habitat for terrestrial and freshwater habitats required (notably over 13 times the amount required is available in Epoch 1, 14 times is available in Epoch 2, and over 2.5 times is available in Epoch 3). It is assumed that the compensation for terrestrial / freshwater habitats would be implemented through the Environment Agency Wales' Regional Habitat Creation Programme, supported by the coastal authorities for the West of Wales SMP2. Two small

areas of bog habitat (PUs 11.6 and 11.9) could be affected, however, it is expected that through compensation and mitigation these habitats can be managed to migrate successfully.

- 1.1.10 However, due to the lead in and development time for carrying out terrestrial and freshwater habitat creation, it is identified that immediate development is necessary of habitats to commence offsetting the losses predicted to occur in Epoch 1 for PUs 10.10, 11.10, 11.12, 11.13, and 12.11. These offsets should also consider the future losses predicted in Epoch 2, and may best be sought through the RHCP. Priority should then (after the previous PU compensatory habitats) be PUs 11.9 and 12.3; though there is appropriate time for greater strategy and detail to be developed.

Table G-X.2 Habitats Potentially Lost as a Result of Compensation

Policy Unit	Area (ha)			Habitat Type	European Site
	Epoch 1	Epoch 2	Epoch 3		
10.6	na	na	273.73	Fen-marsh-swamp	Lleyn Peninsula and the Sarnau SAC
10.7	na	na	52.15	Fen-marsh-swamp	
10.10	22.20	6.06	1.08	Fen-marsh-swamp	
11.6	na	na	1.50	Bogs	
11.9	na	59.75	1.76	Fen-marsh-swamp Bogs Improved grassland Broad-leaved mixed yew woodland	
11.10	30.16	6.40	0.99	Fen-marsh-swamp Improved grassland Broad-leaved mixed yew woodland	
11.12	28.17	14.49	15.27	Fen-marsh-swamp Improved grassland Broad-leaved mixed yew woodland	
11.13	26.36	11.73	9.37	Fen-marsh-swamp Improved grassland Broad-leaved mixed yew woodland	
12.3	na	13.82	na	Improved grassland	
12.11	4.89	4.55	3.30	Improved grassland	
Total	111.78	116.80	359.15	Fen-marsh-swamp Bogs Improved grassland Broad-leaved mixed yew woodland	
10.6	na	na	264.86	Fen-marsh-swamp	Dyfi Estuary SPA
10.7	na	na	na	Covered in Lleyn Peninsula and Sarnau SAC habitat losses	
10.10	na	na	na		
Total	0.00	0.00	264.86	Fen-marsh-swamp	
12.3	na	28.70	12.88	Improved grassland	Morfa Harlech and Morfa Dyffryn SAC
16.5	na	na	9.47	Improved grassland	Abermenai and Aberffraw Dunes SAC
Total	111.78	145.50	646.36	See above	All sites

- 1.1.11 Some dune systems could potentially be affected by sea level rise particularly the back dune areas if encroachment of intertidal habitats occurs inland of the dune system. In PU 10.15 and 12.3, this effect is predicted to occur as a result of MR, however, there is appropriate space for dune management and expansion parallel to the existing back dune areas (13ha and 20ha respectively) and that coupled with appropriate management would both mitigate and compensate for the predicted adverse effects.

1.2 Risks

- 1.2.1 The following key risks have been identified associated with achieving mitigation / compensation habitat for *Natura 2000* Sites of the West of Wales SMP:

- Lack of data of sufficient detail on the existing flora and fauna;
- Lack of clarity regarding the verification of interest features;
- Uncertainty regarding the success of the implementation of mitigation/compensation;
- Uncertainty regarding the timing of measures / actions to successfully compensate for habitat losses;
- Failure of compensatory habitat applications would prevent compensatory habitat being implemented;
- Risk of a lack of funding; and
- Where alternative approaches to shoreline management occur as a result of site specific decision making, there is a potential for unforeseen affects to arise. Consequently, any departures from the SMP policies should undertake an HRA in order to ensure no adverse effects on integrity arise, and also to ensure that their implementation does not prevent or inhibit the attainment of the mitigation measures and compensatory habitat requirements identified in this SMP.

