

REPORT OF THE HEAD OF PARK DIRECTION

**SUBJECT: DRAFT SUPPLEMENTARY PLANNING GUIDANCE DOCUMENTS ON
(A) THE CUMULATIVE IMPACT OF WIND TURBINES
(B) SEASCAPE CHARACTER &
(C) AN UPDATE TO THE ADOPTED SUSTAINABLE DESIGN GUIDANCE**

Purpose of Report

To seek Members' approval to consult on draft supplementary planning guidance documents on the subjects of cumulative impact of turbines and also on seascape character and an update to an adopted supplementary planning guidance on sustainable design. Each of the 3 guidance documents have been prepared to support the policies and proposals of the Local Development Plan.

Background

Members have approved a number of supplementary planning guidance documents for consultation since September 2010. Further draft supplementary planning guidance has been prepared - see attached (Annex 1 and 2 and the Authority's website). When adopted by the Authority, following public consultation, the guidance forms a material planning consideration when deciding planning applications.

The Authority's supplementary planning guidance on Sustainable Design requires a minor update to reflect concerns raised by Members – see Annex 3.

Further summary information on the Cumulative Impact of Wind Turbines and Seascape Character Supplementary Planning guidance is also attached to this report. A workshop has been arranged on the afternoon of the 26th June where the consultant will present an overview of the guidance and some potential applications. Members of the Council's planning committee have also been invited to attend.

Conclusion

It is anticipated that the consultation on the new supplementary planning guidance listed above will commence in July for a period of three months. Comments made on the supplementary planning guidance will be considered by Officers and recommendations reported back to Members in due course. A statement of the consultation undertaken, the representations received and the Authority's response to those representations will also be made available. Commentators will be informed of the outcomes.

Members are asked for delegated powers to ensure that the formatting used for the Cumulative Impact of Wind Turbines and the Seascape Character Supplementary

Planning Guidance matches the Authority's template approach prior to the guidance being published for consultation.

Financial Considerations

The consultation will have financial implications for the Authority, including translation and publicity costs. A reasonable charge will be made for paper copies of the consultation drafts of the supplementary planning guidance. They will be available free on CD and to download via the Authority's web site.

The provision of up to date supplementary planning guidance will assist planning applicants in meeting the requirements of Local Development Plan and national planning policy.

Risk considerations

The guidance documents are intended to reduce the risks to the special qualities of the National Park and to inform decision-making.

Compliance

The guidance documents are intended to inform decision-making in relation to potential impacts on designated sites and features.

Human Rights/Equality issues

No issues are anticipated.

Biodiversity implications/Sustainability appraisal

The guidance documents are intended to inform decision-making with regard to environmental and socio-economic outcomes.

Welsh Language statement

Documentation will be published bilingually.

Recommendation

- 1. Members approve the attached draft Supplementary Planning Guidance, on Cumulative Impact of Wind Turbines (Annex 1) to the Local Development Plan for public consultation purposes.**
- 2. Members approve the attached draft Supplementary Planning Guidance, on Seascape Character (Annex 2 and the Authority's website) to the Local Development Plan for public consultation purposes.**
- 3. Members delegate powers to the Head of Park Direction to ensure that the formatting of the draft supplementary planning guidance on Cumulative Impact of Wind Turbines and Seascape Character reflects the Authority's template approach prior to the commencement of the consultation.**
- 4. Members approve the attached update (Annex 3) to the adopted Sustainable Design Guidance for public consultations purposes.**

Background Documents

Planning Policy Wales:

<http://wales.gov.uk/topics/planning/policy/ppw/?jsessionid=959D17CBE44B4C21C123285AA5AE6E99?lang=en>

Technical Advice Notes

[Welsh Government | Technical Advice Note \(TAN\) 8: Renewable Energy \(2005\)](#)

[Welsh Government | Technical Advice Note \(TAN\) 12: Design \(2009\)](#)

[Welsh Government | Technical Advice Note 22: Sustainable Buildings \(2010\)](#)

[Countryside Council for Wales regional Seascape Assessment of Wales in 2009](#)

Local Development Plan (Adopted 2010)

<http://www.pembrokeshirecoast.org.uk/default.asp?PID=178>

Supplementary Planning Guidance on:

Landscape Character

Renewable Energy

Building Design

[Pembrokeshire Coast National Park - SPG](#)

For further information, please contact Richard James (Cumulative Impact of Wind Turbines) on extension 4875 or Michel Regelous (Seascape Character) on extension 4827.

Email richardj@pembrokeshirecoast.org.uk; michelr@pembrokeshirecoast.org.uk; martinad@pembrokeshirecoast.org.uk

Authors: Martina Dunne, Richard James, Michel Regelous

Consultees: Tegryn Jones (Chief Executive Officer), Jane Gibson (Director of Park Direction and Planning)

Cumulative Impact of Wind Turbines Supplementary Planning Guidance

1. The Pembrokeshire Coast National Park is widely recognised as Britain's only predominantly coastal national park. The splendour of its coastline, its spectacular scenery, and rugged, unspoilt beauty, provide a scenic quality which was recognised in its designation as a National Park along with the spectacle of the islands off the Pembrokeshire Coast.
2. Over recent years, the National Park Authority (NPA), along with its neighbouring local planning authorities in South West Wales, has experienced a dramatic increase in the numbers of planning applications and enquiries for wind turbines. This has placed an increased strain on the National Park landscape's capability to effectively absorb multiple wind turbine developments, both within and close to its boundary, without causing significant harm. As such, the cumulative visual impact of turbines upon the existing landscape is increasingly becoming a key consideration during the determination of planning applications. Of particular relevance to the National Park is the cumulative impact of sporadic, individual, small to medium scale turbines within a landscape area, which can collectively become a key defining landscape characteristic, to the detriment of the existing special qualities of the National Park.
3. Policies relating to development within the National Park are contained in the Local Development Plan (LDP) for the National Park area. These are supported by a range of supplementary planning guidance (SPG) documents, including guidance on Landscape Character Areas and Renewable Energy development.
4. Whilst the existing planning policy and guidance provides a useful context in relation to siting individual turbine developments within the landscape, to build on this, officers wished to develop comprehensive guidance on how to assess the cumulative visual impacts of wind developments, which could also be referred to by developers, when preparing planning applications.
5. The production of this guidance (using the Planning Improvement Fund award), whilst lead by the National Park Authority, is a joint venture with Pembrokeshire County Council and Carmarthenshire County Council, in recognition of the cross boundary issue of cumulative visual impact.
6. The brief required the development of guidance which:
 - Defined cumulative impact;
 - Identified relevant Environmental Impact Assessment requirements in relation to cumulative impact;
 - Used illustrative tools – wireframes, photomontages, illustrations etc. to explain cumulative impacts;
 - Addressed issues arising from different designs, scales of turbines, colours, number and density of turbines;
 - Addressed how to consider inshore/offshore impacts;
 - Took account of impacts across different landscape and seascape character areas;
 - Provided a step by step guide to producing cumulative impact assessments including advice on defining search areas, selecting viewpoints and turbines to be included;
 - Included the use of LANDMAP;
 - Made use of existing best practice in the field;
 - Would be suitable for scrutiny at appeal/inquiry;
 - Would be easily understood by members of the public.

7. The brief attracted strong interest and was awarded to a multi-disciplinary team led by White Consultants. Mr Simon White, of White Consultants, will describe the methodology and practical employment of the assessment at a presentation on the afternoon of June 26th.

Seascape Character Guidance (see Annex 2 for extracts and the Authority's website for the full version)

8. Pembrokeshire is a maritime county and coastal waters are the basis of much of the recreational attraction of the National Park, and, consequently, of the region's visitor economy.
9. Although the seaward boundary of the National Park is mean low water, development and activity offshore can have impacts on the National Park itself. Such impacts might include the visual impact of structures or vessels at sea, associated development on land, disturbance of coastal communities and wildlife, pressures for recreational infrastructure, alteration of coastal processes, and so on.
10. Policies relating to development within the National Park are contained in the Local Development Plan for the National Park area. These are supported by a range of supplementary planning guidance documents, including guidance on Landscape Character Areas.
11. While many of these Landscape Character Areas have a marine aspect, officers wished to provide more comprehensive planning guidance on seascape character, complementing the existing landscape character guidance. This would assist developers, inform representations made by the National Park Authority on nationally-significant infrastructure projects on which it might be consulted, and provide a defensible evidence base in relation to planning inquiries.
12. The former Countryside Council for Wales had commissioned a regional Seascape Assessment of Wales in 2009 (i.e. including the Pembrokeshire Coast), but this was, by its nature, a broad-brush study. In 2012, the then Countryside Council for Wales sought to develop this regional seascape work with pilot studies at the local authority scale. Amongst other potential uses, this work would help the successor organisation, Natural Resources Wales, to prepare management plans, respond to planning matters, assess environmental impact and contribute to Marine Spatial Planning in Wales.
13. The National Park Authority (using the Planning Improvement Fund award) and the former Countryside Council for Wales therefore decided to collaborate in commissioning a seascape character assessment of Pembrokeshire.
14. The brief required an assessment which:
 - identified what is distinctive and special about different areas of the National Park, and sea areas visible from it
 - outlined the sensitivities of these areas
 - described possible risks to the character of these areas (including, but not limited to, those arising from development)
 - provided a commentary on future management
 - would be useful to a range of users
 - had regard to the relevant tests of soundness for an Local Development Plan

15. The brief attracted strong interest and was awarded to a multi-disciplinary team led by White Consultants. Mr Simon White, of White Consultants, will describe the methodology and practical employment of the assessment at a presentation on the afternoon of June 26th.
16. White Consultants' final report forms the basis of Annex 2 to this report, "Supplementary planning Guidance on Seascapes – draft for public consultation (extract)". In view of document size, only the front end of the document (including context and methodology) and three example Seascape Character Areas assessments are included with this report. The full report, including all the Seascape Character Area assessments, will be made available from the relevant NPA Committee meeting page on the NPA's website.
17. The National Park Authority has invited Cadw, the Royal Commission on Ancient and Historical Monuments of Wales, and specialists within Natural Resources Wales to identify any issues that could usefully be addressed before wider publication of the guidance. No such issues were identified, although Natural Resources Wales has made a small number of initial comments of which will be taken into account as part of the formal consultation. Partner organisations may of course make further comments during the public consultation period.

Comparisons

18. *Guidance on the cumulative impact of wind turbines.* Scottish Natural Heritage (SNH) is widely considered to be at the forefront of developing guidance for wind turbine development, with a suite of documents available. SNH guidance entitled "*Assessing the Cumulative Impact of Onshore Wind Energy Developments*" (2012) defines and identifies the main issues of cumulative impact; provides guidance on how these impacts can be assessed and the level of information that should be included within cumulative impact assessments. Whilst this SNH document is primarily concerned with large scale turbines and wind farms, the issues identified remain relevant across all scales of turbine development. At the local level, Fife Council and Cumbria County Council are among a few local authorities who have produced guidance on assessing the cumulative impact of turbines, which are tailored to their specific areas. It is believed that the NPA, Pembrokeshire County Council and Carmarthenshire County Council represent the first group of Welsh local planning authorities to develop guidance in this regard.
19. *Guidance on seascape character.* In parallel to the Pembrokeshire seascapes work, a similar exercise has been carried out for Snowdonia/Anglesey by a different consultant. The Pembrokeshire and the Snowdonia/Anglesey studies are the first local seascape assessments of the kind to be carried out in Wales, and provide pilots for local seascape character assessment of the whole of the Welsh coast. There are some differences in interpretation of (similar) briefs for each study, and Natural Resources Wales is likely to evaluate the two approaches as a prelude to commissioning a detailed seascape typology for the rest of Wales. Neighbouring local authorities (Pembrokeshire, Ceredigion and Carmarthenshire) have been kept informed about the work.

Pembrokeshire and Carmarthenshire: Cumulative Impact of Wind Turbines on Landscape and Visual Amenity guidance



Final Report

for

Carmarthenshire County Council
Pembrokeshire Coast National Park Authority
Pembrokeshire County Council

April 2013

Tel: 029 2043 7841

Email: sw@whiteconsultants.co.uk
Web: www.whiteconsultants.co.uk



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Abbreviations used in text

CLVIA Cumulative Landscape and Visual Impact Assessment

EIA Environmental impact assessment

GLVIA Guidelines for landscape and visual impact assessment

GIS Geographic information system

km Kilometres

LVIA Landscape and visual impact assessment

m metres

ZTV Zone of Theoretical Visibility

Cover photos:

Left- turbine in National Park-Richard James, Pembrokeshire Coast National Park Authority.

Middle- turbines near Herbrandston, Pembrokeshire.

Right- Alltwalis windfarm, Carmarthenshire.

A

INTRODUCTION

ISSUES

OBJECTIVES

CONTEXT

1. Introduction and scope of guidance

- 1.1. This document sets out the agreed approach across three local planning authorities to assessing the cumulative impact of onshore wind turbines on landscape and visual amenity in Pembrokeshire and Carmarthenshire. The guidance¹ is intended to be used for development management purposes by developers, consultants and planning officers.
- 1.2. The document focuses on cumulative impact issues and should be read in conjunction with other national and local policies (see 1.17 and **Appendix A**) and guidance on landscape, seascape and visual impact assessment (LVIA).
- 1.3. It is structured so that the background context and objectives are set out in **Part A** (Sections 1-6) and **Appendix A**- Section 10 and the step by step guide, tools and checklists set out in **Part B** (Sections 7-9).

Environmental Impact Assessment requirements in relation to cumulative effects

- 1.4. Cumulative impact assessment is set within the framework of Environmental Impact Assessment (EIA). This is an evidence-based procedure which sets out the likely significant effects of a proposed development on the environment so they can be taken into account in the planning process. The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011², consolidate previous regulations and set out the current requirements for meeting European Directive 85/337/EEC.
- 1.5. EIA may be required for development falling under Schedule 2 of the Regulations. The threshold for wind turbine developments is more than 2 turbines or where the hub height of any turbine or any other structure exceeds 15 metres (Regulation 2(1)).
- 1.6. Below this threshold, EIA is not mandatory but the Local Planning Authorities will provide a 'screening opinion' if requested based on whether the development may give rise to significant environmental effects. Schedule 3 selection criteria for screening Schedule 2 developments states that:

'The characteristics of development must be considered having regard, in particular, to-

a) the size of development

b) the cumulation with other development

.....'

- 1.7. If a proposed development requires an Environmental Impact Assessment, then Schedule 4, Part 1 of the EIA Regulations states that:

'a description of the likely significant effects of the Development on the

¹ Supplementary planning guidance in Carmarthenshire and Pembrokeshire Coast National Park and practice guidance in Pembrokeshire

² SI No. 1824

environment, which should cover the direct effects and any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects of the development.....'(4)

- 1.8. Circular 02/99, which provides guidance on the Regulations, states:

'in judging.... the effects of a development....local planning authorities should always have regard to the possible cumulative effects with any existing or approved development' (paragraph 46).

Definition of cumulative impact

- 1.9. For the purposes of this guidance the following definition of cumulative impacts, first used by Scottish Natural Heritage (SNH)³, applies:

'the additional changes caused by a proposed development in conjunction with other similar developments or as the combined effect of a set of developments, taken together.' (paragraph 7)

- 1.10. An assessment of *both* combined and additional effects will be required from the developer where a cumulative landscape and visual impact assessment (CLVIA) is considered necessary. The reason for this is that the Local Planning Authorities consider that the landscapes and seascapes of Pembrokeshire and Carmarthenshire have a range of thresholds of acceptable change for wind energy development beyond which further development would be inappropriate in landscape and visual terms. The developer is therefore required to provide sufficient information to enable the Local Planning Authorities to decide if this threshold has been reached in a given area.
- 1.11. Factors that contribute to the cumulative impact of wind turbine development on landscape and visual amenity include:
- The distance between individual wind turbine developments
 - The distance and area over which they are intervisible
 - The overall character of landscape and its sensitivity to wind turbine development
 - The siting and design of wind turbines and wind farms themselves
 - The way in which landscape is experienced.

When will a cumulative assessment will be needed?

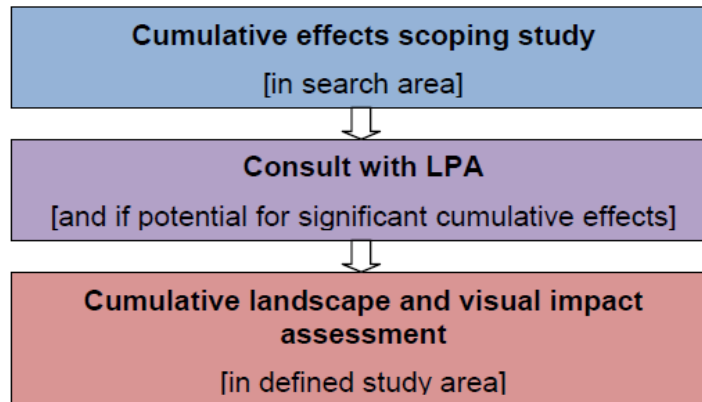
- 1.12. Cumulative scoping assessments should be carried out where the proposed wind turbine development may be seen in conjunction with other wind turbine developments. These developments will include existing, under construction and consented wind turbines and those 'in planning' i.e. at planning application stage.
- 1.13. Detailed cumulative impact assessments are only required where it is considered that the proposal could result in *significant* cumulative impact which could affect the eventual planning decision. The scale and complexity of assessments should be proportionate to the impacts

³ 'Assessing the Cumulative Impact of Onshore Wind Energy Developments', Scottish Natural Heritage, March 2012

(Scottish Natural Heritage cumulative guidance² paragraph 56).

- 1.14. These requirements are summarised in **Figure 1** and set out in more detail in **Figure 3**.

Figure 1 Outline of process



- 1.15. Whilst the threshold for requiring EIA is turbines above 15m high to hub (as defined in 1.5) this does not mean that cumulative effects involving turbines at or below 15m to hub will not occur. In respect of this size of turbine, cumulative effects will need to be addressed in documents supporting the planning application taking note of the principles and objectives in this SPG. They should also be taken into account where they are located in the search or study area in a CLVIA for a larger wind turbine development. In both cases, the level of detail should be proportionate. More detail of what information would be required can be found in **Table 4**.

Functional objectives of the guidance

- 1.16. The guidelines are intended to:
- Set out the emerging cumulative impact issues in Pembrokeshire and Carmarthenshire (**Section 2**).
 - Set out clear objectives to accommodate onshore wind energy avoiding significant cumulative impact (**Section 2**).
 - Set out guidelines as to what information and assessment is required for wind turbine developments of different sizes (**Sections 3-9**).
 - Work within planning policy and complement existing guidance (**Appendix A**).
 - Reflect good CLVIA practice (**Appendix B**).

Planning Context

- 1.17. The current planning context relating to onshore wind energy is set out in **Appendix A**. This may change over time and it is recommended that Local Planning Authorities websites are checked and officers are contacted to ensure that up to date policies and guidance are noted. The policies must be fully taken into account in locating, designing and assessing wind energy developments and this guidance is intended to complement and

support these policies in respect of cumulative impacts.