Annex XI: Habitat Compensation Tables

Table 1: Pembroke Marine SAC – Compensatory Habitat in Units within the SAC Frontage

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
2.2	Little Haven	na	na	0.26	In Epoch 3 MR could provide up to 0.26ha of intertidal habitat area (intertidal sandflat)
2.4	Southern and central Broad Haven	na	na	0.00?	Limited area for realignment though small amounts may be determined through more detailed study depending on the extent of change to the seafront road and properties.
2.5	Broad Haven North	na	0.27	0.19	Realignment in the area of Haroldston Bridge, would require removal of road (and diversion) and provide a large area of grassland and shrub, which could provide up to 1.77ha of intertidal habitat (sandflat). Though given the location and watercourse, there could be a high mud component and a greater rate of deposition. Would likely retain road but increase bridge spacing to allow greater incursion of tide.
2.6	Haroldston Hill	na	na	0.08	Limited area available for realignment, producing up to 0.08ha of intertidal habitat.
2.8	Nolton Haven	na	0.40	na	Realignment up to the road could provide up to 0.4ha of intertidal habitat.
2.10	Newgale Sands south	na	na	na	Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore.
2.11	Newgale Sands north	na	na	na	
2.12	Newgale village	na	na	na	
3.2	Lower Solva	na	na	0.06	Potentially areas up to the road and car park area could provide up to 0.37ha of intertidal habitat. Though without the car park area, only up to 0.06ha is likely.
3.8	Whitesands Bay	na	2.25	0.39	In Epoch 2 up to 2.25ha of intertidal habitat could be created, though dependent on how much re-grading work is undertaken. This could be added to in Epoch 3 with an additional 0.39ha of intertidal habitat.
3.9	Abereiddi	1.07	0.71	0.33	Removal of the car park and realignment thereafter would provide incremental extents of intertidal habitat throughout all epochs.
Sub-total		1.07	3.63	1.31	Total of up to 6.01ha.

The MR policies provide the required landward development area to prevent or avoid impacts on SAC features for the above units, they do not indicate any greater extents that could be used as compensatory habitat. Examination of locations outside the SAC is therefore required, with initial examination within other coastal SACs in the study area.

Table 2: Llyn Peninsula and the Sarnau SAC – Compensatory Habitat in Units within the SAC Frontage

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
10.2	Borth Village	na	na	5.86	At the northern end of the unit there is a potential to create a wider beach for epoch 3, creating 5.86ha of intertidal sandflat habitat.
10.3	Borth Golf Course	na	5.20	4.21	Potentially up to 9.41ha of intertidal sandflat could be created, though careful management of the transition between the southern section of the shoreline and the Ynyslas dunes would be required.
10.5	Afon Leri	na	na	160.40	Even without realignment of transport infrastructure or commercial / residential areas, a large area of intertidal estuarine habitats could be created as a maximum (though it could potentially be larger in extent). This would in epoch 3 provide up to 160.40ha of intertidal sandflat, intertidal mudflat and saltmarsh habitats. Large scale ground works could develop different areas of habitat / transitions. However, it could result in the loss of around 137.60ha of freshwater/terrestrial habitat (see SoEP) in the Dyfi SSSI. In Epoch 3, there is upwards of 19ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats.
10.6	Cors Fochno	na	na	943.70	Managed realignment through removal of flood / tide banks could (even if key residential and transport infrastructure remained) result in 943.70ha of intertidal estuarine habitats, including intertidal sandflat, intertidal mudflat and saltmarsh habitats, including the transitional habitats. These are derived from 6 extents covering 271.10ha, 309.80ha, 52.74ha, 179.20ha, 114.80ha, and 16.06ha. However, realignment could result in the loss of around, 273.73ha of the freshwater / terrestrial features of the Llyn Peninsula and the Sarnau SAC, 264.86ha of the Dyfi Estuary SPA, 188.42ha of the Cors Fochno and Dyfi Ramsar Site, and 591.83ha of freshwater / terrestrial habitat in the Dyfi SSSI. In Epoch 3, there is upwards of 151ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats. Though fragmented, the habitat would be adjacent to and connected with the intertidal and existing freshwater habitats.

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
10.7	Dyfi Junction	na (7.99)	na (13.58)	102.62	<p>Managed realignment through removal of flood banks east of the junction and south of the railway could (even if key residential and transport infrastructure remained) result in 57.79ha of intertidal estuarine habitats, including intertidal sandflat, intertidal mudflat and saltmarsh habitats, including the transitional habitats. These are derived from 3 extents covering 15.91ha, 25.47ha, and 16.41ha, though the two latter units would be hydrologically connected. North of Dyfi Junction alongside the river, managed realignment and earthworks could create up to 44.83ha of intertidal habitats including saltmarsh, with areas possible in Epochs 1 and 2 (in brackets).</p> <p>However, realignment could result in the loss of around 52.15ha of freshwater / terrestrial features of the Lleyn Peninsula and the Sarnau SAC and the Dyfi SSSI, and 15.82ha in the Dyfi Estuary SPA.</p> <p>In Epoch 3, there is upwards of 34ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats; 3ha is within PU 10.8 which could be utilised for habitat creation. Though fragmented, the habitat would be adjacent to and connected with the intertidal habitats.</p>
10.9	Machynlleth	na	12.02	29.87	<p>Managed realignment through the removal of flood banks along with ground works could (even if key residential and transport infrastructure remained) result in 12.02ha in Epoch 2 and 29.87ha in Epoch 3 of intertidal estuarine habitats, including intertidal mudflat and saltmarsh habitats and transitional habitats. Potentially larger extents are possible as very rough areas have been identified and if further ground works were to be undertaken this could be significantly increased in Epoch 2 or 3.</p> <p>The realignments would not result in the loss of any SAC or SSSI freshwater / terrestrial habitat features.</p> <p>In Epoch 3, there is around 65ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 71ha in Epoch 2, though the 29ha of that created in Epoch 2 would disappear as realignment occurs in Epochs 2 and 3. This habitat would be linked to the river and contiguous with the intertidal habitats created.</p>

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
10.10	Pennal Valley	91.64	45.35	19.29	<p>Managed realignment could (even if key residential and transport infrastructure remained) result in 156.28ha of intertidal estuarine habitats, including intertidal mudflat and saltmarsh habitats, including the transitional habitats, with 91.64ha in Epoch 1, 45.35ha in Epoch 2, and 19.29ha in Epoch 3.</p> <p>However, realignment could result in the loss of up to 29.34ha of freshwater / terrestrial features of the Lleyn Peninsula and the Sarnau SAC and the Dyfi SSSI (22.20ha in Epoch 1, 6.06ha in Epoch 2, and 1.08ha in Epoch 3), and 15.34ha in the Dyfi Estuary SPA (14.34ha in Epoch 1, and 1ha in Epoch 3).</p> <p>By Epoch 3, there is around 19ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 58ha in Epoch 2, and 127ha in Epoch 1, though the habitat created in Epochs 1 and 2 would disappear as realignment occurs in Epochs 2 and 3. Though fragmented, the habitat would be adjacent to and connected with the intertidal habitats.</p>
10.11	Gogarth	31	31	31	<p>Although a policy of HTL is identified, there is a potential for freshwater / terrestrial habitat creation and enhancement within the Nant Cwm-sylwi and Gogarth area. This could provide up to 31ha of varied habitats.</p>
10.14	Aberdyfi Dunes	na	na	na	<p>Support of natural dune defence and adaptation of use within the Golf Course should not directly or indirectly affect dune or landward terrestrial / freshwater habitats.</p>
10.15	Penllyn	42.58	20.89	46.35	<p>Managed realignment through allowing inundation into the area behind the dunes and earthworks could (even if key residential and transport infrastructure remained) result in 156.28ha of intertidal habitats, including intertidal mudflat / sandflat habitats, including transitional habitats, with 42.58ha in Epoch 1, 20.89ha in Epoch 2, and 46.35ha in Epoch 3. This would result in the loss of the golf course, but would also entail areas for freshwater / terrestrial habitat to be re-created, as well as area for movement of the dune system.</p> <p>Realignment could result in the loss of up to 11.88ha of freshwater / terrestrial features of the Dyfi SSSI (2.46ha in Epoch 1, 0.78ha in Epoch 2, and 8.64ha in Epoch 3).</p> <p>By Epoch 3, there is around 39ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater / dune SAC habitats (notably around 13ha would be most suitable for dune habitat as it lies immediately inland of the existing dune system), with around 59ha in Epoch 2, and up to 101ha in Epoch 1, though the habitat created in Epochs 1 and 2 would disappear as realignment occurs in Epochs 2 and 3. Though fragmented, the habitat would be adjacent to and connected with intertidal habitats.</p>