1.18. There are a number of relevant general policies but key policies include:

- National Policy Statements (NPS) EN-1 and EN-3 which apply to significant onshore wind turbine developments in England and Wales i.e. above 50MW output.
- Planning Policy Wales Edition 5 November 2012 (PPW)
- Technical Advice Note (TAN) 8: Planning Policy for Renewable Energy in relation to Strategic Search Area (SSA) G Brechfa Forest.
- Pembrokeshire Coast National Park Local Development Plan (LDP) Policies especially Policy 8 Special Qualities, Policy 15 and Policy 33, Renewable Energy SPG 2011 and Landscape Character Assessment SPG 2011.
- Pembrokeshire County Council Local Development Plan Policies GN.4 Resource Efficiency and Renewable Energy and Low-carbon Energy Proposals and also GN.1 General Development Policy, GN.2 Sustainable Design and in some cases SP.2 Port and Energy related development.
- Carmarthenshire County Council Unitary Development Plan Policies UT6, CUDP 9 and CUDP14.

Consulting Local Planning Authorities

- 1.19. Discussions between prospective developers and relevant LOCAL PLANNING AUTHORITYs is encouraged at the pre-application and pre-validation stage. There may be a need to consult more than one authority where the scoping search area crosses borders. This guidance will provide the framework for those discussions on cumulative landscape, seascape and visual issues.
- 1.20. It is accepted that many experienced cumulative impact assessors will follow their own methods which will be refined and improved over time and so this guidance is not intended to be prescriptive in all respects. However, it does express the concerns of the Local Planning Authorities and will be used as a yardstick with which planning officers will judge the adequacy and conclusions of CLVIAs. Any major deviation should be justified by the relevant consultant.

2. Assessing cumulative impacts- issues and objectives

Landscape overview

- 2.1. Pembrokeshire and Carmarthenshire display a wide range of landscape and seascape character types. The area forms the exposed south western peninsula of Wales with a long and varied coastline with superb seascapes, some with long views to islands and to the Gower. The land mass is penetrated by two major water bodies- Milford Haven and the Dugleddau to the west and the Tywi and Taf valleys with their confluence and estuary running into Carmarthen Bay to the east. The Teifi valley defines the northern boundaries of the counties running into Cardigan Bay. Inland there are a number of prominent hills- the Preselis to the west, Black Mountain to the east and the south western tip of the Cambrians to the north east. Between the hills and coast there are a range of mainly tranquil pastoral rural landscapes on lower hills and plateau incised with smaller valleys.
- 2.2. The settlement pattern is mainly dispersed and rural. There are numerous historical settlements and features such as castles, forts and religious sites. The main settlements are linked by a few A roads linking the ports, ferries, energy complexes and tourist destinations to the west with Swansea, Cardiff and London. These routes are used by residents, commercial and tourist/visitor traffic. Power lines run from major users and providers such as from Pembroke Power Station on Milford Haven east along a route set back from the south coast.

Designations

- 2.3. There are a number of designated landscapes which need to be considered. Within the area, Pembrokeshire Coast National Park along with the Heritage Coast covers the most spectacular coastlines and their related hinterland, the distinctive Preseli Hills and the ria of the Dugleddau. Outside the area to the east, there is the Brecon Beacons National Park massif and, to the south east across the Loughor estuary, the Gower Area of Outstanding Natural Beauty.
- 2.4. There are a number of registered Landscapes of Historic Interest including the Milford Haven waterway, St David's Peninsula and Ramsey Island, Tywi valley, Taf and Tywi estuary, Skomer Island, and Black Mountain and Mynydd Myddfai which are in the outstanding category and the Lower Teifi valley, Drefach and Felindre, Newport and Carningli, Pen Caer (Strumble Head), Stackpole Warren and Manorbier which are in the special category.
- 2.5. In Carmarthenshire there are a series of Special Landscape Areas (SLAs) which include: Tywi Valley, Mynydd Llanllwni, Cothi Valley, Mynydd Pencarreg, North-eastern Uplands, The Carmarthen Bay Coastal Area, Cych Valley, Teifi Valley, Inland cliffs, Afon Morlais Valley, Afon Lliedi Valley, V-shaped valley north of Pwll, Loughor Valley, Coastal plain (east) and the Coastal plain (salt marsh, sand dunes, beach and mudflats).

Existing wind turbine development

- 2.6. Wind turbine development has been established in a number of locations

with the majority in Carmarthenshire. The largest is in the Brechfa Forest strategic search area where there is one consented windfarm- Brechfa Forest West windfarm with 28 turbines of up to 145m to blade tip and the constructed Alltwalis wind farm with its ten 110m high turbines. Dyffryn Brodyn's 11 turbines are 53.5m high to blade tip and were erected in 1994. Blaen Bowi consists of three turbines 77m high to blade tip constructed in 2002. The Parc Cynog windfarm is located just back from the coast of Carmarthen Bay. This started at 5 turbines in 2001 and has been enlarged with a further 6 turbines in 2009. The Mynydd y Bettws wind farm gained planning permission in 2009 and will consist of 15 turbines, 110m high to blade tip.

- 2.7. In Pembrokeshire, from one 60m high turbine consented in 2002 adjacent to Milford Haven, there are now 6 turbines of a similar size located along the waterway with a number of smaller turbines and more proposed. There are a few relatively isolated turbines of between 50 and 80m dotted elsewhere about the two counties, some recently consented, and numerous smaller single or pairs of turbines between 15-50m to blade tip.

Issues

- 2.8. The number of small and medium sized turbines proposed in rural parts of the area may have limited landscape and visual effects on their own but together they are starting to have significant cumulative effects on landscape character as well as on visual amenity, particularly in sensitive areas such as the National Park.



Photo 1: More turbines particularly at a larger scale may significantly change landscape character (R.James)

- 2.9. The incremental increase of turbines between and close to the Milford Haven large scale refineries, oil and gas storage and settlements with associated chimney stacks and pylons is potentially leading to a cluttered landscape/seascape of vertical elements.



Photo 2: Some areas appear to have reached capacity with awkward juxtapositions of turbines and clutter with other vertical elements and different size turbines.

- 2.10. Applications for smaller scale wind energy developments are being received close to the Brechfa Forest strategic search area and other large windfarms which together may have significant cumulative effects on landscape character as well as on visual amenity outside the strategic search area.



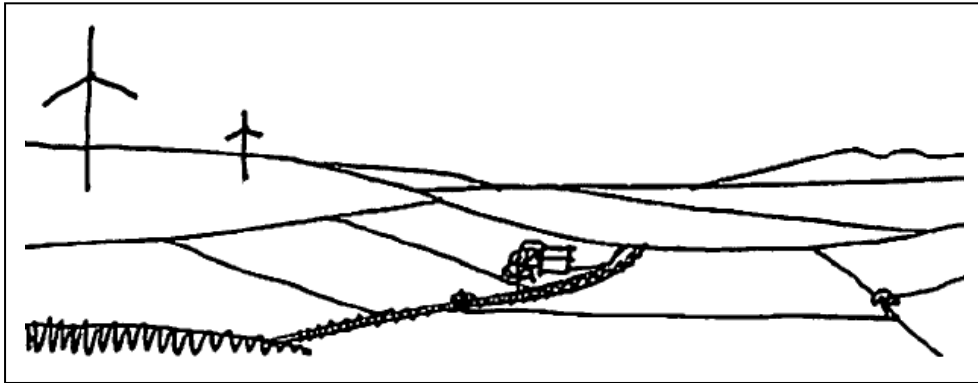
Photo 3: More turbines around the settlement may cumulatively affect its residents' amenity

- 2.11. Some wind turbine developments and applications are located close to power lines. There is potential for 'cumulative' effects with the pylons.

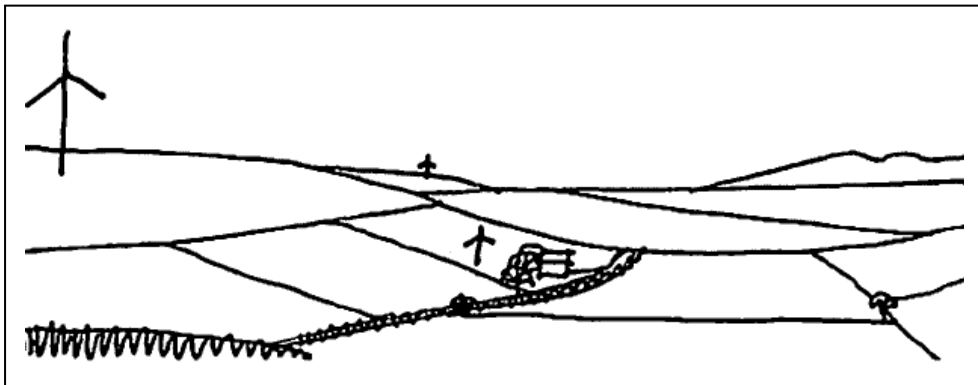


Photo 4: Turbines closer to the background pylons may cumulatively affect landscape character
(R.James)

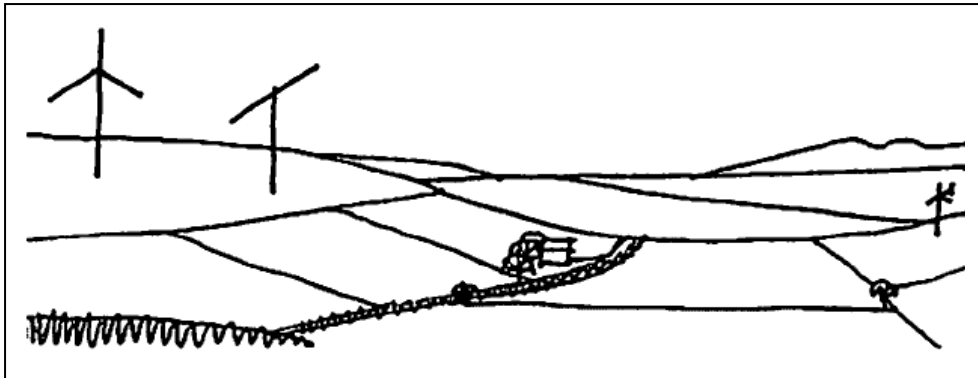
- 2.12. The great variety of turbines sizes, design or their layout close to each other has the potential to cause visual conflict, confusion and/or complexity as already noted above. The following diagrams further illustrate *some* of the potential issues.



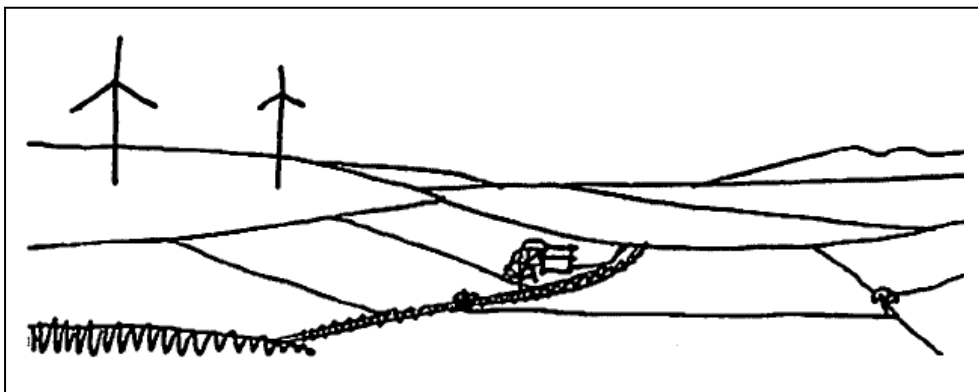
Sketch 1: Difference in turbine sizes can be visually confusing in some situations- the small turbine appears to distort perspective by being closer



Sketch 2: Difference in turbine sizes can make sense in other situations e.g. the close relationship of the smaller turbine with a dwelling and the larger turbine in open country away from settlement



Sketch 3: Different turbine designs can lead to visual conflict/uncoordinated movement of blades



Sketch 4: Different turbine designs/blade lengths can lead to visual conflict and uncoordinated movement of blades i.e. faster blade rotation speeds for smaller blades

- 2.13. In order to address these issues a number of objectives have been drawn up, while providing a positive framework for onshore wind energy.

Key Objectives

- 2.14. The key objectives are:

- To maintain the integrity and quality of landscape character within the National Park
 - that is no significant adverse change to its special qualities and sensitive characteristics from cumulative wind turbine development. The threshold for acceptable change in these areas is likely to be low.
- In other landscapes outside the strategic search area, to maintain the landscape character
 - that is no significant adverse change in landscape character from cumulative wind turbine development. Significant change here is taken to mean where wind turbines become either the dominant or a key characteristic of a landscape, depending on its sensitivity which shall be defined by the assessment.
- Within the strategic search area, to accept landscape change
 - that is significant change in the landscape character from wind turbine development.
- To avoid development which, in combination, creates the experience of a settlement⁴ being in a wind turbine landscape
 - such as being surrounded by wind turbines on two or more sides.
- To avoid development cumulatively creating significant adverse effects on sensitive receptors
 - such as residents, users of recreational/tourism features such as the Wales/Pembrokeshire Coast Path and heritage features.
- To avoid turbines of markedly different designs or scales being located or viewed in juxtaposition with each other.
- To avoid significant adverse effects when viewed in conjunction with other types of development.

⁴ To be read as a settlement in general terms, not as specifically defined in the Development Plans.

3. Assessing cumulative landscape impacts

The landscape resource and LANDMAP

- 3.1. The underpinning landscape information for both Pembrokeshire and Carmarthenshire is LANDMAP. LANDMAP is structured into five aspects- the Geological Landscape, Landscape Habitats, Visual & Sensory, Historic Landscape and Cultural Landscape. The Countryside Council for Wales (now Natural Resource Wales) states that as LANDMAP is the formally adopted methodology for landscape assessment in Wales all landscape work and assessments of the effects arising from a proposals impact on the landscape in Wales should include LANDMAP. Countryside Council for Wales Guidance Note 3 (2010)⁵ defines how wind energy developments should take LANDMAP into consideration in relation to wind energy LVIAs.
- 3.2. **In Pembrokeshire Coast National Park**, a landscape character assessment has been undertaken based on LANDMAP bringing the aspect areas together in a series of 28 landscape character areas⁶. Sensitivity to wind turbine development has been attributed to these areas by a further study⁷. Both studies are SPG. This information should be used as the landscape baseline within the National Park for studies which include the National Park in their study area.
- 3.3. **Outside the National Park**, LANDMAP can be used as the landscape baseline to derive landscape character areas or similar units, and to attribute sensitivity to each of these areas. Landscape character assessment guidance⁸ indicates how to undertake this process and draft, unpublished guidance indicates the relationship between landscape character assessment and LANDMAP. LANDMAP information for each aspect area includes value but this is not the same as sensitivity although it may inform a judgement on this. Topic Paper 6 on sensitivity (Countryside Agency 2004)⁹ explains further. Landscape character assessment and/or sensitivity studies undertaken by Pembrokeshire County Council or Carmarthenshire County Council in due course should be used as part of the landscape baseline.
- 3.4. The most sensitive landscapes in broad terms are likely to be designated areas such as the National Parks, Area of Outstanding Natural Beauty and their environs, Registered Historic Landscapes and Special Landscape Areas. However, there will be a variation in sensitivity within these designated areas and outside. Certain landscape patterns and features can be sensitive to wind turbine development, such as prominent or

⁵ LANDMAP information Guidance Note 3: Using LANDMAP for landscape and visual impact assessment of onshore wind turbines, COUNTRYSIDE COUNCIL FOR WALES, May 2010 (to be updated by 2013 edition).

⁶ [Pembrokeshire Coast National Park Authority Landscape Character Supplementary Planning Guidance](#)

⁷ [Pembrokeshire Coast National Park Authority Renewable Energy Supplementary Planning Guidance](#)

⁸ Landscape Character Assessment, Guidance for England and Scotland, Swanwick, Carys and LUC, Scottish Natural Heritage with the Countryside Agency, 2002.

⁹ Topic Paper 6 'Techniques and criteria for judging landscape sensitivity and capacity', Countryside Agency, 2004. (The updated version is to be made available soon at the time of writing).

complex skylines and settings of historic features. It should be noted that planning policy in Pembrokeshire is not reliant on Special Landscape Areas, but this does not mean that the landscape is less locally valued or sensitive. Overall, it is accepted as a principle that some areas will be able to accommodate more wind turbine development than others.

Types of cumulative landscape effect

- 3.5. Two types of cumulative landscape effects can occur. The first are the direct effects on the physical fabric of the landscape i.e. where a number of different turbine developments, including road modifications, track access and ancillary development, remove or damage a series of landscape components such as trees, hedgerows or hedgebanks. The second effect is on landscape character, where two or more developments introduce new features into a landscape. The effect may be to change the landscape character to the extent that it becomes a different landscape character type.
- 3.6. A combined cumulative landscape effect is a measure of whether the proposed development combined with other wind turbine developments significantly change the character of a landscape. The effective baseline for this is the receiving landscape without turbines. As such, this differs from the assessment of the individual effects of the proposed development which takes on board existing development as part of the baseline. An additional cumulative landscape effect is a measure of how much the proposal contributes to that overall effect. This is most helpful when defined against the existing and approved turbine developments, excluding other proposals. In some cases, other developments in planning may have more potential cumulative effects and this may be mentioned in the cumulative assessment.
- 3.7. A further tool for use in defining combined landscape effects is an examination of the current landscape character of the area with regard to existing turbines and how this may change with the addition of the proposal. The status of landscape character areas in respect of wind turbine development with the possibly preferred status is described below in Table 1 and illustrated in Figure 2:

Table 1 Landscape types with regard to wind turbine development-descriptions

	Landscape type/status	Description/Comments	Location within study area
1	Landscape character area with no wind turbines	No turbines within an area and not visible except at a distance where they are very small or inconspicuous.	This would be the status and objective in sensitive parts of the study area including parts of the National Park, coast and possibly Special Landscape Areas.
2	Landscape character area with occasional wind turbines in it and/or intervisible in another landscape character area/s	Turbines are visible but are not at a scale, number, spacing or extent that makes them a defining/key characteristic. Turbines might be seen occasionally at close quarters but more often within background views.	This is the 'maximum' status for the Pembrokeshire Coast National Park and most of the landscapes of the study area. The Renewable Energy SPG is useful in defining what may be appropriate levels of development in the National Park.
3	Landscape character area with wind turbines	Turbines are located and visible and are at a scale and/or a spacing that makes them <i>one</i> of the defining/key characteristics. Turbines might be seen in the foreground, mid-ground or background. However, there would be other key characteristics which would be strong and there would be sufficient separation between turbines for views without turbines and other characteristics remaining dominant in these parts of the area.	This description may be acceptable for some areas with lower sensitivity but may be above an acceptable threshold for many landscape character areas.
4	Wind turbine landscape	Turbines are frequent and may include extensive wind farms and are the dominant, defining characteristic but there is separation between groups of turbines. However within these areas wind turbines are likely to be visible.	This is highly likely to occur in the Strategic Search Area as approved schemes are implemented.
5	Windfarm	Landscape fully developed as a wind farm with no clear separation between groups of turbines.	Windfarm locations e.g. Alltwalis

- 3.8. If in combination with other turbines, a proposed turbine or wind farm changes the landscape from one category above to another then there may be a significant *combined* cumulative *landscape* effect. The significance depends on whether the landscape can accommodate wind turbine development or not in terms of its characteristics and sensitivity.