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
10.18	Dysynni Estuary	na	323.88	14.65	<p>Managed realignment could (even if key residential and transport infrastructure remained) result in the creation of around 338.53ha of intertidal estuarine habitats, including intertidal mudflat and saltmarsh habitats, and associated transitional habitats (323.88ha in Epoch 2, and 14.65ha in Epoch 3).</p> <p>However, 58.74ha of the compensatory habitat is located within the Broadwater SSSI and could result in the loss of terrestrial / freshwater habitats associated with this site in Epoch 2; no other terrestrial / freshwater habitats designated as SSSI would be affected in Epoch 3.</p> <p>By Epoch 3, there is around 259ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 317ha in Epoch 2, though the 58ha of that created in Epoch 2 would disappear as realignment occurs in Epoch 3. 190ha of this potential habitat is located upstream of the A493 crossing of the Dysynni. This habitat would be linked to the river and contiguous with the intertidal habitats created.</p>
10.19	Tonfanau	na	na	na	Given the small extent available and that this would offset any loss due to sea level rise, no additional compensatory habitat is expected within this unit.
11.2	Llwyngwriil	?	?	?	Given that this frontage is cliff, MR is unlikely to provide additional compensatory habitats unless earthworks to grade the cliff are undertaken to form intertidal habitats. Potentially this would provide up to 20.80ha of habitat for any epoch.
11.4	Ro Wen Coast	na	na	na	Given the extent available for managed realignment and that this would offset any loss due to sea level rise, no additional compensatory habitat is expected within this unit. MR would not affect any SAC or SSSI freshwater / terrestrial habitat features.
11.5	Ro Wen Spit	na	na	na	Given the extent available for managed realignment and that this would offset any loss due to sea level rise, no additional compensatory habitat is expected within this unit. MR would not affect any SAC or SSSI freshwater / terrestrial habitat features.

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
11.6	Fairbourne Embankment	na	113.90	18.87	<p>Removal of residential / commercial infrastructure in Epoch 2 and realignment of the embankment would result in the creation of around 132.77ha of intertidal habitats (mudflat, sandflat and saltmarsh), with 113.9ha in Epoch 2 which would increase by 18.87ha in Epoch 3. The realignments would not result in the loss of any SAC or SSSI freshwater / terrestrial habitat features.</p> <p>However, 1.50ha of the compensatory habitat is located within the Lleyn Peninsula and the Sarnau SAC and the Mawdach Estuary SSSI (in Epoch 3), and could result in the loss of terrestrial / freshwater habitats associated with these sites.</p> <p>By Epoch 3, there is around 9ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 26ha in Epoch 2, though the 17ha of that created in Epoch 2 would disappear as realignment occurs in Epoch 3. Though fragmented, the habitat would be adjacent to and connected with intertidal habitats and some connected to existing rivers and habitats.</p>
11.9	Fegla	na	105.75	12.65	<p>Managed realignment could (even if residential and transport infrastructure remained) result in around 118.40ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (105.75ha in Epoch 2, and 12.65ha in Epoch 3).</p> <p>However, 61.51ha of the compensatory habitat is located within the Lleyn Peninsula and the Sarnau SAC and the Mawdach Estuary SSSI (59.75ha in Epoch 2, and 1.76ha in Epoch 3), and could result in the loss of terrestrial / freshwater habitats associated with these sites.</p> <p>By Epoch 3, there is around 6ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 19ha in Epoch 2, though the 13ha of that created in Epoch 2 would disappear as realignment occurs in Epoch 3. Though fragmented, the habitat would be adjacent to and connected with intertidal habitats and some connected to existing rivers and habitats.</p>

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
11.10	Mawddach South Bank	36.23	6.83	1.69	<p>Managed realignment could result in around 44.75ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (36.23ha in Epoch 1, 6.83ha in Epoch 2, and 1.69ha in Epoch 3).</p> <p>However, 37.55ha of the compensatory habitat is located within the Lleyn Peninsula and the Sarnau SAC and the Mawdach Estuary SSSI (30.16ha in Epoch 1, 6.40ha in Epoch 2, and 0.99ha in Epoch 3), and could result in the loss of terrestrial / freshwater habitats associated with these sites.</p> <p>By Epoch 3, there is around 8ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 9ha in Epoch 2, though the 1ha of that created in Epoch 2 would disappear as realignment occurs in Epoch 3, and 15ha in Epoch 1. Though fragmented, the habitat would be adjacent to and connected with intertidal habitats and some connected to existing rivers and habitats.</p>
11.12	Upper Estuary	44.68	29.60	39.59	<p>Managed realignment could (even if residential and transport infrastructure remained) result in around 113.87ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (44.68ha in Epoch 1, 29.60ha in Epoch 2, and 39.59ha in Epoch 3).</p> <p>However, 57.93ha of the compensatory habitat is located within the Lleyn Peninsula and the Sarnau SAC and the Mawdach Estuary SSSI (28.17ha in Epoch 1, 14.49ha in Epoch 2, and 15.27ha in Epoch 3), and could result in the loss of terrestrial / freshwater habitats associated with these sites.</p> <p>By Epoch 3, there is around 27ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 42ha in Epoch 2, and 70ha in Epoch 1, though the extents in Epochs 1 and 2 would disappear as realignments occurred. This habitat would be linked to the river and contiguous with the intertidal habitats created.</p>

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
11.13	Mawddach North	39.38	16.76	9.37	<p>Managed realignment could (even if residential and transport infrastructure remained) result in around 65.51ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (39.38ha in Epoch 1, 16.76ha in Epoch 2, and 9.37ha in Epoch 3).</p> <p>However, 47.46ha of the compensatory habitat is located within the Lleyn Peninsula and the Sarnau SAC and the Mawdach Estuary SSSI (26.36ha in Epoch 1, 11.73ha in Epoch 2, and 9.37ha in Epoch 3), and could result in the loss of terrestrial / freshwater habitats associated with these sites.</p> <p>By Epoch 3, there is around 8ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 17ha in Epoch 2, and 33ha in Epoch 1, though the extents in Epochs 1 and 2 would disappear as realignments occurred. Though fragmented, the habitat would be adjacent to and connected with intertidal habitats and some connected to existing rivers and habitats.</p>
11.15	Barmouth North	na	na	na	<p>Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.</p>
11.17	Egryn Marsh	na	na	na	<p>Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.</p>
11.18	Sunnysands	na	na	na	<p>Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.</p>
11.19	Islawffordd	na	na	na	<p>Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.</p>

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
12.2	Artro Southern Spit	na	na	na	Given the extent available for managed realignment and that this would offset any loss due to sea level rise, no additional compensatory habitat is expected within this unit. MR would not affect any SAC or SSSI freshwater / terrestrial habitat features.
12.3	Artro Estuary South	na	210.15	36.65	<p>Managed realignment could (even if residential and transport infrastructure remained) result in around 246.80ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (210.15ha in Epoch 2, and 36.65ha in Epoch 3). This is made up from 3 main areas, one east of Mochres (42.45ha in Epoch 2 and 16.60ha in Epoch 3), the area at Morfa Mawr behind the seabank (58.99ha in Epoch 1 and 4.48ha in Epoch 3), and the lowland valley to the south-west of Llanbedr (77.71ha in Epoch 2 and 15.57ha in Epoch 3).</p> <p>However, 13.82ha of the compensatory habitat is located within the Lleyn Peninsula and the Sarnau SAC (all present and affected in Epoch 2), 41.88ha of the compensatory habitat is located within the Morfa Harlech and Morfa Dyffryn SAC (28.7ha in Epoch 2 and 12.88ha in Epoch 3), and 62.42ha of compensatory habitat is located within the Morfa Dyffryn SSSI (49.54ha in Epoch 2, and 12.88ha in Epoch 3). These could therefore result in the loss of terrestrial / freshwater habitats associated within these sites, which itself may need compensation.</p> <p>There is around 20ha of land on Mochres which could be used in compensation in Epochs 2 and 3 for dune habitat compensation for the Morfa Harlech and Morfa Dyffryn SAC. In addition, by Epoch 3 around 124ha of undeveloped land surrounding the MR areas could be used to compensate for terrestrial / freshwater SAC habitats, with around 147ha in Epoch 2, though the 23ha in Epoch 2 would be removed as realignments and sea level rise occurred in Epoch 3. Alternatively, the area of intertidal habitat compensation provided at either Morfa Mawr (up to 73ha) or south-west of Llanbedr (around 93ha) could provide areas suitable for creation and compensation of terrestrial / freshwater SAC habitats. Though fragmented, the habitat would be adjacent to and connected with intertidal habitats and some connected to existing rivers /streams.</p>
12.5	Llandanwg Dunes	na	na	na	Given the extent available for managed realignment and that this would offset any loss due to sea level rise, no additional compensatory habitat is expected within this unit. MR would not affect any SAC or SSSI freshwater / terrestrial habitat features.