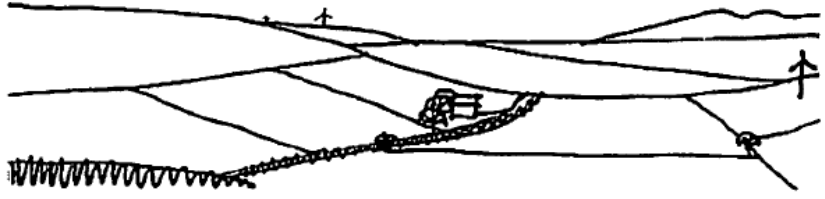
Figure 2 Landscape types with regard to wind turbine development

(note these are diagrammatic examples only)

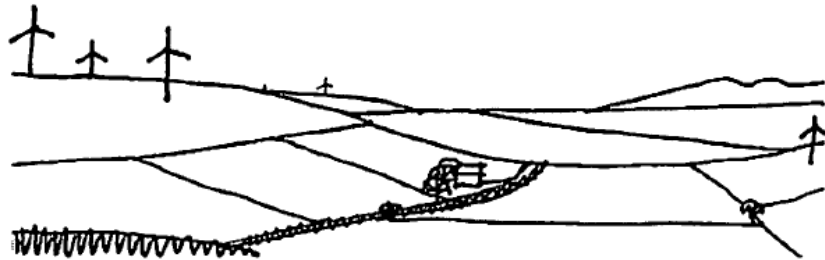
1 Landscape character area with no wind turbines



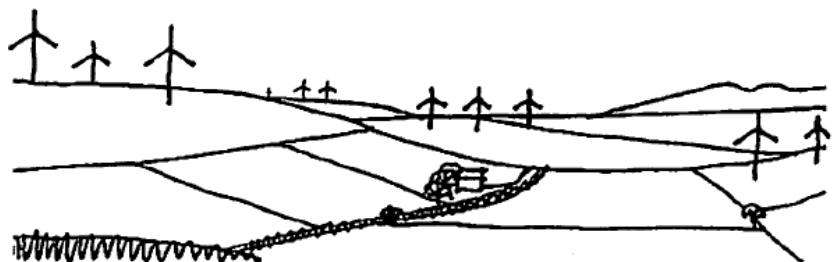
2 Landscape character area with occasional wind turbines in it and/or intervisible in another landscape character area/s



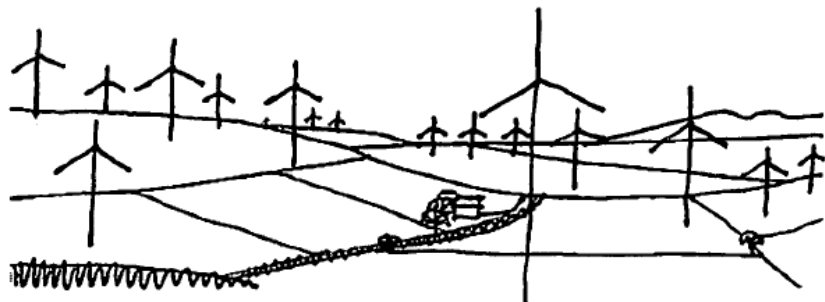
3 Landscape character area with wind turbines



4 Wind turbine landscape



5 Windfarm



Description and assessment of effects

- 3.9. The description and assessment of the effects should be separated into direct, physical effects and landscape character effects. Both should be divided into combined and additional effects. For larger developments and/or those in or near sensitive areas the level of detail required is likely to be higher than for small-scale developments. There may be a need for addressing the effects of different scenarios either separating existing and consented turbines from proposed turbines or examining effects of a proposal combined with different groups of turbines. A commentary on whether the proposed development would change the status of the landscape type in which it lies would be helpful. The effects can be described by use of tables and/or text depending on the size and complexity of the assessment.
- 3.10. When proposals are located in or near designated landscape areas the cumulative effects on the individual special qualities of those areas should be assessed, with overall conclusions. In the case of Pembrokeshire Coast National Park these are well-defined (see **Appendix A, 10.8**). In other areas, the special qualities may need to be defined as part of the landscape assessment process.

4. Assessing cumulative impacts on visual amenity

Types of cumulative impact

- 4.1. There are three main types of cumulative visual effect:
- In combination from one (static) viewpoint i.e. where more than one development can be seen within the observer's arc of vision at the same time.
 - In succession from one (static) viewpoint i.e. where the viewer has to turn to see a number of developments around them.
 - Sequential effects on a journey i.e. where more than one wind turbine development can be seen one after the other over a period of time by an observer moving through the landscape.

Types of sensitive visual receptor

- 4.2. The sensitivity of a visual receptor (i.e. a person) will be determined by the activity and expectation of the receptor, the location, context and importance of the viewpoint, and the number of receptors. Examples of sensitive receptors are set out in Table 2 (note that this is not intended as comprehensive).

Table 2 Potential sensitive receptors

Static receptors	<ul style="list-style-type: none"> • Visitors to viewpoints such as hilltops or headlands or scenic viewpoint accessible by car. • Visitors to heritage features such as castles or forts, parks and gardens or listed buildings. • Receptors located in sensitive areas such as the Pembrokeshire Coast or Brecon Beacons National Parks, Heritage Coast and on open access land. • Residents in dwellings whether on the edge of a settlement or located in open countryside.
Receptors that may undergo sequential effects	<ul style="list-style-type: none"> • Users of the Wales/Pembrokeshire Coast Path, other footpaths such as the Landsker promoted trail. • Users of the National Cycle route. • Users of footpaths and bridleways. • Users of scenic routes or roads used by tourists. • Recreational sea users such as leisure sailors.

- 4.3. The GLVIA gives further details on identifying receptors.

Description and assessment of effects

- 4.4. The assessment of the cumulative effects should be informed by a series of assessments from representative and/or worst-case viewpoints. These should consider both combined and additional effects. The magnitude of

cumulative change will depend on the landscape context in which the development is viewed and the scale, nature, duration and frequency of combined or sequential views. For larger developments and/or those in or near sensitive areas the level of detail required will be higher than for small-scale developments. There may be a need for addressing the effects of different scenarios either separating existing and consented turbines from proposed turbines or examining effects of a proposal combined with different groups of turbines. The effects can be described by use of tables and/or text depending on the size and complexity of the assessment.

5. Relationship between Onshore and Offshore developments

- 5.1. Whilst it is recognized that the vast majority of cumulative effects that will occur will be between onshore wind turbine developments, the interaction between onshore and offshore wind turbines should also be addressed.

Nature of offshore developments and the Atlantic Array

- 5.2. Offshore windfarms tend to be very large developments some distance offshore. The smaller 'Round 1 and 2 developments' around the UK's shores have been located away from the coasts of Pembrokeshire or Carmarthenshire. However, the site of the proposed development of the Atlantic Array lies in the outer Bristol Channel in UK territorial waters within the 'Round 3' Bristol Channel Zone.
- 5.3. As these large wind farm proposals are Nationally Significant Infrastructure Projects (NSIP) under section 15(3) of the Planning Act 2008 they are considered by the Planning Inspectorate. Pembrokeshire Coast National Park Authority, Pembrokeshire County Council and Carmarthenshire County Council are statutory consultees in this process.
- 5.4. The current proposed Atlantic Array is approximately 22 km from South Wales coast at its closest point on the Gower and 27km from the Pembrokeshire Coast National Park. It is further from the coast at Carmarthen Bay. It is around 27.5km long by 13.5km wide at its extremities. The draft layout consists of a maximum of 240 turbines 220m tall. These details may change as the proposals go through the planning process, but serve to illustrate the size of the proposals.
- 5.5. At present there is concern about the effects on the Pembrokeshire Coast National Park and its special qualities, particularly the effect on the feeling of tranquillity and remoteness along the coast and on views out to sea.

Information available

- 5.6. A regional seascape assessment¹⁰ has been undertaken which identifies the key sensitivities of regional seascape units to offshore development. This is available on the Natural Resource Wales website. For each regional seascape unit, land that is intervisible with the sea is mapped, with different levels of intensity. This should be used initially to establish the relationship between the proposed development and the seascape unit. Further work should then establish what cumulative effects there may be on the unit.

Approach

- 5.7. Bearing in mind the particular sensitivity of the coastline and seascape and various receptors along it, viewpoints should be selected in

¹⁰ Welsh seascapes and their sensitivity to offshore developments, Briggs, J.H.W. & White, S, COUNTRYSIDE COUNCIL FOR WALES Policy Research Report No. 08/5, January 2009.

representative, sensitive and/or worse case locations. These should be located in all the relevant regional seascape units in the defined study area. Wirelines and/or photomontages should illustrate the wind turbines along with onshore wind turbines. An assessment of the effects should be made from each of these and then used to inform judgements on landscape, seascape and visual cumulative effects.

6. Cumulative effects with other types of development

- 6.1. Current good practice guidance focuses on the cumulative effects with developments of the same type i.e. wind turbines. However, Countryside Council For Wales Guidance Note 3 (2010) states that a CLVIA should describe and assess any significant cumulative effects potentially with other non-energy developments. For example, a dwelling with a large chimney or pylon on one side and a proposed wind turbine on the other may undergo a significant cumulative effect. Similarly the juxtaposition of the two elements may change or dominate the landscape character of the area. In terms of the standard GLVIA method, the chimneys or pylons will form part of the baseline landscape character i.e. a landscape with large modern vertical elements. As such, the introduction of further vertical elements such as wind turbines might be argued to be 'in character' with the baseline landscape. This may be the case but needs to be tested against the following questions:
- Does the proposed development 'fit' in terms of scale, layout and design so its composition respects the pattern of landscape as well as the other vertical elements, without causing visual conflict or confusion?
 - Does the proposed development in combination with other developments change the character of the landscape to become a key or the dominant characteristic?
 - Would the effects on a visual receptor become significantly adverse with the addition of a wind turbine taking into account the existing effect of the existing development such as the chimney or pylon?
- 6.2. The recommended approach is that the interaction between the proposed development and other types of development should be identified and described with the likely effects on both landscape character and visual receptors defined. Photomontages may be helpful to illustrate this interaction in some cases but it is unlikely to be necessary to use ZTVs.

B

STEP BY STEP GUIDE

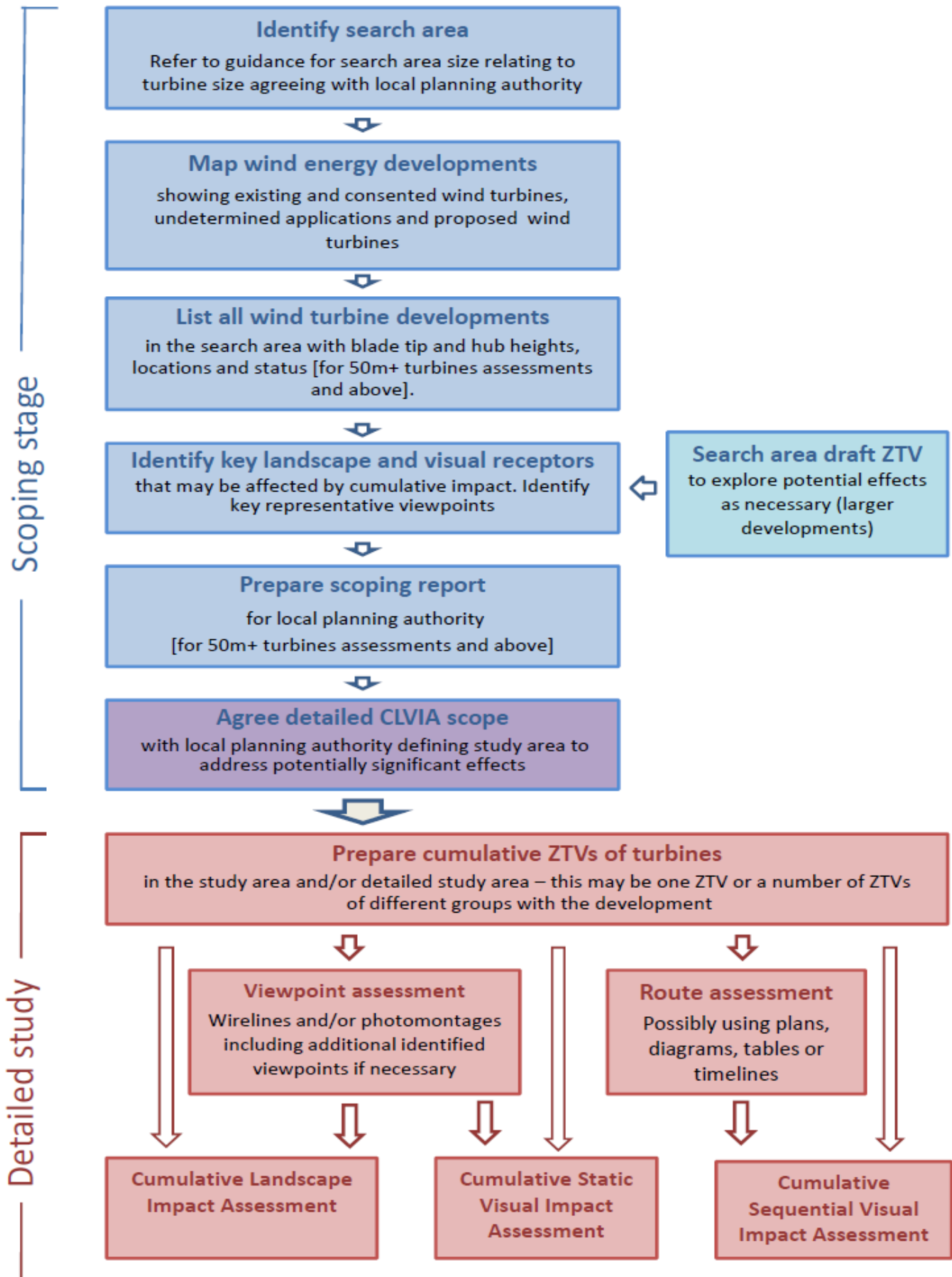
TOOLS

CHECKLIST

7. Step by step guide

- 7.1. A two stage process is recommended for carrying out a CLVIA for small and medium sized developments. The rationale for this is to understand what is important, to take this into account, to focus on determining potentially significant cumulative effects and demonstrate that this process has been followed. It is understood that some developments may not justify time consuming and expensive cumulative assessments techniques. The scoping stage will be a simple method of demonstrating to the Local Planning Authority what level of detail is needed before further detailed work.
- 7.2. Larger developments will require a full CLVIA using Zones of Theoretical Visibility (ZTVs), wirelines and possibly photomontages and the scoping stage would be expected as part of this process.
- 7.3. Figure 3 sets out the process.

Figure 3 Flow chart of process



8. Tools

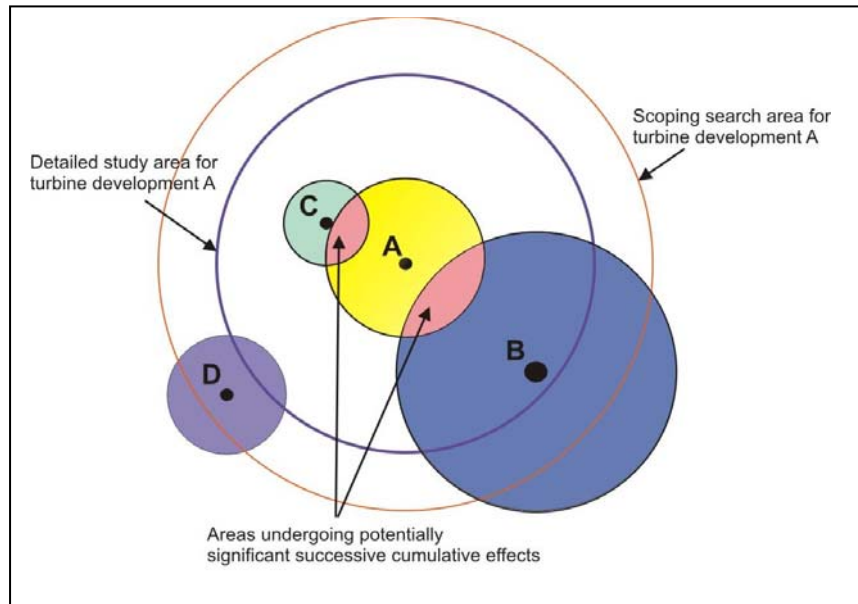
Overview

- 8.1. The key guidance on wind turbine development LVIA's and CLVIA's is set out in **Appendix B**. This includes the GLVIA3 and Scottish Natural Heritage guidance on cumulative effects and Visual Representation of Windfarms (2006). This guidance is taken as read in the context of this SPG which is intended to refine, expand and be more specific on key cumulative impact issues.

Two stage process- Scoping and Detailed cumulative impact assessment

- 8.2. The two stage process is recommended to ensure that all relevant turbine developments and key receptors are taken into account in a broad search area before focusing on a detailed study area where significant cumulative effects may occur. The rationale for the scoping areas is set out in **Figure 4**. The relevant scoping study areas are set out in **Table 3**.

Figure 4 Diagrammatic Scoping and Study areas



- 8.3. **Figure 4** illustrates a highly simplified scoping and defined study areas for turbine development A which is surrounded by turbine developments B to D. The scoping process finds that there are potentially significant effects between developments A, B and C but not between A and D.

Table 3: Recommended areas for cumulative assessment search and study

Proposed Turbine/s height to blade tip (m) unless otherwise stated	Scoping search area/ broad study area (km radius)	Detailed study area (km radius)
>15m to hub-35m	10km	5km
>35-50m	15km	7.5km
>50-80m	20km	10km
>80-109m	25km	10-15km
higher than 109m	30-60km	10-15km

- 8.4. As demonstrated above, there could be a significant difference between the scoping study areas and the detailed study areas, especially for smaller developments. The reason is that if there are no larger turbine developments or sensitive receptors within a given development's scoping search area then cumulative impacts are likely to be more limited in extent. It should be noted that effects on landscape character are likely to cover a smaller geographic area than visual effects.
- 8.5. It may also be that a study area will be effectively asymmetric in order to take in particularly sensitive receptors at longer distances in particular directions. Practically, it is accepted that study areas are circular and the effects on these types of receptors will be assessed while others of limited sensitivity at a similar distance in other directions will not.
- 8.6. Turbines of the same height to blade tip with different size blades and sweep paths have potentially different effects. The above search areas cover the likely worst case effects.

Turbine development information available

- 8.7. Pembrokeshire Coast National Park Authority, Pembrokeshire County Council and Carmarthenshire County Council have data of relevant wind turbine developments in their areas including existing and consented wind turbines and those 'in planning' i.e. as planning applications. Each has data on the planning application number, status, applicant, turbine type, height to hub and blade tip and OS coordinates. These excel tables can be used to create GIS maps showing all developments, and subsequent use in ZTVs, wirelines and photomontages. It is worth checking with Local Planning Authorities if any recent applications have been received at the end of the scoping process to ensure an up-to-date assessment is carried out. If the detailed cumulative assessment process is prolonged further checks with the LOCAL PLANNING AUTHORITY may be desirable, and a 'cut off point' agreed.

Cumulative Zones of Theoretical Visibility

- 8.8. Good practice guidance notably *Visual Representation of Windfarms: Good Practice Guidance*, 2006, Scottish Natural Heritage set out in detail the techniques that should be used. Primarily, it shall be the individual consultant's responsibility to ensure that the cumulative ZTVs clearly illustrate and inform the assessment.
- 8.9. The ZTV radii will depend on the number and size of wind turbine development around the proposal as discussed above. Ideally, the resolution of the Digital Terrain Model (DTM) will be as fine as possible to reflect any complexities of landform around the development, e.g. Profile data (10m grid) rather than Panorama data (50m grid), although a coarser grain may be acceptable beyond 5km from the proposal.
- 8.10. Ideally ZTVs should show at least visibility to blade tip height. The number and range of ZTVs will depend on the number and pattern of developments. For much of the study area the traditional style of assessing one windfarm's intervisibility with other windfarms through a series of ZTV scenarios may not be appropriate, although this should certainly be carried out for large-scale developments. In most cases the

basic ZTV will indicate where the proposed development's ZTV overlaps with all the other developments. This can be refined by dividing the other developments into groups either geographically or by category such as existing/consented and those in planning. An additional ZTV could illustrate the number of turbines that are visible across the study area e.g. 1-3, 3-6, 7-9 or 1-5, 6-10, 11-15 etc. This ZTV is helpful in areas where development is small and dispersed. It would also be helpful as an overlay on landscape character areas to inform judgement of effects.

- 8.11. For linear receptors such as the Coast path an analysis of the lengths of intervisibility between the development and receptors based on the ZTV should be undertaken. The complexity and sophistication of this will depend on the size of development.
- 8.12. It is accepted that ZTVs show the worst case scenarios of bare ground visibility. The actual visibility may be less due to the screening effect of hedgerows, trees and buildings in the landscape.

Cumulative wirelines

- 8.13. Cumulative wirelines are useful to illustrate the relationship between the proposed development and other wind turbines. They should be located at worst case, sensitive and/or representative viewpoints agreed with the Local Planning Authority. The number required will depend on the scale of development and the likelihood of cumulative effects. For the smallest developments one or two may be acceptable, rising to four or five for intermediate developments and a significant number of all the viewpoints selected for assessment of large-scale developments. 360 degree wirelines can be helpful with viewing distances¹¹ as large as possible within practicalities.

Cumulative photomontages

- 8.14. For larger developments and/or from sensitive viewpoints, cumulative photomontages can be helpful. Generally a minimum of 300mm viewing distance is acceptable although larger viewing distances are preferable.

¹¹ Viewing distance is the distance between the eye and an image/visualisation of a development

9. Cumulative Landscape and Visual Impact Assessment Checklist

- 9.1. A matrix summarising the information and level of detail likely to be required for each scale of development is set out in the following pages. It should be read in conjunction with the rest of the guidance including the objectives.

Table 4 Cumulative impact assessment information requirements for turbine size ranges

Turbine size	Height range to blade tip [m]**	Scoping/ search area/ broad study area radius [km]	Cumulative effects scoping/search area	Typical detailed study area radius [km]*	Cumulative Landscape and Visual Effects in study area/ detailed study area
Micro/ domestic	15m and less hub height	-	-	1km approximately	<ul style="list-style-type: none"> In the information supporting the planning application, (eg Design and Access Statement), map and describe other turbines which can be seen in conjunction with the proposal and identify potential cumulative effects in a proportionate level of detail depending on potential effects.
Small	above 15m hub height- 35m	10	<p>Agree with LPA:</p> <ul style="list-style-type: none"> Map all wind energy development within the scoping search area radius [a 1:250,000 OS base would be sufficient]. Development will include all wind turbines that are operational, under construction, consented and 'in planning' i.e. undetermined planning applications. This information will be available from the LPA (see 8.7). Define key landscape and visual receptors that may undergo significant cumulative effects in the scoping area. Define detailed study area focusing on where significant cumulative effects may be possible. Define if ZTV is necessary Define a limited number of viewpoints for assessment and if wirelines are necessary- say 2 unless in sensitive area 	5	<ul style="list-style-type: none"> Prepare a cumulative ZTV of all turbines in study area if necessary (see 8.8-8.12). Prepare wirelines from key viewpoints if necessary (see 8.13). Provide a brief assessment of combined and additional cumulative landscape effects (see Section 3.0) concentrating mainly on interaction with closest turbines eg do the turbines combined change the landscape character of an area and meet the objectives for the area (2.14) and what is the contribution of the proposed turbine to this? Provide a brief assessment of combined and additional cumulative visual effects (see Section 4.0) concentrating mainly on interaction with closest turbines eg is the proposed turbine intervisible with other turbines from key viewpoints, what is the effect and does the proposed turbine with others meet the objectives for the area (2.14)? Assess effects with other forms of development if necessary (see Section 6.0).

Turbine size	Height range to blade tip [m]	Scoping/ search area/ broad study area radius [km]	Cumulative effects scoping/search area	Typical detailed study area radius [km]*	Cumulative Landscape and Visual Effects in study area/ detailed study area
Small/ medium	>35-50m	15	<p>Agree with LPA:</p> <ul style="list-style-type: none"> • Map all wind energy development within the scoping search area radius [a 1:250,000 OS base would be sufficient]. Development will include all wind turbines that are operational, under construction, consented and 'in planning' i.e. undetermined planning applications. This information will be available from the LPA (see 8.7). • Differentiate graphically between those in planning and others and also between sizes, preferably in size categories defined in this guidance if possible. • Define key landscape and visual receptors that may undergo significant cumulative effects in the scoping area. • Define detailed study area focusing on where significant cumulative effects may be possible. • Define if ZTV is necessary • Define a limited number of viewpoints for assessment and if wirelines and/or photomontages are necessary- say 2-5 unless in sensitive area 	7.5	<ul style="list-style-type: none"> • Prepare a cumulative ZTV of all turbines in study area if necessary. This may include a ZTV showing the overlap of visibility with other turbines and/or the number of turbines visible (see 8.8-8.12). • Prepare wirelines from key viewpoints if necessary (see 8.13). • Provide an assessment of combined and additional cumulative landscape effects (see Section 3.0) concentrating mainly on interaction with closest turbines eg do the turbines combined change the landscape character of an area and meet the objectives for the area (2.14) and what is the contribution of the proposed turbine to this? • Provide an assessment of combined and additional cumulative visual effects (see Section 4.0) concentrating mainly on interaction with closest turbines eg is the proposed turbine intervisible with other turbines from key viewpoints, what is the effect and does the proposed turbine with others meet the objectives for the area (2.14)? • Assess effects with other forms of development if necessary (see Section 6.0).

Turbine size	Height range to blade tip [m]	Scoping/ search area/ broad study area radius [km]	Cumulative effects scoping/search area	Typical detailed study area radius [km]*	Cumulative Landscape and Visual Effects in study area/ detailed study area
Medium	>50-80m	20	<p>Agree with LPA:</p> <ul style="list-style-type: none"> • Map all wind energy development within the scoping search area radius [a 1:50,000 OS base would be sufficient]. Development will include all wind turbines that are operational, under construction, consented and 'in planning' i.e. undetermined planning applications. This information will be available from the LPA (see 8.7) but should be updated if necessary. • Differentiate graphically between those in planning and others and also between sizes, preferably in size categories defined in this guidance if possible. • List turbine developments taken into consideration. • Define key landscape and visual receptors that may undergo significant cumulative effects in the scoping area. • Define detailed study area for ZTV focusing on where significant cumulative effects may be possible. • Define a limited number of viewpoints for assessment and if wirelines and/or photomontages are necessary- say 3-5 unless in sensitive area 	10	<ul style="list-style-type: none"> • Prepare a cumulative ZTV of all turbines in study area if necessary. This may include a ZTV showing the overlap of visibility with other turbines and/or the number of turbines visible. Scenarios differentiating between existing/consented and 'in planning' may be helpful (see 8.8-8.12). • Prepare wirelines from key viewpoints if necessary (see 8.13). • Provide an assessment of combined and additional cumulative landscape effects (see Section 3.0) using standard CLVIA methods (eg tables of effects) also addressing if the developments meet the objectives for the area (2.14) and what the contribution of the proposed turbine is to this. • Provide an assessment of combined and additional cumulative visual effects (see Section 4.0) using standard CLVIA methods (eg tables of effects) also addressing if the developments meet the objectives for the area (2.14) and what the contribution of the proposed turbine is to this. • Assess effects with other forms of development if necessary (see Section 6.0).

Turbine size	Height range to blade tip [m]	Scoping/ search area/ broad study area radius [km]	Cumulative effects scoping/search area	Typical detailed study area radius [km]*	Cumulative Landscape and Visual Effects in study area/ detailed study area
Medium /large	>80-109m	25	<p>Agree with LPA:</p> <ul style="list-style-type: none"> Map all wind energy development within the scoping search area radius [a 1:50,000 OS base would be sufficient]. Development will include all wind turbines that are operational, under construction, consented and 'in planning' i.e. undetermined planning applications. This information will be available from the LPA (see 8.7) but should be updated if necessary. Differentiate graphically between those in planning and others and also between sizes, preferably in size categories defined in this guidance. List turbine developments taken into consideration. Carry out scoping ZTV to establish potential for significant effects. Define key landscape and visual receptors that may undergo significant cumulative effects in the scoping area. Define detailed study area focusing on where significant cumulative effects may be possible. Define a number of viewpoints for assessment and where wirelines and/or photomontages are necessary. These may range from 5 to many of the viewpoints selected for the individual impact assessment for larger projects. 	10-15	<ul style="list-style-type: none"> Prepare a cumulative ZTV of all turbines in study area. This may include a ZTV showing the overlap of visibility with other turbines and/or the number of turbines visible. Scenarios differentiating between existing/consented and 'in planning' would be helpful (see 8.8-8.12). Prepare wirelines and/or photomontages from key viewpoints if necessary (see 8.13-8.14). Prepare wirelines from key viewpoints. Provide an assessment of combined and additional cumulative landscape effects (see Section 3.0) using standard CLVIA methods (eg tables of effects) also addressing if the developments meet the objectives for the area (2.14) and what the contribution of the proposed turbine is to this. Provide an assessment of combined and additional cumulative visual effects (see Section 4.0) using standard CLVIA methods (eg tables of effects) also addressing if the developments meet the objectives for the area (2.14) and what the contribution of the proposed turbine is to this. Assess effects with other forms of development if necessary (see Section 6.0). <p>This is a transitional category where the approach taken for larger turbines or developments is likely to follow that for the large turbine category below.</p>

Turbine size	Height range to blade tip [m]	Scoping/ search area/ broad study area radius [km]	Cumulative effects scoping/search area	Typical detailed study area radius [km]*	Cumulative Landscape and Visual Effects in study area/ detailed study area
Large	higher than 109m	30-60	<p>Agree with LPA:</p> <ul style="list-style-type: none"> Map all wind energy development within the scoping search area radius [a 1:50,000 OS base would be sufficient]. Development will include all wind turbines that are operational, under construction, consented and 'in planning' i.e. undetermined planning applications. This information will be available from the LPA (see 8.7) but should be updated if necessary. Differentiate graphically between those in planning and others and also between sizes, preferably in size categories defined in this guidance. List turbine developments taken into consideration. Carry out scoping ZTV to establish potential for significant effects. Define key landscape and visual receptors that may undergo significant cumulative effects in the scoping area. Define detailed study area focusing on where significant cumulative effects may be possible. Define a number of viewpoints for assessment and where wirelines and/or photomontages are necessary. These may range from around 10 to many of the viewpoints selected for the individual impact assessment. 	10-15	<p>Full CLVIA requirements including:</p> <ul style="list-style-type: none"> Prepare cumulative ZTVs of scenarios/groups of all windfarms i.e. 3 or more clusters of turbines and those over 50m tall to blade tip for <i>broad</i> study area. Prepare a ZTV showing the overlap of visibility with all other turbines and/or the number of turbines visible in <i>detailed</i> study area. Scenarios differentiating between existing/consented and 'in planning' would be helpful. Prepare wirelines and photomontages from all viewpoints where cumulative effects are possible. Provide detailed assessment using standard CLVIA methods (eg tables of effects) and commentary on combined and additional cumulative landscape and visual effects with larger developments. Provide a commentary on the interaction of the development with smaller scale wind turbine development [in less than clusters of 3 and less than 50m to blade tip] in the detailed study area. Provide a commentary on whether the proposals with other developments meet the objectives for the area (2.14) Assess effects with other forms of development if necessary (see Section 6.0).

*Note that typical study areas distances stated may be insufficient to include all relevant sensitive receptors who may undergo significant effects so this is for general guidance only.

**Unless otherwise stated

APPENDICES

APPENDIX A

Planning Context and Background

10. Planning context and background

- 10.1. This guidance provides information to support planning policy. The current planning policies and guidance of particular relevance to wind energy are set out below.

National legislation and guidance

- 10.2. Under the Planning Act 2008, the National Policy Statements EN-1 and EN-3 for Renewable Energy Infrastructure July 2011 applies to nationally significant onshore wind turbine developments in England and Wales i.e. above 50MW output. This forms the primary basis for decisions by the National Infrastructure Directorate which is part of the Planning Inspectorate. Planning authorities are only statutory consultees in relation to these developments.
- 10.3. The only location for such developments in the current planning framework in Wales are the Strategic Search Areas (SSAs) defined by TAN8 which includes Strategic Search Area G in Carmarthenshire (see below).
- 10.4. **Planning Policy Wales** Edition 5 November 2012 (PPW) sets out the land use planning policies of the Welsh Government. It states that renewable energy projects should generally be supported by local planning authorities. However, it also states that in determining applications LOCAL PLANNING AUTHORITIES should take into account:

'-the impact on natural heritage, the coast and the historic environment....

-the need to minimise impacts on local communities, to safeguard the quality of life for existing and future generations;

-ways to avoid, mitigate or compensate identified adverse impacts.....'
(12.10)

- 10.5. **Technical Advice Note (TAN) 8: Planning Policy for Renewable Energy**, provides technical advice to supplement the policy set out in PPW. It sets out a spatial strategy and objectives for onshore wind turbine development concentrating large windfarms into strategic search areas. In relation to the effects on landscape it states:

'the implicit objective ... is to maintain the integrity and quality of the landscape within National Parks/Areas Of Outstanding Natural Beauty in Wales i.e. no change in landscape character from wind turbine development. In the rest of Wales outside the Strategic Search Areas the implicit objective is to maintain the landscape character ie no significant change in landscape character from wind turbine development. Within (and immediately adjacent to) the Strategic Search Areas, the implicit objective is to accept landscape change i.e. significant change in the landscape character from wind turbine development.' (Annex D 8.4).

Pembrokeshire Coast National Park Policies

- 10.6. Pembrokeshire Coast National Park is the only UK national park predominantly designated for its coast. The splendour of its coastline and islands off the coast, the influence of the seascape, its spectacular scenery, and rugged, unspoilt beauty combine to produce strong scenic

- quality. A sense of tranquillity and remoteness is also highly valued amongst visitors to the area.
- 10.7. The Pembrokeshire Coast National Park Local Development Plan was adopted in September 2010. It includes a number of policies relevant to wind turbines.
- 10.8. The special qualities of the Park are listed such as coastal splendour, islands, remoteness, tranquillity and wildness and diversity of landscape. Policy 8 Special Qualities (Strategy Policy) states that the special qualities of the Pembrokeshire Coast National Park will be protected and enhanced. The priorities will be to ensure that:
- 'a) The sense of remoteness and tranquillity is not lost and is wherever possible enhanced...*
- c) The pattern and diversity of the landscape is protected and enhanced...*
- d) The historic environment is protected and where possible enhanced...*
- i) Development of the undeveloped coast is avoided and sites within stretches of the developed coast are protected for uses that need a coastal location.'*
- 10.9. Policy 15: Conservation of the Pembrokeshire Coast National Park, states that: Development will not be permitted where this would adversely affect the qualities and special character of the Pembrokeshire Coast National Park by:
- 'a) causing significant visual intrusion; and/or,*
- b) being insensitively and unsympathetically sited within the landscape; and/or*
- c) introducing or intensifying a use which is incompatible with its location; and/or*
- d) failing to harmonise with, or enhance the landform and landscape character of the National Park; and/or*
- e) losing or failing to incorporate important traditional features.'*
- 10.10. Pembrokeshire Coast National Park Local Development Plan Policy 33: Renewable Energy, states that:
- 'Small scale renewable energy schemes will be considered favourably, subject to there being no over-riding environmental and amenity considerations. Medium scale schemes also offer some potential and will be permitted subject to the same considerations. Large scale renewable energy schemes will only be permitted where they do not compromise the special qualities of the National Park. Where there are other renewable energy schemes already in operation in the area, cumulative impacts will be an important consideration.....'*
- 10.11. It goes on to clarify what is meant by these scales of energy and the potential for them in the Park:

'On wind energy developments: there is potential for small-scale proposals (10 kW-50 kW) and to a lesser degree medium scale proposals (50 kW -330 kW). Finally, there are extremely limited opportunities from large-scale proposals (> 330 kW-3 MW).' (4.148 f).

- 10.12. A Landscape Character Assessment SPG for Pembrokeshire Coast National Park was completed in 2006 and updated in 2011. The Assessment identified 28 distinct Landscape Character Areas lying within, or partly within, the National Park. A data sheet for each Landscape Character Area identifies the particular attributes of these areas and the threats they face, and sets out management guidance for them.
- 10.13. The Pembrokeshire Coast National Park Authority Renewable Energy SPG 2011 supports the positive implementation of Policy 33. Turbines are classified in four sizes to blade tip 'to reflect the landscape sensitivities' of Pembrokeshire Coast National Park- Large- 65-125m; Medium- 25-65m; Small- less than 25m; and Micro- Building or mast orientated. The landscape sensitivity to the above scales of development of each of the 28 landscape character areas are set out based on a study carried out in 2008. These should be taken into consideration in any CLVIA where the landscape impact assessment study area includes the National Park.
- 10.14. Key landscape sensitivities for the Pembrokeshire Coast National Park are set out including:
- Locate any development back from the coastal edge
 - Locate any development away from the most prominent rural skylines
 - Consider views along the coast including along the Coast Path
 - Avoid siting turbines in the most tranquil areas
 - Only site turbines where they can relate well to existing buildings or built structures in the landscape
 - Wind turbine development within the protected landscape should not sacrifice the essential integrity, coherence and character of the landscape or the special qualities of the Park...

Pembrokeshire County Council Policies

- 10.15. Pembrokeshire County Council adopted their Local Development Plan covering the county excluding the Pembrokeshire Coast National Park on 28 February 2013.
- 10.16. The Local Development Plan sets out a strategic policy for the provision of renewable developments. This includes:
- 10.17. Policy GN.4: Resource Efficiency and Renewable and Low-carbon Energy Proposals is a general policy on renewable energy. It states:
- Development proposals should seek to minimise resource demand, improve resource efficiency and seek power generated from renewable resources, where appropriate. They will be expected to be well designed in terms of energy use.*

Developments which enable the supply of renewable energy through environmentally acceptable solutions will be supported.

10.18. Supporting text goes on to state:

6.31 Landscape impact, alone and in-combination, will be a material consideration in the evaluation of renewable energy proposals, with LANDMAP providing a valuable landscape analysis tool.