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
12.7	Morfa Harlech	300	300	300	Although a policy of NAI is identified, there is a potential for freshwater / terrestrial habitat creation and enhancement behind the Morfa Harlech dune systems, with a maximum of up to 300ha possible of varied freshwater / terrestrial / wetland habitats.
12.8	Harlech Valley	309	309	309	Although a policy of HTL is identified, there is a potential for freshwater / terrestrial habitat creation and enhancement in the Harlech Valley, with a maximum of up to 309ha possible of varied freshwater / terrestrial / wetland habitats.
12.9	Talsarnau	na	91.69	37.67	Managed realignment could (even if residential and transport infrastructure remained) result in around 129.36ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (91.69ha in Epoch 2 and 37.67ha in Epoch 3). This is made up from 2 main areas, one west of the railway line and a couple east of the railway line. The realignments would not result in the loss of any SAC or SSSI freshwater / terrestrial habitat features. By Epoch 3, there is around 11ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 48ha in Epoch 2, though 37ha of the extent in Epoch 2 would disappear as realignments and sea level rise progress in Epoch 3. Though fragmented, the habitat would be adjacent to and connected with intertidal habitats and some connected to existing rivers and habitats.
12.11	Upper Dwyryd Estuary	61.44	27.59	39.27	Managed realignment could (even if residential and transport infrastructure remained) result in the creation of around 128.30ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (61.44ha in Epoch 1, and allowing development of 27.59ha in Epoch 2 and 39.27ha in Epoch 3 under the NAI policy post-MR). This is created from 7 areas alongside the river. However, 12.74ha of the compensatory habitat is located within the Llyn Peninsula and the Sarnau SAC and the Morfa Harlech SSSI (4.89ha in Epoch 1, 4.55ha in Epoch 2, and 3.30ha in Epoch 3). This could result in the loss of terrestrial / freshwater habitats associated with these sites, which itself may need compensation. By Epoch 3, there is around 25ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 64ha in Epoch 2, and 91ha in Epoch 1, though the extents in Epochs 1 and 2 would disappear as realignments occurred. Though fragmented, the habitat would be adjacent to and connected with intertidal habitats and some connected to existing rivers and habitats.

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
12.13	The Cob and Porthmadog	400	400	400	Although a policy of HTL is identified, there is a vast potential for freshwater / terrestrial habitat creation and enhancement north-east of Porthmadog in the lower Glaslyn Valley, with over 400ha of areas for potential freshwater / terrestrial / wetland habitats.
12.16	Morfa Bychan	na	na	na	Support of natural dune defence and adaptation of use within the caravan park should not directly or indirectly affect dune or landward terrestrial / freshwater habitats.
12.17	Criccieth Shingle Banks	na	na	na	Realignment of railway and removal of obstruction to natural processes in Epochs 2 and 3 would not affect the SAC interest features, but could result in loss of or alteration to landward terrestrial / freshwater features of the Tiroedd a Glannau Rhwng Cricieth ac Afon Glaslyn SSSI and the Rhiw-for-Fawr SSSI.
12.18	Criccieth Harbour	na	na	na	Intertidal area fronting the unit is (for the most part) not within the SAC; therefore at this stage the potential habitat created during MR is not examined. However, the extent available for managed realignment would offset any loss to SAC interests due to sea level rise. No additional compensatory habitat is expected within this unit. MR would not affect any SAC or SSSI freshwater / terrestrial habitat features.
12.22	Dwyfor	16.93	11.57	10.89	Managed realignment could (even if residential and transport infrastructure remained) result in the creation of around 39.39ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (16.93ha in Epoch 1, and allowing development of 11.57ha in Epoch 2 and 10.89ha in Epoch 3 under the NAI policy post-MR). This is created from 7 areas alongside the river. The realignments would not result in the loss of any SAC or SSSI freshwater / terrestrial habitat features. By Epoch 3, there is around 54ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 64ha in Epoch 2, and 75ha in Epoch 1, though the extents in Epochs 1 and 2 would disappear as NAI results in encroachment of intertidal habitats with sea level rise. This habitat would be linked to the river and contiguous with the intertidal habitats created.