10.19. Other relevant policies include GN.1 General Development Policy, GN.2 Sustainable Design and in some cases SP.2 Port and Energy related development.

10.20. Pembrokeshire County Council has produced 'Wind Energy Planning Applications - Guidelines for Landscape and Visual Impact Assessment Requirements' (August 2012) as a practice note. This gives guidance on the preparation of landscape and visual impact assessment (LVIA) requirements for wind energy planning applications. It cites appropriate good practice guidance and sets out a broad framework for information required to support LVIA's and CLVIA's.

10.21. The guidance categorizes the type of assessment which will be required in respect of turbine sizes, including turbines of less than 15m, 15-50m, and over 50m (to blade tip). For small turbines of less than 15m and outside national designated landscape areas a formal visual impact assessment is less likely to be required. For turbines of between 15m and 50m height a basic level of Landscape and Visual Impact Assessment is likely to be required with a Zone of Theoretical Visibility (ZTV) of 15km recommended. For turbines over 50m in height a more detailed Landscape and Visual Impact Assessment with a ZTV of 20-35km as recommended is likely to be required.

10.22. Pembrokeshire County Council is to prepare SPG on Renewable Energy and Landscape.

Carmarthenshire County Council Policies

10.23. The Brechfa Forest Strategic Search Area (SSA) is defined with a buffer area of land within 5km of the boundary of the Strategic Search Area. Supplementary Planning Guidance (SPG) for Major Wind Farm Development in the Brechfa Forest Area was approved by Carmarthenshire County Council in July 2008 and included a refined area for development.

10.24. The SPG recognises that '*development within, and immediately adjacent to, Strategic Search Areas is expected to cause a significant change in landscape character.*' It gives guidance on the preparation of an EIA, and refers to selected Carmarthenshire Unitary Development Plan Policies.

10.25. The key policies are:

CUDP 14 *It is the policy of Carmarthenshire County Council to support proposals for renewable energy schemes and developments, which minimise energy and resource requirements, where appropriate.*

UT6 *It is the policy of Carmarthenshire County Council that proposals for wind turbines, wind farms or groups of wind turbines will be*

permitted provided that the following criteria are met in full:

- i. proposals either individually or cumulatively would not cause demonstrable harm by virtue of having a significant adverse impact on the quality of the local environment, or to sites of nature conservation, historical or archaeological importance, agricultural value, areas designated for their landscape value, or to species of nature conservation and ecological value;*
- ii. the siting, design, layout and materials used should be sympathetic to the characteristics of the land-form, contours and existing features of the landscape;*
- iii. proposals that do not give rise to problems of highway safety or place unacceptable demands on the provision of public services;*
- iv. ancillary works, buildings and structures are kept to a minimum and sited unobtrusively within the landscape;*
- v. proposals should not lead to a significant adverse increase in risk or nuisance to, and impacts on the amenities of, nearby residents or other members of the public arising from wind turbine operation, shadow flicker, safety risk, radio or telecommunications interference;*
- vi. no turbine should cause demonstrable harm to the amenity of any residents;*
- vii. new connections to the local electricity distribution network should accord with policy UT2.*

10.26. Other policies of relevance are:

CUDP 9 It is the policy of Carmarthenshire County Council to enhance the natural environment safeguard it from inappropriate development.

GDC 3 It is the policy of Carmarthenshire County Council that development in the countryside will not be permitted except for the following (selected) purposes:

....(vi) other uses which are appropriate to the character of the rural area, and which cannot be provided in a nearby settlement;

(vii) operational development by statutory undertakers and renewable energy schemes subject to their compliance with other policies within this plan;

10.27. **EN 16** It is the policy of Carmarthenshire County Council that in areas designated as **Special Landscape Areas**¹² ... priority will be given to the conservation and enhancement of the landscape, while new development that would result in harm to their character and appearance will not be permitted.

¹² Special Landscape Areas include: Tywi Valley, Mynydd Llanllwni, Cothi Valley, Mynydd Pencarreg, North-eastern Uplands, The Carmarthen Bay Coastal Area, Cych Valley, Teifi Valley, Inland cliffs, Afon Morlais Valley, Afon Lliedi Valley, V-shaped valley north of Pwll, Loughor Valley, Coastal plain (east), Coastal plain (salt marsh, sand dunes, beach and mudflats)

APPENDIX B

Useful References

Appendix B: Useful References

Landscape and visual impact assessment and cumulative landscape and visual impact assessment

Guidelines for Landscape and Visual Impact Assessment (GLVIA), Second Edition, Landscape Institute and IEMA, 2002 in force at time of preparation of guidance (superceded by GLVIA Third Edition, April 2013).

'Visual Assessment of Windfarms: Best Practice', Scottish Natural Heritage, 2002.

Landscape Character Assessment, Guidance for England and Scotland, Swanwick, Carys and LUC, Scottish Natural Heritage with the Countryside Agency, 2002.

Topic Paper 6 'Techniques and criteria for judging landscape sensitivity and capacity', Countryside Agency, 2004 (to be updated soon)

Visual Representation of Windfarms: Good Practice Guidance, 2006, Scottish Natural Heritage.

'Review of Guidance on the Assessment of Cumulative Impacts of Onshore Windfarms', Entec, DBERR, 2008

Siting and designing windfarms in the landscape, Version 1, 2009, Scottish Natural Heritage

Landscape Capacity Studies in Scotland - a review and guide to good practice', Scottish Natural Heritage 2009

LANDMAP information Guidance Note 3: Using LANDMAP for landscape and visual impact assessment of onshore wind turbines, COUNTRYSIDE COUNCIL FOR WALES, May 2010 (to be updated).

Photography and photomontage in landscape and visual impact assessment, Advice Note 01/11, Landscape Institute, 2011.

'Assessing the impact of small-scale wind energy proposals on the natural heritage ', Scottish Natural Heritage February 2011

Assessing the cumulative impact of onshore wind energy developments, March 2012, Scottish Natural Heritage

Siting and design for small scale wind turbines between 15 and 50 metres in height, 2012, Scottish Natural Heritage

Seascape

Guide to best practice in seascape assessment, Countryside Council for Wales, Brady Shipman and Martin, University College Dublin, 2001.

Guidance on the assessment of the impact of offshore wind farms: seascape and visual impact, DTI, 2005

Welsh seascapes and their sensitivity to offshore developments, Briggs, J.H.W. & White, S, Countryside Council for Wales Policy Research Report No. 08/5, January 2009.

An approach to Seascape Character Assessment, (NECR105), Natural England, Scottish Natural Heritage and Countryside Council for Wales, 2012.

Other guidance referred to in preparation of report

Cumbria Wind Energy Supplementary Planning Document, Cumbria County Council, 2007

Wind Turbine Development Policy Guidance, Fenland District Council, 2009

Wind Energy Supplementary Planning Guidance, Fife Council, 2011

Onshore Wind Energy Strategy for Fife, Cumulative Impact Assessment', Fife Council, December 2012

Argyll and Bute Landscape Wind Energy Capacity Study, Argyll and Bute Council, March 2012

APPENDIX C

Glossary

Appendix C: Glossary of landscape, seascape and visual terms

Term	Definition
Amenity Planting	planting to provide environmental benefit such as decorative or screen planting.
Analysis	the process of dividing up the seascape/landscape into its component parts to gain a better understanding of it.
Ancient Woodland	land continuously wooded since AD 1600. It is an extremely valuable ecological resource, usually with a high diversity of flora and fauna.
Apparent	object visible in the seascape/landscape.
Approach	the step-by-step process by which seascape/landscape assessment is undertaken.
Arable	land used for growing crops other than grass or woody species.
Aspect	in Wales, an aspect is a component of the LANDMAP information recorded, organised and evaluated into a nationally consistent spatial data set. The landscape information is divided into five aspects- geological landscape, landscape habitats, visual and sensory, historic landscape and cultural landscape.
Aspect area	areas defined in each of the LANDMAP aspect assessments which are mutually exclusive
Assessment	term to describe all the various ways of looking at, analysing, evaluating and describing the seascape/landscape or assessing impacts on seascape/landscape and visual receptors.
Biodiversity	the variety of life including all the different habitats and species in the world.
Character	see landscape/seascape character.
Characteristics	elements, features and qualities which make a particular contribution to distinctive character. *
Characterisation	the process of identifying areas of similar character, classifying and mapping them and describing their character. *
Classification	concerned with dividing the seascape into areas of distinct, recognisable and consistent common character in grouping areas of similar character together. It requires the identification of patterns in the seascape, created by the way the natural and human influences interact and are perceived and experienced to create character in the seascape.*
Compensation	the measures taken to offset or compensate for adverse effects that cannot be mitigated, or for which mitigation cannot entirely eliminate adverse effects.
Combined visibility and effects	the observer is able to see two or more developments from one viewpoint. This divided into ' <i>in combination</i> '- several wind turbine developments are within the observer's arc of vision at the same time OR ' <i>in succession</i> ', where the observer has to turn to see various wind turbine developments.
Complexity	(in the context of describing a skyline)how varied or complicated the skyline is from dead flat with even vegetation at one end of

	the scale to mountainous with varied vegetation at the other.
Term	Definition
Conservation	the protection and careful management of natural and built resources and the environment.
Consistent	relatively unchanging element or pattern across a given area of seascape/landscape.
Cumulative Impacts	the changes caused by a proposed development in <i>addition</i> to other similar developments or as the <i>combined</i> effect of a set of developments, taken together. This may be an on-going process as new applications are made. The assessment of these impacts (a CLVIA) is normally carried out as part of an environmental impact assessment.
Cumulative landscape effects	cumulative effects as defined above on landscape can impact on either the physical fabric, or character of the landscape.
Cumulative visual effects	cumulative effects as defined above on people who have differing sensitivity depending on what they are doing and where they are located.
Description	capturing the overall essence of the character of the landscape with reference to geology, landform, landscape pattern, vegetation, settlement, historical and cultural associations etc, drawing out the ways in which these factors interact together and are perceived and experienced and are associated with events and people.
Distinctiveness	see sense of place
Diversity	(in terms of the function of an area) the variety of different functions of an area.
Dominant	main defining feature or pattern.
Effects, direct	where development lies within a seascape/landscape and physically removes or affects an element or feature e.g. rocks, cliff, coastal vegetation, watercourses, drainage
Effects, indirect	non-physical effects such as perceived change of character or from associated development such as transport infrastructure
Elements	individual component parts of the landscape such as hedges, walls, trees, fields.
Environmental Impact Assessment	the process used for describing, analysing and evaluating the range of environmental effects that are caused by a wind energy proposal.
Environmental Statement	the document supporting a planning application that sets out the findings of the environmental impact assessment
Features	particularly prominent or eye-catching elements such as churches, castles, rock outcrops.
Field Boundary	the defined edge of a field eg fence, hedge, bank, ditch or wall.
Field Size	Large 2 Ha Above, Medium Around 1.5 Ha, Small Less Than 1 Ha.
Geology	the study of the origin, structure, composition and history of the Earth together with the processes that have led to its present

	state.
<i>Term</i>	<i>Definition</i>
Impact	used as part of overall term, as in EIA or LVIA, to help describe the process of assessing potentially significant effects. See effects.
Improved (in relation to soils or pasture)	addition of fertiliser and, in the case of pasture, reseeded with more productive grass species.
Inherent	dictionary definition- 'existing as an inseparable part'. In the context of sensitivity means the sensitivity of the seascape/landscape zone itself with all its component elements and features rather than its relationship with adjacent zones.
Integrity	unspoilt by large-scale, visually intrusive or other inharmonious development
Key characteristics	those combination of elements which help give an area its distinct sense of place.
Landcover	combinations of natural and man-made elements including vegetation that cover the land surface.
Landform	combinations of slope and elevation which combine to give shape and form to the land.
LANDMAP	<i>LANDMAP</i> is the national Geographical Information System (GIS) based information system for Wales, devised by the Countryside Council for Wales, for taking landscape into account in decision-making. It is a nationally consistent dataset divided into 5 aspects- geological landscapes, landscape habitats, visual and sensory, historical landscapes and cultural landscapes.
Perception	perception combines the sensory (that which we receive through our senses) with the cognitive (knowledge and understanding gained from many sources and experiences).
Landscape	an area of land, as perceived by people, whose character results from the actions and interactions of land with natural and/or human factors.
Landscape Capacity	the degree to which a particular landscape character type or area is able to accommodate change of a particular <i>type</i> , <i>scale</i> and <i>amount</i> without unacceptable adverse effects on its character.
Landscape Capacity Assessment/study	The process of describing, analysing and evaluating the landscape capacity of an area. This is normally carried out as a strategic baseline study for a local authority area.
Landscape character	landscape character is a distinct and recognisable pattern of elements in the landscape that makes one landscape different from another, rather than better or worse.
Landscape character assessment (LCA)	LCA is the process of identifying and describing variation in the character of the landscape, and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make seascape distinctive. *

Term	Definition
Landscape character areas	these are single unique areas which are discrete geographical areas of a particular landscape character. Each has its own individual character and identity.
Landscape character types	these are distinct types of landscape that are relatively homogenous in character. They are generic in nature in that they may occur in different locations but wherever they occur they share broadly similar combinations of geology, topography and landcover characteristics.
Landscape guidelines	actions required to ensure that distinctive landscape character is maintained, enhanced or if appropriate, changed through the creation of new character.
Landscape quality	the physical state of the landscape. It includes the extent to which typical character is represented in individual areas, sometimes referred to as strength of character, the intactness of the landscape from visual, functional and ecological perspectives and the condition or state of repair of individual elements of the landscape.
Landscape Resource	the overall stock of the landscape and its component parts. (the landscape considered as a measurable finite resource like any other e.g. minerals, land, water).
Landscape sensitivity	the ability of the landscape to respond to and accommodate change. It reflects character, the nature of change and the way both are perceived and experienced by people.
Landscape Sensitivity Assessment/study	the process of describing, analysing and evaluating the landscape sensitivity of an area. This is normally carried out as a strategic baseline study for a local authority area.
Landscape value	the relative value that is attached to different landscapes and LANDMAP aspects. A landscape may be valued by different communities of interest for many different reasons. These can include scenic beauty, tranquillity, wildness, special cultural associations, the presence of conservation interests, rarity or the existence of a consensus about importance, either nationally or locally. Some areas will be designated to express their value. Value is also attributed to each LANDMAP aspect using a variety of criteria. An indication of how an area is valued may also be gained from observation of how it is used- e.g. a popular path to a hilltop viewpoint.
Landscape and Visual Impact Assessment (LVIA)	is an established methodology which is used to assess the impact of the development or other use change on seascape, landscape and visual amenity. It includes analysis of the effects during the construction, operation and decommissioning phases of the development, including any restoration or after uses.
Magnitude of effect	degree of change
Micro-generation	very small scale power generation schemes, typically providing energy to a single dwelling
Mitigation	measures including any process, activity or design to avoid, reduce or remedy adverse effects of a development proposal. It does not include compensation.

<i>Term</i>	<i>Definition</i>
Mixed Farmland	a combination of arable and pastoral farmland
Mosaic	mix of different landcovers at a fine grain such as woodland, pasture and heath.
Objective	method of assessment in which personal feelings and opinions do not influence characterisation or judgements.
Perceived effects	The perceptions of the impact on the landscape by people who <i>know</i> of other developments even when they cannot see them.
Physiography	expression of the shape and structure of the land surface as influenced both by the nature of the underlying geology and the effect of geomorphological processes.
Polygon	discrete digitised area in a geographic information system(GIS).
Prominent	noticeable feature or pattern in the landscape.
Protect	to keep from harm.
Qualities	aesthetic (objective visible patterns)or perceptual (subjective responses by the seascape/landscape assessor) attributes of the seascape/landscape such as those relating to scale or tranquillity respectively.
Receptor, visual	people in different situations who can experience views within an area and who may be affected by change or development. Receptors can include users of public rights of way, open access land, people in and around their own homes and tourists.
Receptor, seascape/landscape	seascape/landscape character areas, designations, elements or features which may be affected by development.
Remoteness	physical isolation, removal from the presence of people, infrastructure (roads and railways, ferry and shipping routes) and settlement and noise.
Renewable Energy	collective term for energy flows that occur naturally and repeatedly in the environment without significant depletion of resources. It includes energy derived by the sun, such as wind, solar hot water, solar electric (photo-voltaics), hydro power, wave, tidal, biomass, biofuels, and from geothermal sources, such as ground source heat pumps.
Resource	see landscape resource.
Sensory	that which is received through the senses i.e. sight, hearing, smell, touch.
Scenic quality	seascape/landscape with scenes of a picturesque quality with aesthetically pleasing elements in composition (<i>derived from LANDMAP visual and sensory aspect</i>).
Semi-natural vegetation	theoretically any type of vegetation that has been influenced by human activities, either directly or indirectly. The term is usually applied to uncultivated areas managed at a low intensity such as heathland, herb and fern, rough grassland, wetland/mire, scrub and woodland.

Term	Definition
Sense Of Place	the character of a place that makes it locally identifiable or distinctive i.e. different from other places. Some features or elements can evoke a strong sense of place eg islands, forts, vernacular architecture
Sequential cumulative visual effects	where the observer has to move to a series of viewpoints to see different developments. This can be <i>frequently sequential</i> where features appear with short time lapses in between to <i>occasionally sequential</i> where there are long time lapses between locations where wind turbines are visible.
Setting, of a heritage asset	the surroundings in which the asset is experienced. Its extent is not fixed and may change as the asset and its surroundings evolve. Elements of a setting may make a positive or a negative contribution to an asset, may affect the ability to appreciate that significance or may be neutral.
Significance/ significant effect	in environmental impact assessment- the importance of an effect. A significant effect needs to be taken into account in decision-making.
Subjective	method of assessment in which personal views and reaction are used in the characterisation process.
Topography	term used to describe the geological features of the Earth's surface e.g. mountains, hills, valleys, plains.
Unity	consistency of pattern over a wide area i.e. the repetition of similar elements, balance and proportion, scale and enclosure.
Value	see landscape value
Viewing distance	The distance between the eye and an image/visualisation of a development.
Visibility in succession	Where the observer at a static viewpoint has to turn to see various wind turbine developments.
Visual Effects	the likely visual effects undergone by people that would result from a development proposal or change in land management.
Wind Energy Development	development consisting of one or more wind turbines, access tracks, ancillary buildings, substation, anemometer masts and supporting infrastructure.
ZTV	ZTV or ZVI (Zone of Visual Influence) analysis is the process of determining the visibility of an object in the surrounding landscape. The process is objective in which areas of visibility or non-visibility are determined by computer software using a digital elevation dataset. The output from the analysis is used to create a map of visibility.

*Natural England, Scottish Natural Heritage and the Countryside Council for Wales (2011), Landscape Character Assessment Guidance (consultation draft).

Pembrokeshire Coast National Park Seascape Character Assessment



Final Report
for
Pembrokeshire Coast National Park Authority
Natural Resources Wales

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Tel: 029 2043 7841

Email: sw@whiteconsultants.co.uk
Web: www.whiteconsultants.co.uk



SUMMARY

The seascape character assessment of Pembrokeshire Coast National Park includes territorial waters upto 12 nautical miles offshore and extends from Cardigan Island in the north to the Taf estuary in Carmarthen Bay in the south. The study area reaches inland to include the areas of Milford Haven outside the Park, and upto the tidal limits of the Daugleddau. The client is the Pembrokeshire Coast National Park Authority (PCNPA) supported by the Countryside Council for Wales (CCW), now Natural Resources Wales (NRW). The study has involved a multi-disciplinary team led by White Consultants.

The study is at a local level and is set within the framework of the regional Welsh Seascapes study completed by CCW in 2009. The method for this study builds on current guidance but is tailored for the particular scale of assessment, for Pembrokeshire National Park and the study's location in Wales. It is the first local seascape study of its kind in Wales. There is an emphasis on an assessment of the coastal landscape's seascape character in its marine setting although wholly marine areas away from the coast are covered. As it is one of the pilot studies for all-Wales work there may be some further refinement, such as to boundaries, in order to marry up with adjacent seascape character assessments in future.

The study should be read in conjunction with the National Park Management Plan and LDP and with other guidance and baseline information including the PCNPA Landscape Character Assessment (2011). The study is intended to form, in due course and after public consultation, the basis of supplementary planning guidance for the PCNP Local Development Plan. At a national level, the Marine and Coastal Access Act 2009 requires the Welsh Government to develop a spatial planning approach to the management of its marine areas and the study may help to inform this.

The report explains the method, gives an overview of the seascape, sets out the cultural benefits and services, the forces for change and the key sensitivities. Each seascape character area is described in turn.

The inland boundary of the study area is defined by identifying those areas of coast which have the highest intervisibility with the sea or water body in the case of Milford Haven and the Daugleddau.

A large number of datasets have been analysed to inform the study. Key factors are used to define types and areas while the rest are used to describe the seascape. The process followed is to define seascape character types as 'building blocks' and then define and describe seascape character areas based on these types. Site visits have helped to verify desk-based work and describe perceptual and experiential qualities.

The seascape types are divided into marine, intertidal and terrestrial. 21 marine types are defined based on physical characteristics of bathymetry, sea bed sediments and bedrock, and wave climate. Five intertidal types are based on rock, sand/shingle, mud, saltmarsh and biogenic reefs habitats. Twenty one terrestrial types are defined based on coastal habitats such as sand dunes, 'inland' habitats close to the coast such as mixed woodland and scrub and land uses such as different types of built up areas.

44 Seascape character areas are defined by bringing together related marine, intertidal and terrestrial types on the coast, and broadly similar marine types offshore. Each area is described in terms of its key characteristics, physical influences, cultural influences and aesthetic, perceptual and experiential qualities. Its cultural benefits and services and key sensitivities are defined and the main forces for change affecting the area discussed.

Overview

The study area is on Great Britain's remote western seaboard facing and including parts of the Atlantic Ocean/Celtic Sea, St George's Channel, Cardigan Bay and the Bristol

Channel. The sea and coast are exposed to, and often governed by, the prevailing south westerlies. The maritime weather conditions combined with the depth of the sea and nature of the sea bed essentially define the character of the marine areas. The remote and exposed islands and islets with associated reefs and isolated lighthouses are key features of the Pembrokeshire seascape. The coast's distinctive and varied rock formations interact with the force of the sea and weather to create a wide range of dramatic coastal seascapes. Inland, Milford Haven and the Daugleddau provide contrasting sheltered seascapes, penetrating deep into Pembrokeshire's countryside.

Seascape character is enhanced by diverse marine and coastal habitats and wildlife of international and national importance including cetaceans eg dolphins and coastal birds eg puffins and choughs. Prehistoric promontory forts, more recent military installations, religious buildings, harbours and other historic features and wrecks indicate the area's strong connection to ancient seaways and reinforce its strong sense of place.

The area's qualities attract tourism and leisure pursuits, which make an important contribution to the local economy and character, but can also lead to pressures on the coast and sea. The energy and related industry, both carbon based eg liquid natural gas, and developing renewables, are further forces for change with potentially strong influences on character. Traditional uses such as fishing, particularly potting, still contribute to the local economy and character.

This assessment is a snapshot of the current situation and a tool to help guide the future management and conservation of the Park's seascapes' essential qualities.

CRYNODEB

Mae asesiad o gymeriad morwedd Parc Cenedlaethol Arfordir Penfro yn cynnwys dyfroedd tirol hyd at 12 milltir fôr ar y môr ac mae'n ymestyn o Ynys Aberteifi yn y gogledd i aber Taf ym Mae Caerfyrddin yn y de. Mae ardal yr astudiaeth yn cyrraedd y tir i gynnwys ardaloedd Aberdaugleddau y tu allan i'r Parc, a hyd at derfynau llanwol y Daugleddau. Y cleient yw Awdurdod Parc Cenedlaethol Arfordir Penfro (APCAP) wedi'i gefnogi gan Gyngor Cefn Gwlad Cymru (CCGC), sef Cyfoeth Naturiol Cymru bellach. Mae'r astudiaeth wedi cynnwys tîm amlddisgyblaethol dan arweiniad White Consultants.

Cynhelir yr astudiaeth yn lleol ac fe'i gosodir o fewn fframwaith yr astudiaeth ranbarthol o Forweddau Cymru a gwblhawyd gan CCGC yn 2009. Mae'r dull ar gyfer yr astudiaeth hon yn adeiladu ar ganllawiau cyfredol ond caiff ei deilwra i'r raddfa asesu benodol, i Barc Cenedlaethol Penfro ac i leoliad yr astudiaeth yng Nghymru. Hon yw'r astudiaeth morweddau leol gyntaf o'i bath yng Nghymru. Ceir pwyslais ar yr asesiad o gymeriad morwedd y dirwedd arfordirol yn ei leoliad morol er yr ymdrinnir ag ardaloedd hollol forol i ffwrdd o'r arfordir. Gan ei bod yn un o'r astudiaethau peilot ar gyfer gwaith Cymru gyfan efallai y gwneir rhywfaint o waith mireinio pellach, e.e. i ffiniau, er mwyn cysoni ag asesiadau o gymeriad morweddau cyfagos yn y dyfodol.

Dylid darllen yr astudiaeth ar y cyd â'r Cynllun Rheoli Parc Cenedlaethol a'r Cynllun Datblygu Lleol a chyda chanllawiau a gwybodaeth sylfaenol arall gan gynnwys yr Asesiad o Gymeriad Morwedd APCAP (2011). Bwriedir i'r astudiaeth lunio, maes o law ac ar ôl ymgynghoriad cyhoeddus, sail y canllawiau cynllunio atodol ar gyfer Cynllun Datblygu Lleol Parc Cenedlaethol Arfordir Penfro. Ar lefel genedlaethol, mae Deddf y Môr a Mynediad i'r Arfordir 2009 yn ei gwneud yn ofynnol i Lywodraeth Cymru ddatblygu dull cynllunio gofodol o reoli ei hardaloedd morol a gall yr astudiaeth helpu i lywio hyn.

Mae'r adroddiad yn esbonio'r dull, yn rhoi trosolwg o'r morwedd, yn nodi'r buddiannau a'r gwasanaethau diwylliannol, y grymoedd ar gyfer newid a'r prif feysydd sensitifrwydd. Disgrifir ardal cymeriad pob morwedd yn ei thro.

Diffinnir ffin fewndirol ardal yr astudiaeth drwy nodi'r ardaloedd hynny o arfordir sydd â'r rhyngweledd uchaf â'r môr neu gorff o ddŵr yn achos Aberdaugleddau a'r Daugleddau.

Dadansoddwyd nifer fawr o setiau data i lywio'r astudiaeth. Defnyddir ffactorau allweddol i ddiffinio mathau ac ardaloedd tra bod y gweddill yn cael eu defnyddio i ddisgrifio'r morwedd. Y broses a ddilynir yw un lle y diffinnir mathau o gymeriad morwedd fel 'blociau adeiladu' gan ddiffinio a disgrifio ardaloedd cymeriad morweddau yn seiliedig ar y mathau hyn. Mae ymweliadau safle wedi helpu i ddilysu gwaith swyddfa a disgrifio rhinweddau canfyddiadol a phrofiadol.

Rhennir y mathau o forweddau yn dri math sef morol, rhynglanwol a thirol. Diffinnir 21 o fathau morol yn seiliedig ar nodweddion ffisegol bathymetreg, gwaddodion gwely môr a chreigwelyau, a hinsawdd tonnau. Mae pum math rhynglanwol yn seiliedig ar graig, tywod/graeuan bras, llaid, morfa heli a chynefinoedd creigresi biogenig. Diffinnir 21 o fathau tirol yn seiliedig ar gynefinoedd arfordirol megis twyni tywod, cynefinoedd 'mewndirol' yn agos i'r arfordir megis coetir cymysg a phrysgwydd a defnyddiau tir megis mathau gwahanol o ardaloedd adeiledig.

Diffinnir 44 o ardaloedd cymeriad morwedd drwy ddwyn ynghyd fathau morol, rhynglanwol a thirol ar yr arfordir, a mathau morol tebyg i raddau helaeth ar y môr. Disgrifir pob ardal o ran ei phrif nodweddion, dylanwadau ffisegol, dylanwadau diwylliannol a rhinweddau esthetig, canfyddiadol a phrofiadol. Diffinnir ei buddiannau a'i gwasanaethau diwylliannol a'i phrif feysydd sensitifrwydd a thrafodir y prif rymoedd ar gyfer newid sy'n effeithio ar yr ardal.

Trosolwg

Mae ardal yr astudiaeth ar arfordir gorllewinol pellennig Prydain ac mae'n wynebu ac yn cynnwys rhannau o Fôr Iwerydd/y Môr Celtaidd, Môr Iwerddon, Bae Aberteifi a Môr Hafren. Mae'r môr a'r arfordir yn agored i brifwyntoedd y gorllewin ac yn aml yn cael eu rheoli ganddynt. Mae'r amodau tywydd arfordir ynghyd â dyfnder y môr a natur y gwely môr yn eu hanfod yn diffinio cymeriad yr ardaloedd morol. Mae'r ynysydd a'r ynysigau pellennig a digysgod gyda chreigresi cysylltiedig a goleudai anghysbell yn nodweddion allweddol ar forwedd Sir Benfro. Mae ffurfiannau creigiog unigryw ac amrywiol yr arfordir yn rhyngweithio â grym y môr a'r tywydd i greu ystod eang o forweddau arfordirol dramatig. Ar y tir, mae Aberdaugleddau a'r Daugleddau yn darparu morweddau cysgodol cyferbyniol, gan dreiddio yn ddwfn i gefn gwlad Sir Benfro.

Caiff cymeriad y morwedd ei wella gan gynefinoedd morol ac arfordirol amrywiol a bywyd gwyllt o bwysigrwydd rhyngwladol a chenedlaethol gan gynnwys morfilod e.e. dolffiniaid ac adar arfordirol e.e. pâl a brân goesgoch. Mae ceyrydd pentir cynhanesyddol, gosodiadau milwrol mwy diweddar, adeiladau crefyddol, harbyrau a nodweddion hanesyddol a llongddrylliadau eraill yn cyfeirio at gysylltiad cryf yr ardal â morffyrdd hynafol ac yn atgyfnerthu ei hymdeimlad cryf o le.

Mae rhinweddau'r ardal yn denu twristiaeth a gweithgareddau hamdden, sy'n gwneud cyfraniad pwysig i economi a chymeriad lleol yr ardal, ond a all hefyd roi pwysau ar yr arfordir a'r môr. Mae'r diwydiant ynni a'r diwydiant cysylltiedig, ill dau yn seiliedig ar garbon e.e. nwy hylifedig naturiol a mathau o ynni adnewyddadwy sy'n datblygu, yn rymoedd pellach ar gyfer newid gydag effeithiau arbennig o gryf ar gymeriad. Mae defnyddiau traddodiadol megis pysgota, yn enwedig potio, yn dal i gyfrannu at economi a chymeriad lleol yr ardal. Mae'r asesiad hwn yn giplun o'r sefyllfa gyfredol ac yn adnodd er mwyn helpu i reoli a gwarchod rhinweddau hanfodol morweddau'r Parc yn y dyfodol.

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Cover photo: Ramsey Island and Whitesands Bay from Carn Llidi

1. Introduction

- 1.1. White Consultants were appointed in December 2012 to undertake a seascape character assessment of Pembrokeshire Coast National Park including the territorial waters upto 12 nautical miles (nm) offshore. The National Park Authority (PCNPA) has acted as the client on behalf of a steering group of PCNPA and Countryside Council for Wales (CCW) officers. CCW is now Natural Resources Wales (NRW).
- 1.2. The brief defines the purpose of the project as 'to produce a study of local seascape character, to identify what is distinctive and special about different areas of Pembrokeshire Coast National Park, and sea areas visible from it; to outline their sensitivities; to describe possible risks to their character (including, but not limited to, those arising from development ...'). The work should build on and add value to the Regional Seascape Assessment of Wales commissioned by CCW¹.
- 1.3. The study should be read in conjunction with the National Park Management Plan and LDP and with other guidance and baseline information including, importantly, the PCNPA Landscape Character Assessment SPG [2011]. The study seeks to provide further information on the special qualities listed at para 4.56 of the Pembrokeshire Coast Local Development Plan (to 2021) and the character of the seascape in general. LDP Strategy Policy 8 Special Qualities and Policy 15 Conservation of the Pembrokeshire Coast National Park in particular should be noted when using this report.
- 1.4. At a national level, the Marine and Coastal Access Act 2009 requires the Welsh Government to develop a spatial planning approach to the management of its marine areas. This is at an early stage but NRW is understood to be considering the use of seascape character assessment to play a part in the spatial integration of coastal and marine issues.
- 1.5. The report is structured to first to explain the method used [2.0], to go on to give an overview of the seascape of Pembrokeshire [3.0], to set out the cultural benefits and services of the seascape [4.0], the forces for change [5.0] and the sensitivities [6.0]. Then, each seascape character area is described in turn [7.0]. The appendices deal with the information and approach underpinning the study- the data available and used, seascape character typology, and background information relating to cultural benefits and services, forces for change and factors influencing the sensitivity of seascape, aesthetic and perceptual factors and a glossary.
- 1.6. The study area is indicated on **Figure 1**. The method for deriving the landward boundary is explained in the method.



St Justinians from Ramsey Sound

¹ Welsh seascapes and their sensitivity to offshore developments, Briggs, J.H.W. & White, S, CCW Policy Research Report No. 08/5, January 2009

2. Method

Development of seascape character assessment methodology

- 2.1. The method for this study seeks to build on current guidance but is tailored for the particular scale of assessment, for Pembrokeshire National Park and the study's location in Wales. It is the first local seascape study of its kind in Wales and may help set the pattern for future local studies. The brief is clear in its emphasis on an assessment of the coastal landscape's seascape character in its marine setting although wholly marine areas away from the coast require coverage, and many are intervisible with the coast in any case.
- 2.2. The terms used in the study are to be found in the Glossary in **Appendix G**. This uses terms primarily defined by the latest SCA and LCA guidance. Other sources include the European Landscape Convention, and LANDMAP to ensure that there is compatibility with existing assessments in the Welsh context.
- 2.3. The study lies within the context and framework of the regional seascape character assessment 'Welsh seascapes and their sensitivity to offshore developments' which was carried out broadly in line with CCW led 2001 seascape guidance. Further seascape character guidance has since been developed, led by Natural England, based on a study off Dorset, and this provides useful guidance on the marine element of seascape. A concise form of the document has been issued which is supplemented by pilot study testing of the method and recommendations on the south and east coast of England. In Wales, a pilot study for CCW in NW Anglesey in 2012 has tested the use of different information to define types and character areas at a regional and local level.
- 2.4. The relevant seascape guidance mentioned above and taken into account by this study is as follows, in date order:
 - Guide to best practice in seascape assessment, Hill et al, Countryside Council for Wales and University College, Dublin, Brady Shipman Martin, 2001.
 - Guidance on the assessment of the impact of offshore windfarms: seascape and visual impact report, Enviros, DTI, 2005.
 - An assessment of the sensitivity and capacity of the Scottish seascape in relation to windfarms, University of Newcastle, Commissioned Report no. 103, Scottish Natural Heritage, 2005.
 - Welsh seascapes and their sensitivity to offshore developments, Briggs, J.H.W. & White, S, CCW Policy Research Report No. 08/5, January 2009.
 - Dorset Coast Landscape and Seascape Character Assessment, LDA, C-SCOPE, 2010.
 - An approach to Seascape Character Assessment, (NECR105), Natural England, Scottish Natural Heritage and Countryside Council for Wales, 2012.
 - Seascape Characterisation around the English Coast (Marine Plan Areas 3 and 4 and Part of Area 6 Pilot Study) (NECR106), Natural England, 2012.
- 2.5. In terms of status the 2001 CCW guidance still applies and is reinforced by the 2005 seascape guidance. The 2012 approach is advisory and focuses primarily on England. However, it builds on developing good practice and gives flexibility of approach and so all guidance will be taken into account.

- 2.6. The scale of the assessment is at local authority level. In Wales, there are three levels or scales of assessment- National, Regional and Local scale. The Regional study has been undertaken, as discussed, and this study provides the Local level. In England, there are four levels with the most detailed/lowest level also named 'local scale'. However, this addresses individual bays, coves or rocky coastlines. This is considered to be at a greater level of detail than required for this study and equates more with detailed Shoreline Management Plan areas on the coast.
- 2.7. Other guidance prepared primarily for landscape and visual assessment is also relevant to this study. It is important to ensure that terms and approaches to seascape are the same as for landscape insofar as the substantially different qualities of the two environments allow. Relevant publications include:
- Skye and Lochalsh landscape assessment, Stanton, C. Scottish Natural Heritage Review No.71, 1996.
 - Guidelines for Landscape and Visual Impact Assessment, second edition, Landscape Institute and Institute of Environmental Assessment, 2002.
 - Landscape Character Assessment, Guidance for England and Scotland, Swanwick, Carys and LUC, Scottish Natural Heritage with the Countryside Agency, 2002.
 - Topic Paper 6 Techniques and criteria for judging Capacity and Sensitivity, Countryside Agency, Carys Swanwick and LUC, 2003.
 - The LANDMAP Information System, Countryside Council for Wales, March 2012.
 - Landscape Character Assessment, Guidance for England, Scotland and Wales (consultation draft), LUC, Natural England, Scottish Natural Heritage and Countryside Council for Wales, 2011.
- 2.8. Many of these publications are to be updated shortly but it is understood that the principles relevant to this study are likely to remain unchanged. They are referred to in the text and appendices as appropriate below.