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
12.24	Afon Wen	na	13.79	5.20	<p>Managed realignment could (even if residential and transport infrastructure remained) result in the creation of around 18.99ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (13.79ha in Epoch 2 and 5.20ha in Epoch 3).</p> <p>However, 12.74ha of the compensatory habitat is located within the Glanllynau a Glannau Pen-ychain i Cricieth SSSI (8.13ha in Epoch 2 and 1.21ha in Epoch 3). This could result in the loss of terrestrial / freshwater habitats associated with this site, which may need to be replaced.</p> <p>By Epoch 3, there is around 25ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 30ha available in Epoch 2, though the extent in Epoch 2 would disappear as encroachment of intertidal habitats occurs as a result of sea level rise. This habitat would be linked to the river and contiguous with the intertidal habitats created.</p>
13.2	Abererch	na	na	na	<p>Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.</p> <p>In addition, there is scope for large areas for terrestrial / freshwater habitat creation and enhancement if required.</p>
13.7	Golf Course	na	na	na	<p>Given the extent available for managed realignment and that this would offset any loss due to sea level rise, no additional compensatory habitat is expected within this unit. MR would not affect any SAC or SSSI freshwater / terrestrial habitat features.</p>
13.8	Traeth Crugan	na	166.23	36.07	<p>Creating a new entrance estuary to the Afon Penrhos through MR could (even if residential and transport infrastructure remained) result in the creation of around 202.30ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (166.23ha in Epoch 2 and 36.07ha in Epoch 3).</p> <p>The realignments would not result in the loss of any SAC or SSSI freshwater / terrestrial habitat features.</p> <p>By Epoch 3, there is around 86ha of undeveloped land surrounding the MR areas which could be used to compensate for terrestrial / freshwater habitats, with around 122ha available in Epoch 2, though the extent in Epoch 2 would disappear as encroachment of intertidal habitats occurs as a result of sea level rise.</p>

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
13.11	The Warren	na	na	na	Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.
13.12	Abersoch	na	na	na	Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.
13.14	Borth Fawr Central	na	na	na	Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.
13.15	Machroes	na	na	na	Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.
14.8	Aberdaron Village and coastal slope	na	na	na	Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.
15.2	Porth Dinllaen, including Morfa Nefyn	na	na	na	Limited area for realignment due to topographic constraints, though small amounts may be determined through more detailed study depending on the extent of change to the seafront properties.
Sub-total		332.88	1,201.20	1,574.87	

Table 3: Areas of Freshwater / Terrestrial Compensatory Habitat Suitability

Policy Unit		Area (ha) in Epoch		
		1	2	3
10.5	Afon Leri	na	na	19
10.6	Cors Fochno	na	na	151
10.7	Dyfi Junction	na	na	34
10.9	Machynlleth	na	71	65*
10.10	Pennal Valley	127	58*	19*
10.11	Gogarth	31	31*	31*
10.15	Penllyn	88 [#]	46 ^{*#}	26 ^{*#}
10.18	Dysynni Estuary	na	317 [@]	259 ^{*@}
11.6	Fairbourne Embankment	na	26	9*
11.9	Fegla	na	19	6*
11.10	Mawddach South Bank	15	9*	8*
11.12	Upper Estuary	70	42*	27*
11.13	Mawddach North	33	17*	8*
12.3	Artro Estuary South ⁺	na	147	124*
12.7	Morfa Harlech	300	300*	300*
12.8	Harlech Valley	309	309*	309*
12.9	Talsarnau	na	48	11*
12.11	Upper Dwyryd Estuary	91	64*	25*
12.13	The Cob and Porthmadog	400	400*	400*
12.22	Dwyfor	75	64*	54*
12.24	Afon Wen	na	30	25*
13.8	Traeth Crugan	na	122	86*
Total		1,539	2,120	1,826

* Indicates that this habitat could initially be created in earlier Epochs.