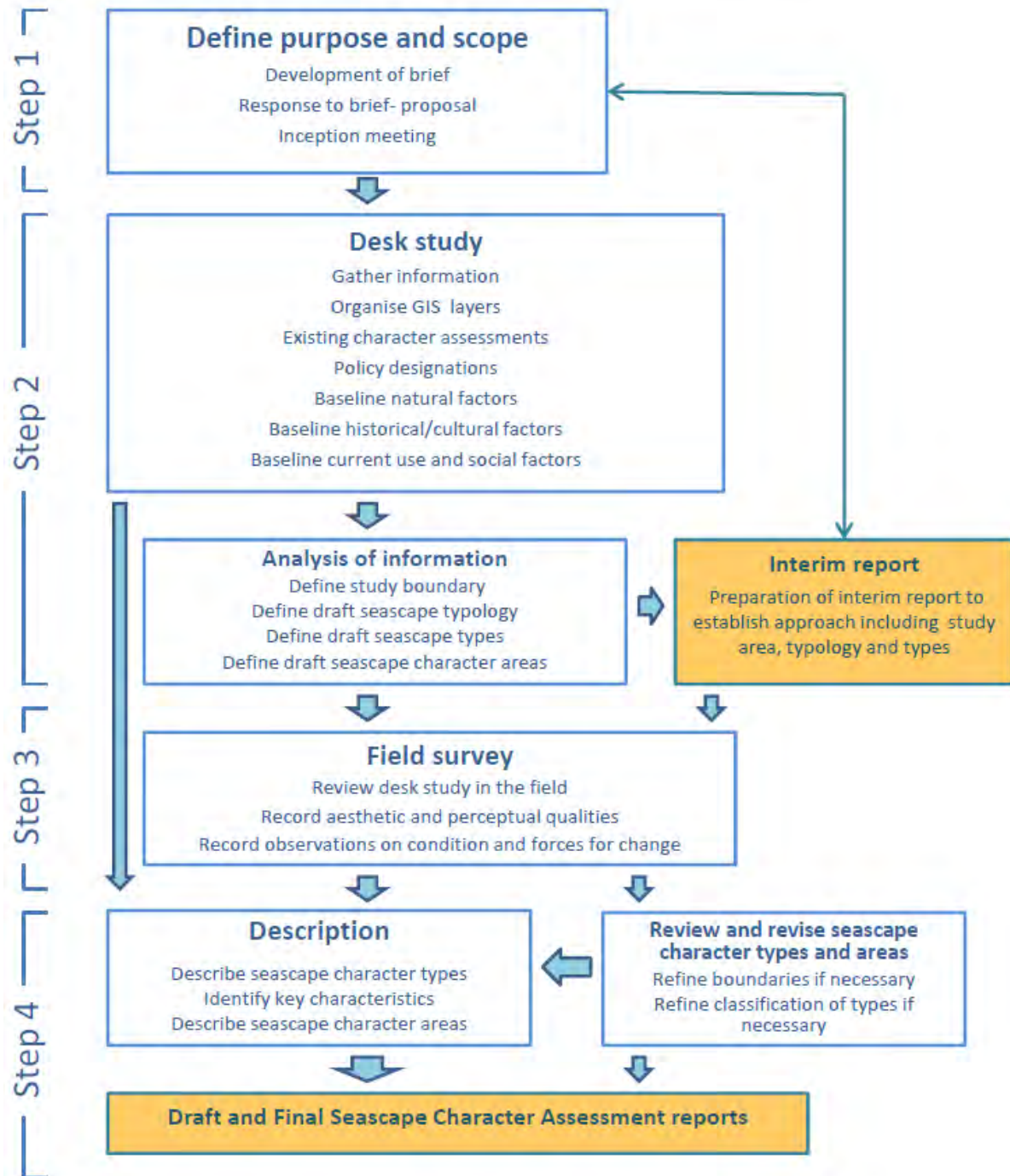
Approach to collection of data and mapping

- 2.9. Data for the study has been provided by CCW, PCNPA and Pembrokeshire Coastal Forum as defined in **Appendix A**. The data provided and suggested from other sources covers a very large range of information. Some of the data has been found to be essential for defining SCTs whilst other data has been useful in defining SCAs and assisting in their description. Not all marine data necessary has been available and some time has been needed to explore sources and availability. It is hoped that this study defines more clearly what is required for an SCA. The Appendix notes the key datasets.
- 2.10. Some GIS information from parties other than CCW include:
- Conservation areas- Pembrokeshire Coast National Park
 - Wales Activity Mapping- recreational activity available from Pembrokeshire Coastal Forum (PCF) acquired at an additional cost.
- 2.11. Non-GIS information from the UK Coastal Atlas for Recreational Boating prepared by the Royal Yacht Association (RYA) has been used in descriptions of marine use of each SCA. Seazone GIS and web data (including www.wrecksite.eu) on marine wrecks has provided information in sufficient detail to make unnecessary the use of chargeable data from Royal Commission on the Ancient and Historical Monuments of Wales (RCAHMW).

Study process

- 2.12. A flow diagram of the process is shown in Figure A. This shows the series of tasks and reporting undertaken.

Figure A: Flow Chart of Study Process



- 2.13. The interim report was important to set out the framework for the assessment and to define a typology. Feedback from the client steering group then informed the refinement of the SCTs and definition of SCAs. In practice there has been an ongoing dialogue between the consultant team and client to guide study

- boundaries, SCAs, draft SCA descriptions and presentation. This has proved invaluable.
- 2.14. A multi-disciplinary team has addressed the various aspects of the assessment coordinated by a landscape architect/seascape specialist. The aspects have included geology/marine and coastal processes, cultural and historical factors, marine and coastal uses including tourism and recreation, seascape, landscape and visual factors and GIS. GIS has been used to help define the SCTs as mentioned above and expanded on below. Existing studies and GIS datasets have been used to provide the basis for the draft boundaries, context and description for each SCA. In practice, the study has been iterative with refinement of boundaries and descriptions dependent on information feeding into the process.
- 2.15. Site survey work has been undertaken by two seascape specialists. The purpose has been to refine SCA boundaries if necessary, to explore aesthetic and perceptual qualities and to note forces for change and potential sensitivities. Representative viewpoint locations have been chosen, coinciding with SCAs and their boundaries where possible to optimise efficiency. Structured fieldwork sheets have allowed the characteristics and use of the area to be noted as well as the aesthetic and perceptual experience. A sample is shown in Appendix H. Representative photographs have been taken from each viewpoint except on a few occasions when rain prevented this. The site visits in the winter season has meant that the area has been observed when not being used as fully as in the summer and weather and poor sea conditions have led to survey work being primarily onshore. This is mitigated by the team's local knowledge through living and working in the area and by datasets such as the Welsh Activity Mapping [WAM] dataset. The coastal visits have covered the majority of the coast and Daugleddau/Milford Haven, omitting only a small number of areas for which the study team had prior detailed knowledge through previous site work for other landscape or seascape related projects or through leisure use over a long period. The site visits were generally carried out in acceptable visibility for LCA/SCA work although there were intermittent periods of rain as already noted. One sea trip was undertaken which ran from Milford marina out to the middle of St Brides Bay covering intermediate areas including SCAs 24, 25, 26, 28, 31 and 32. This has given an indication of sea conditions, marine seascape character and the visibility and perception of the coast and its influence at different distances. Team members have previously travelled across Ramsey Sound as part of an SVIA and around Ramsey Island [SCAs 17 and 18]. Overall, the combination of site visits, knowledge of the area and desk study is considered to have been sufficient to inform the study to the appropriate level of detail.

Defining boundaries

- 2.16. The parameters governing the study area boundaries are defined in Appendix 2 of the brief. In terms of the marine extent, we include regional seascape units 28-41 to include the National Park and its setting. The study area is 12 nautical miles (nm) out from the coast and islands such as the Smalls, defined by a line 90 degrees from the coast from Cardigan Island to the north and Pendine Sands to the south east [see **Figure1**].
- 2.17. Discussion of the inland extent with the client steering group at the inception meeting indicated a desire that the inland boundary should include land which has a strong visual relationship with the sea/tidal waters, not just coastal landscape character types such as dunes or cliffs. Areas with some intervisibility with the coast could be excluded. The inland extent has therefore been defined by overlaying 1:25,000 OS mapping, the LANDMAP visual and sensory layer, the CCW dataset of land with intervisibility with the sea and Phase 1 intertidal

habitats which define the tidal limits. Google Earth with Street View has further informed boundaries.

- 2.18. Initially areas with a high intervisibility with the sea were mapped (red or orange graded squares in the mapping). This line sometimes went inland, eg at Mynydd Carningli, and sometimes ran close to the coast where there was a coastal plateau. For the areas bounding the Milford Haven, areas of lower visibility (blue squares) were marked as they only had views of the inland waters rather than the open sea and therefore would have a lower rating. Nevertheless they would contribute to seascape. Areas with visibility of the sea but not connected to the coast or with weaker intervisibility were not included. These coarse boundaries were then refined by studying and responding to the landform including high points and ridgelines. The extents of the tidal areas were then checked so that they were included in the study area. The boundaries were then rechecked against the visibility mapping and using Google Earth street view in areas of uncertainty. In some areas such as peninsulas [ie Marloes and the western end of the St David's peninsula] all land has been included due to the highly maritime, exposed character of the landscape. The terrestrial types have been defined up to this inland boundary.

Deriving seascape character types (SCTs)

- 2.19. A draft typology of marine, intertidal and seascape character types with a proposed nomenclature was prepared and submitted as part of the interim report. This built on the CCW pilot study in Anglesey/North Wales, knowledge of Wales seascapes and coastline overall, LANDMAP and of the Pembrokeshire marine and coastal environment. It also reflected the requirements of the brief. A different approach was taken for each of the three categories which is explained below.

Deriving Marine SCTs

- 2.20. The marine SCTs differ from the NECR105² approach as they form 'building blocks' from which the proposed SCAs will amalgamate. (In NECR105, types are generic classifications which may cover a number of large areas which themselves are individual SCAs.) The types are also proposed to be at one level, the local authority level, reaching out to sea the full 12nm offshore. This is because the Regional seascape study has used a different approach to the marine element of the study area and it is considered that confusion may result if these areas/units were also called 'regional'. This also differs from the 2001 CCW guidance which suggested that seascape assessment should only reach 1nm offshore.
- 2.21. The SCTs extend from the 12 nm limit to the edge of the intertidal types which were defined first. It was decided that the prime drivers of difference in marine character were the physical characteristics of bathymetry, sea bed sediments and bedrock, and wave climate. From this, other secondary characteristics would flow such as sea use which has been used as a contributor to the definition of types elsewhere. For instance, sandbanks would tend to have shallow water and higher waves and would be avoided by boats/shipping. Deep water high wave coasts would tend to be avoided or used in a limited way eg Strumble Head coastal waters. Coarse sediment or bare rock on the sea bed such as in Ramsey Sound indicates higher water energy whilst fine sediments such as

² An approach to Seascape Character Assessment, (NECR105), Natural England, Scottish Natural Heritage and Countryside Council for Wales, 2012.

mud indicate low energy, such as the middle of St Bride's Bay, where tankers anchor. The three main drivers were subdivided as follows:

- Shallow depths 0-30m, moderate depths 30-60m, and deeper waters >60m.
- Sea bed sediments ranging in grain size from gravel to sand to mud and bedrock exposed on the sea floor towards islands/islets. Sea floor sediment is contributed to by erosion, lost through depositional processes, and may be transported by currents along the coastline.
- Wave climate - relating to exposure (wind), tidal and current conditions

2.22. The following data has been used to inform the classification:

- BGS Bath250- for Bathymetry/depths of water- available via CCW
- BGS DigMap250- for sediment seabed geology- available from BGS eventually via CCW.
- Wave climate from data obtained for CCW by LUC in a pilot study.

2.23. Types were defined and then further qualities were added to each type to further inform potential seascape character area boundaries. These were:

- Sea floor topography - slopes, channels/troughs, islets.
- Turbulence
- Bedrock type

2.24. The typology was tested on two pilot study areas: Ramsey Sound and the mouth of Milford Haven. The technique picked up a mix of fine grain areas such as the three types in the tidal strait of Ramsey Sound, which slopes into a central trough and is more steeply shelved and sheltered on the west side than the east. Similarly, the area across the islets W of Ramsey has NE-SW lines of islets flanked by shallow slopes, controlled by igneous bedrock geology, and separated by a deeper channel presumably used by shipping. In the Milford test area, the seaward limit of the estuary mouth was placed at the 30m depth contour which also subsequently was found to coincide with the extent of the Milford Haven Harbour Authority Area. The types therefore appeared to usefully differentiate areas as a suitable building block for SCAs.

2.25. There are 26 marine types spread across 81 defined SCTs. The relationship between the drivers/factors can be discerned in **Figures 2, 3 and 4** and the numbered SCTs are summarised in **Figure 14**.

Deriving Intertidal SCTs

2.26. The brief stated that Intertidal types should be defined by the Phase 1 habitat intertidal dataset. This is an extremely detailed, fine grain and apparently accurate dataset and was therefore used to define the limits of the marine and terrestrial types on either side. As the dataset was quite complex such as differentiating between different types of rocks in narrow bands along rocky shores (eg high, medium and low energy littoral rocks) it was decided to amalgamate these into simpler categories which make sense at a seascape scale. The types were defined as:

- Mud
- Sand and shingle
- Rock

- Saltmarsh or saline reedbed
- Biogenic reef.

Deriving Terrestrial SCTs

2.27. Terrestrial types are based on LANDMAP Landscape Habitat aspect Level 3 layer which complements the intertidal layer in terms of its Phase 1 derived source material but is at a larger, landscape scale. The aspect areas have been rationalised and amended to obtain a reasonable grain of landcover definition without new digitising. This has meant that small scale settlements have not been defined but these are considered within the SCA description. The types are defined as:

- Sand Dune
- Beach/rough ground above High Water Mark
- Coastal heath and grassland mosaic
- Maritime cliff and slope
- Grassland and semi-natural mosaic
- Grassland mosaic (MOD range)
- Tall Herb and Fern (Bracken)
- Heathland
- Broadleaved woodland and scrub
- Mixed woodland and scrub
- Coniferous forest
- Woodland mosaic
- Mixed farmland
- Mixed farmland and woodland
- Improved grassland with woodland
- Pastoral farmland
- Grazing marsh
- Wet mosaic
- Mire and Swamp
- Open water
- Built up area
- Built up (industrial)
- Built up (port)
- Built up (resort)
- Amenity

Overall comments on types

2.28. The full typology is as set out in **Appendix B**. The types reflect the scale and character of the underlying seascape/landscape. Marine types are generally larger scale further from the coast with smaller areas along more complex

stretches of coast such as around islands. Intertidal types are generally very narrow, especially along rocky coasts and are not apparent on larger scale maps. Terrestrial types vary in scale with farmland and pastoral types covering large areas of hinterland extending to the coast in places. There are smaller areas of the important coastal and dry mosaic areas dominated by semi-natural habitats.

Deriving Seascape Character Areas

- 2.29. The boundaries of the seascape character areas [SCAs] have been primarily driven by the marine SCTs as these define the character of both the marine areas and the coast with different geological formations. These in turn dictate coastal and sea use to a large extent. The brief required coastal SCAs to include coast and marine components along with the relevant hinterland. Purely marine SCAs were also expected. The boundaries of each coastal SCA running inland is primarily defined by landform and geology or the viewshed separating adjacent SCAs. The intertidal and terrestrial types have generally not been definitive in determining boundaries and SCA boundaries therefore divide up these types which have been split in GIS layers as requested by the brief. The types have informed the descriptions for each SCA.
- 2.30. The SCA boundaries overlap regional seascape area boundaries as the latter relate to visual divisions based mainly on major headlands rather than on the detailed character of the coast itself. For instance, the strong distinctive headland of Dinas Head, with its shallow conglomerate seabed, is proposed as a local SCA in itself but is divided into two by the Regional Study as it is a dividing line between Fishguard and Newport Bays. This is an acceptable approach on both counts as the two assessments have different purposes. The regional study is mainly focussed on the visual relationship between sea and land and the potential effects of offshore development with units nominally extending out to sea 24km and inland 10km. The local study is primarily concerned with the inherent qualities and characteristics of smaller coastal and marine areas. The headland and associated sea is different in character from the more sheltered bays either side.

Aesthetic and perceptual factors

- 2.31. Aesthetic and perceptual factors are important in undertaking a character assessment. This information cannot be fully researched as part of the desk study and so has been collected as part of the site survey. Whilst aesthetic terms can be collected in a reasonably objective way, perceptual terms are more subjective. Both rely on the professional judgement of the surveyor. The assessment is structured in a systematic way to produce as consistent a survey as possible. In order to achieve this, each term has been defined and a sample illustration prepared for aesthetic terms. The latter cannot hope to capture all instances but relates to certain scenarios which may occur in the study area. The terms have been used as a checklist for the site survey forms/SCA descriptions. They derive from seascape guidance in England and Wales, landscape character guidance and the Skye and Lochalsh landscape character assessment (LCA). The definitions are derived and adapted from LANDMAP guidance (2003) where possible to try to achieve consistency between the assessments. The proposed terms and definitions are shown in Appendix F.



Barafundle Bay

3. Overview of the Pembrokeshire Seascape

- 3.1. The LDP provides a suitable introduction to the Pembrokeshire Coast National Park seascape stating that it:

'is widely recognised as Britain's only predominantly coastal National Park. The splendour of its coastline, the influence of the seascape, its spectacular scenery, and rugged, unspoilt beauty, provide a scenic quality which was recognised in its designation as a National Park along with the spectacle of the islands off the Pembrokeshire coast.' [4.58]

- 3.2. The study area coastal boundary runs from the Cardigan Island on Cardigan Bay to the north to the Taf estuary area on Carmarthen Bay to the south. It is on Great Britain's remote western seaboard facing the Atlantic Ocean/Celtic Sea due west, St George's Channel to the north east, Cardigan Bay to the north, and Bristol Channel to the south east and east. The sea and coast are exposed to, and often governed by, the prevailing south westerlies. The area's resulting distinctive maritime climate means the weather is almost always different from that occurring further east in the UK. The area's distinctive and varied rock formations interact with the force of the sea and weather to create a wide range of dramatic seascapes.

Physical influences

GEOLOGY AND COASTAL FORM

- 3.3. Pembrokeshire has virtually continuous exposure of rocks in cliffs, headlands and bays around its long coastline. It is an area rich in rock types and formations, with varied character and used extensively for the study of geology.
- 3.4. The rock succession spans from late Precambrian (<650 Ma (million years ago)) to late Palaeozoic (285 Ma). The offshore bedrock, beneath the sea floor sediments, is overlain by younger rocks. The rocks in Pembrokeshire show the effects of ancient mountain building episodes that uplifted, deformed and eroded rocks, leaving characteristic structural trends that control the direction of the landform. More recently, repeated glaciations have further shaped the landscape leaving sediment deposits. In the last glaciation (18,500 years ago) north Pembrokeshire to St Bride's Bay was covered by ice, but southern Pembrokeshire remained ice-free.
- 3.5. Precambrian rocks are exposed only in small areas along the southern St David's peninsula. They comprise metamorphosed sedimentary rocks and intrusions. Cambrian marine sandstones and shales are also well exposed on the St David's peninsula e.g. Solva. In the Ordovician era, thick successions of deeper water shales with graptolites (e.g. Abereiddi), and turbidites (e.g. Poppit Sands) were deposited with high cliffs on the north coast reaching 150mAOD around Pen yr Afr. Spectacular Ordovician sandstone cliffs reach 140mAOD around Penbwchdy. There was also widespread volcanic eruption and intrusion of magmas. The resistant igneous rocks include the spectacular pillow lavas of Strumble Head with cliffs 50mAOD high, the rhyolitic rocks on Ramsey Island, and form prominent tors (e.g. Carn Llidi at 181mAOD high -St David's Head gabbro, Garn Fawr at 213mAOD high and Penbiri). The islets of the Bishops and Clerks are mostly igneous, representing continuation of this pattern into offshore areas. Local volcanic activity centred on Skomer Island. The Marloes peninsula has extensive coastal exposure of these rocks, while their offshore continuation is shown by the islands/islets of Skomer, Grassholm and the Smalls. The siltstones, limestones and sandstones of the period were formed in warm shallow, fossiliferous seas (brachiopods, corals). Towards the end of the Silurian a transition from marine to non-marine conditions is shown by the change to red-

bed deposition of the Old Red Sandstone (e.g. St Anne's Head at 46mAOD high, Freshwater West with its wave cut platform, Freshwater East and Pendine). This continues into the Devonian, represented by red sandstones and mudstones laid down on coastal plains, mudflats, salt marshes and in braided rivers. These terrestrial environments were inhabited by early plants, armoured fish and amphibians. The collision of continents created folds and faults which is widely evident in the cliffs of north Pembrokeshire (e.g. Abereiddi Bay).