[#] Indicates the extent less than (13ha) identified as appropriate for dune habitat development.

[@] Contains 190ha of area contributed from upstream of the A493 crossing of the Dysynni.

⁺ Also includes up to 20ha for dune habitat creation/management/enhancement within this unit.

Anglesey Coast: Saltmarsh SAC – Compensatory Habitat in Units within the SAC Frontage

There are no policy units with MR policies within the frontages that align with the Anglesey Coast: Saltmarsh SAC. All policies are NAI with the exception of HTL at one unit. Consequently, compensatory habitat will need to be extracted from MR policies in surrounding sites (SACs) which provide complementary habitats, and which are concurrent with the SAC boundary (i.e. Abermenai and Aberffraw Dunes SAC and the Menai Strait and Conwy Bay SAC).

Table 4: Abermenai and Aberffraw Dunes SAC – Compensatory Habitat in Units within the SAC Frontage

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
16.5	Foryd Bay	na	51.08	127.88	Managed realignment could (even if residential and transport infrastructure remained) result in the creation of around 128.30ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (51.08ha in Epoch 2 and 127.88ha in Epoch 3). However, 9.47ha of the compensatory habitat is located within the Abermenai and Aberffraw Dunes SAC in Epoch 3, whilst 4.7ha is located within the Y Foryd SSSI in Epoch 2. This could result in the loss of terrestrial / freshwater habitats associated with these sites, which itself may need compensation or replacement (for the SSSI habitats). By Epoch 3, there is around 55ha of undeveloped or semi-developed land surrounding the MR areas which could be used to compensate for terrestrial / freshwater SAC habitats, with around 172ha in Epoch 2, though the extent in Epoch 3 would disappear as realignments and sea level rise occur. Though fragmented, the habitat would be adjacent to and connected with intertidal habitats and some connected to existing watercourses.
Sub-total		na	51.08	127.88	

Table 5: Menai Strait and Conwy Bay SAC – Compensatory Habitat in Units within the SAC Frontage

Policy Unit		Area (ha) in Epoch			Description of Compensation
		1	2	3	
16.11	Ffordd Yr Aber to Afon Carogg	na	na	na	Given the extent available for managed realignment and that this would offset any loss due to sea level rise, no additional compensatory habitat is expected within this unit. MR would not affect any SAC or SSSI freshwater / terrestrial habitat features.
16.17	Barras to Mermaid Inn	na	na	na	Given the extent available for managed realignment and that this would offset any loss due to sea level rise, no additional compensatory habitat is expected within this unit. MR would not affect any SAC or SSSI freshwater / terrestrial habitat features.
16.21	Beaumaris West	na	na	na	Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.
16.22	Beaumaris East	na	na	na	Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.
16.28	Hirael	na	na	na	Intertidal area fronting the unit is not within the designated site; therefore at this stage the potential habitat created during MR is not examined. However, could potentially review opportunity to improve intertidal habitat within the foreshore, and realignment of defences could provide additional intertidal habitat.
16.32	Afon Aber	1.68	2.35	2.35*	Managed realignment could result in the creation of around 4.03ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats (1.68ha in Epoch 1, and 2.35ha in Epoch 2), which would be expected to remain similar in Epoch 3. There is a potential for a larger area of intertidal habitat creation if earthworks are undertaken. The realignments would not result in the loss of any SAC, SPA, or SSSI freshwater / terrestrial habitat features.
16.33	Llanfairfechan	na	na	5.55	Managed realignment could result in the creation of around 5.55ha of intertidal estuarine habitats, including mudflat and saltmarsh habitats, and associated transitional habitats. There is a potential for a larger area of intertidal habitat creation if earthworks are undertaken. The realignments would not result in the loss of any SAC, SPA, or SSSI freshwater / terrestrial habitat features.
Sub-total		1.68	2.35	7.90	