High cliffs at Penbwchdy

- 3.6. Upper Devonian sedimentation continued in red beds, representing sediment deposited in rivers and on floodplains as the mountains eroded. The Carboniferous saw a return to marine conditions, with the Carboniferous Limestone laid down with shoals and lagoons (rich in corals, brachiopods). The Limestone forms prominent headlands and is exposed in steep coastal cliffs in south Pembrokeshire (e.g. Linney Head at 40mAOD high, Trevellen, Stackpole at 35mAOD high). This limestone coast displays distinctive erosion features such as stacks, caves, arches and blowholes. In mid to late Carboniferous times sedimentation changed to sandstones and mudstones of rivers and delta plains vegetated by giant ferns and horsetails. The peat swamps form the source for coals of the Coal Measures (Pembrokeshire Coalfield). Further continental collision led to the uplift resulting in east-west folds and faults, well seen in south Pembrokeshire (e.g. Ladies anticline at Saundersfoot, Stackpole, West Angle Bay).



Carboniferous limestone cliffs: Whitesheet Rock

- 3.7. Younger rocks (Permian, Mesozoic and Cenozoic) are preserved in the offshore bedrock. Triassic terrestrial sandstones, and Jurassic marine mudstones and limestones, are comparable to the rocks seen along the Vale of Glamorgan coast. Triassic rocks form the offshore bedrock in the Bristol Channel SCAs. They are cut by many east-west stretching faults formed during subsidence of the Bristol Channel basin. Cretaceous sea levels were exceptionally high, and the coastal plateaus of headlands in west Pembrokeshire (e.g. seen from tors like Carn Llidi) may represent wave cut platforms from that time. Cenozoic rocks – sandstones, mudstones and lignites – form offshore bedrock in the west of the study area. Uplift led to sea levels higher than today over Pembrokeshire, leading to marine erosion that shaped the present landscape. Offshore bedrock is faulted north east-south west, and north west-south east. The Milford Haven Cleddau estuary drainage system formed at this time.
- 3.8. Quaternary glaciations over the past <450,000 years led to Irish Sea ice crossing into western Britain to various extents. Sea levels in glacial and interglacial periods ranged <50 m lower to <5 m higher than today across Pembrokeshire. A glacial meltwater channel is preserved at Cwm Deri by Dinas Head, while the raised shingle beach behind Newgale represents interglacial sea level rise.

MARINE AND COASTAL PROCESSES

- 3.9. Coastal processes today continue the modification of coastal form and seascape character. Processes include wave action, sediment movement on-offshore or along the shore [longshore drift] and fluvial sediment supply from rivers into estuaries. Wind and wave action cause erosion through abrasion, attrition and hydraulic action and transport and deposit sediment through traction, saltation and suspension. The prevailing south westerlies and movements of tides and currents cause wave and wind erosion particularly on the exposed west facing coasts. The protruding St David's Peninsula and Ramsey and the Marloes Peninsula and Skomer with associated islets are an indication of the harder rocks, still battered by high energy waves. The softer rocks comprising the deep St Brides's Bay coast between continue to erode faster as do the dunes in exposed locations such as Freshwater West. Shores where sedimentation occurs include Carmarthen Bay also accumulating from sediment from the Taf/Twyi estuary. Longshore drift occurs along the southern coast generally from west to east with groynes installed to attempt to control this around Amroth. Currents between islands keep these scoured with the central channel in Ramsey Sound eroded to a great depth.
- 3.10. The sea has a very wide tidal range typically between 4.1m to the north at the Teifi estuary, 5.5m at Ramsey Sound and 6.6m east of Milford Haven. At high water (HW) the tidal flow is from east to west along the Bristol Channel and from the north east along St George's Channel. Tidal flows reach their maximum three hours before HW where flows run east west along the Bristol Channel and sweep north round into St George's Channel and Cardigan Bay. The flow is reversed three hours after HW where flows are strongly in the opposite direction. This causes turbulence in some areas such as around St Annes Head and at the mouth of Milford Haven with a confusing sea and swell. To the west of Skokholm there are fast tidal streams up to 4 knots and tidal races (Wildgoose Race), and eddies off Gateholm. The tide flows through constricted areas such as Jack Sound, between Skomer and the Marloes peninsula, and through Ramsey Sound with upto a 6 knot tidal race with gyres.
- 3.11. Higher waves occur where there is shallower water. This occurs on the coast, around the islands and islets including the Smalls and Gateholm and the Bishops and Clerks and where there are shallow sand bars. Waves tend to be higher on

the west facing coasts and lower along Carmarthen Bay and the adjacent sheltered south east facing coast such as at Lydstep and Saundersfoot.



Waves at Broadhaven

MARINE AND COASTAL BIODIVERSITY

- 3.12. There are numerous Special Areas of Conservation (SACs) including Pembrokeshire Marine, Cardigan Bay, Carmarthen Bay and estuaries, Cleddau rivers and the Limestone coast of South West Wales. Special Protection Areas (SPAs) include Ramsey and St David's peninsula coast, Skokholm and Skomer, Grassholm, Castlemartin coast and Carmarthen Bay. There is a Marine Nature Reserve around Skomer which is likely to become a Marine Conservation Zone (MCZ) under the Marine and Coastal Access Act 2009. National Nature Reserves lie on Ramsey, Skomer, Skokholm, Grassholm and Stackpole. Together these designations cover 75% of the coastline and around 60% of the inshore area (see Figure 7).
- 3.13. The maritime habitats include the water column itself and seabed areas of gravel and sand interspersed with submarine cliffs, rocky reefs, stacks and islets.
- 3.14. The water is home to local species of harbour porpoises, bottlenose dolphins, and Atlantic grey seals along with numerous fish species. The seals can be observed resting on isolated beaches or shelving rocks on the more westerly parts of the coast and use the caves and beaches for rearing pups. The harbour porpoises can be seen in places such as Ramsey Sound. Other species visit including sharks, orcas, blue whales and turtles although these are much rarer sightings. All these animals significantly enrich the experience of the seascape and attract many visitors.
- 3.15. The islands and parts of the mainland support a variety of seabirds including gannets on Grassholm, manx shearwater and peregrine falcon, chough, skylarks and stonechat on coastal habitats. The coastal waters provide overwintering areas for grebe, scoter duck and other diving species. These birds often animate the view from the coast path and boats and again attract many visitors.
- 3.16. The sand and gravel seabed is inhabited by surface and burrowing animals such as crabs. The underwater cliffs and reefs accommodate brown kelp, red seaweed, sponges, sea squirts and anemones amongst other species.
- 3.17. The coastal habitats are littoral rocks and beaches with varying degrees exposure and immersion leading to distinctly different communities of plants and animals such as seaweeds, anemones and molluscs.
- 3.18. The estuarine muds support worms and molluscs on which waders and wildfowl feed. Milford Haven and the Daugleddau estuary have high biodiversity and the former hosts eel-grass beds and saltmarsh and a coastal lagoon lies at Gann, Dale. The area is an important feeding ground for wildfowl and waders such as

wintering teal, widgeon, curlew and shelduck. Otters are found on the Cleddau. Migratory fish including sea trout and salmon are found in many watercourses, most famously on the Teifi.



Lagoon at Dale

- 3.19. Exposed coastal habitats of cliff top grasslands and heath support a rich weave of plants including thrift, sea campion, sea plantain, spring squill and red fescue. These bring colour and texture to the rocky cliffs and slopes adding extra pleasure to coastal walks. On more sheltered slopes bracken is apparent, sometimes providing shade to carpets of bluebells, primroses and red campion.
- 3.20. Woodland and scrub reaches the coast in places with associated species, often in incised valleys with watercourses which have wound inland through the plateau to the coast. These add to the diversity of the coastal habitats.

Cultural influences

HISTORICAL

- 3.21. Pembrokeshire's coastline is long and its harbours are good. It juts out into ancient seaways - not only the busy mouth of the Bristol Channel and the sweep of Cardigan Bay but also into a north-south route that encompasses Ireland and western Britain, one that was known to classical antiquity and to the Norseman.
- 3.22. The seascapes of Pembrokeshire have evolved over millennia. The intervisibility of shore, hillslope and sea was clearly significant to the people who erected the Prehistoric monuments in which Pembrokeshire is particularly rich. An example is Mynydd Carningli with its commanding views over Newport Bay. The area also has 54 enigmatic Prehistoric promontory forts, the densest concentration in Wales, though many of these have nearly been lost to wind and water- Flimston Bay, one of the most spectacular, Great Castle Head at Dale and Porth y Rhaw have all been badly eroded. Conversely, sands may have covered important archaeological sites - a Roman port and an early Christian centre, the predecessor of St David's, may lie under the dunes of Whitesands Bay.
- 3.23. The cathedral and the coastal chapels are eloquent reminders that the sea was the great route of the early Christian church in Wales and Ireland - St David's was only 'remote' from the perspective of London or Canterbury. The monastery on Caldey island perpetuates this tradition.
- 3.24. The sea has also had a powerful impact on strategy and historical events. Milford Haven was the landing-place of Henry Tudor, Henry VII, the *mab darogan* who marched from here to defeat Richard III at Bosworth Field. The landing is obliquely referred to in the court-drama *Cymbeline*, when Imogen, on hearing that her exiled husband may await her at Milford Haven, says:

'... how far it is

*to this same blessed Milford; and, by the way,
Tell me how Wales was made so happy as
To inherit such a haven ...'*

- 3.25. Milford and later Pembroke Dock were the sites of royal navy dockyards from the eighteenth/nineteenth centuries until the late twentieth. There is a particular cluster of defensive sites all around the coast of Pembrokeshire, more marked than in any other area of Wales. From the time of Thomas Cromwell, its overall strategic importance has been recognised - though the French landing at Strumble Head was easily repulsed. Naval ship-building was established at Neyland c. 1760 and at Milford Haven in 1796. It was relocated to Pembroke Dock in 1812, which became one of the most important naval ship-building centres in Britain. Facilities were substantially extended in 1830-32 and again in 1844. Such was the area's importance in strategic terms that forts were built to guard the Haven from possible attack by the aggressive government of Napoleon III. Decline set in after the introduction of the Dreadnoughts and the dockyards finally closed in 1926. Civilian dockyards were also established here. During World War II Pembrokeshire played an important role in the Western Seaboard Defences strategy, when there were twelve airfields in active operation. Remains are still apparent such as the look out on Carn Llidi.



The mouth of Milford Haven

- 3.26. Above all, the coastline has shaped the trade and commerce of the area. Haverfordwest was established at the navigable head of the western Cleddau. Ship yards and creeks were established along the coastline, and the area preserves many fine examples of the small ports that are a feature of the Welsh coast. Lime was quarried from its coastal cliffs, and burnt in sea-shore. Pembrokeshire also had a long-lived coal industry. Some of its collieries such as Trevane, were situated on the coast. Others lay further inland; those around Saundersfoot only developed when a railway was built to connect them with the harbour, in 1829. The ironworks at Stepside also added to coastal trade. Coastal slate quarries were opened along the north coast, of which the largest was Abereiddi, where the pit has been breached by the sea. Slate was exported from Porthgain harbour which later turned to brickmaking using slate waste and then dolerite export. Fishing has been an important regional industry - Milford even boasted a whaling industry at one time. With the introduction of a rail link to wider markets and refrigeration, it expanded to become a major fishing port.
- 3.27. The refineries and oil terminals which began to appear in Milford Haven from 1957 locked the area into a global economy. Other energy-distribution projects have taken their place since, and the sea remains as important to Pembrokeshire as ever.

PRESENT DAY MARINE AND COASTAL ACTIVITIES

- 3.28. Pembrokeshire is established as a popular tourism destination especially around its coast. These tourists are increasingly looking for coastal recreational activities whilst on holiday or coming to the area specifically to participate in such activities. The intensity of use relates to the ease of access with places allowing vehicle access close or on the beach being popular honeypots such as Tenby, Saundersfoot and Amroth to the south east and Newport Bay and Whitesands Bay to the north and west. Other coastal locations are very remote allowing access only by small boat. Activities can vary from general beach activities which are popular at the many good, clean beaches to the more strenuous activities of kite surfing, climbing, diving and coasteering which was invented in the area. The intensity of use is also determined by school holidays as well as the weather.



Caravans at Wiseman's Bridge

- 3.29. Coast walking along the Pembrokeshire Coast Path National Trail (part of the Wales Coast Path) and linked paths is very popular. Over 67,000 visitors used the coast path in 2012. The coast path is 300km long due to the highly indented and complex nature of the coast. Certain stretches are used more intensely than others- mainly those close to the honeypots such as Tenby and Whitesands Bay etc. Another popular recreational activity is kayaking due to the relative ease of access to the water. Other launchable craft that are popular are day motor boats and sailing dinghies out of most beaches with slipways. Sea angling is also popular from both the shore and boats which can go some way offshore.



Coast Path at St Justinians- a popular stretch

- 3.30. Wildlife related recreation trips are popular such as to Skomer Marine Nature Reserve and around Ramsey Island and out to Grassholm for its gannetry. Diving sites are also found in these areas due their biodiversity.

- 3.31. Motor and yacht cruising is found around most of the coast with a higher intensity near marinas and yacht clubs such as the Teifi Estuary to the north and Milford Haven Waterway and Tenby on the south coast.
- 3.32. The fishing industry in Pembrokeshire has moved away from historical deep sea trawling with many fishermen now looking to inshore fishing for crustaceans such as crab and lobster. This results in pots being found around practically any rocky shore.



Potting fishing vessel off Strumble Head

- 3.33. Commercial shipping on the Milford Haven Waterway, primarily of gas [LNG] and oil, along with the ferry terminal at Pembroke Dock, makes this area one of intense activity. This is further intensified with the leisure use.



Milford Haven- refinery

ART AND SEASCAPE

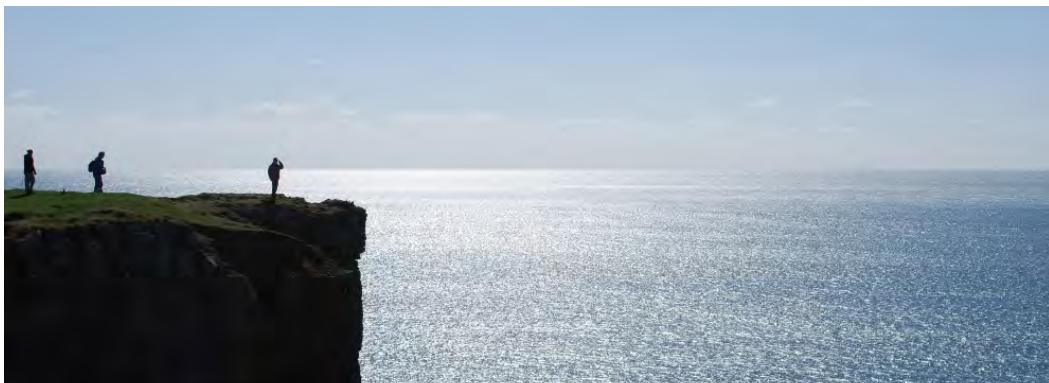
- 3.34. Pembrokeshire's spectacular seascapes have attracted artists in numbers from the 18th century. Peter Watson, of *Horizon* magazine, a patron of young artists, claimed that west Wales represented the closest approach in Britain to the strong light and elemental landscape of the Mediterranean.
- 3.35. Richard Wilson painted Pembroke town and walls c. 1765-6, and Julius Caesar Ibbetson's *The Guide to the Stackpole Scenery pointing to Stack Rock Pembrokeshire* (oil on canvas and water-colour and black ink, 1793) is one of the most explicitly topographical coastal views of the area from this period.
- 3.36. Augustus John is the artist best known for his Pembrokeshire associations, though he spent most of his life away from Wales. The area's seascapes have inspired many contemporary artists, though an increasing focus on abstraction has meant that fewer are works of recognisable places. John Piper, however, who painted *St Bride's Bay*, moved away from non-figurative art from when he first started to visit Wales in 1937, and came to be recognised as a landscape painter in the tradition of Turner. Rosemary ('Ray') Howard-Jones also worked

in a more representational style, reflecting her background in archaeological reconstruction drawing and as a war artist. *Sunset on Skomer* and *Thunderstorm over Skomer* reflect her visits to the island between 1949 and 1951. Graham Sutherland painted St David's Head and the surrounding area many times.

- 3.37. More recent artists include Brendan Burns who was the first Artist in Residence at Oriel y Parc, Landscape Gallery St Davids, 2009-10, a partnership between the National Park & National Museum Wales. His exhibition 'Influere' was held here. His paintings explore the qualities of the sea and coast with works with evocative names such as 'Seabelt shimmer', 'Squally squint', 'Shoreline ramble' and the 'Tidal' series. John Knapp-Fisher has established an art gallery in the area and has painted widely. Subjects include Tenby, Porthgain and Solva, as well as pictures such as 'Beach and Sky' which simply shows the juxtaposition of these two elements separated by the sea.

Aesthetic and Perceptual Influences

- 3.38. The overriding experience of the Pembrokeshire seascape is open and wild sea meeting diverse and sometimes remote indented coasts of rocky cliffs and shores interspersed with sweeping sandy bays and dunes and intimate little coves and harbours.
- 3.39. The scale of the coast varies significantly between the broad sweep of Carmarthen Bay to the narrow, enclosed harbours of Solva, Abercastle and Stackpole Quay. There are intermediate bays such as Newport Bay and Whitesands Bay with their sandy beaches, enclosed by the strong, distinctive headlands of Dinas Head and St David's Head respectively. These rocky landforms frame views out to open sea to the west. To the south, in good visibility, views are possible to Lundy Island.
- 3.40. The diversity of the seascape is apparent at all scales. At a broad scale adjacent areas can differ significantly. The straight open limestone cliff coast of the remote Castlemartin peninsula contrasts with the indented sandstone and igneous coast of the Dale and Marloes peninsulas with their beaches, and again with the natural industrialised harbour of Milford Haven to the north. At a smaller scale the intricate indented coast between Strumble Head and St David's Head changes quickly between rocky cliffs and shores of varying character with small inaccessible coves and a smattering of coastal settlements and harbours such as Abereiddy and Porthgain. At a detailed level, the variation of habitats from the littoral rocks, to cliffs and cliff top heathland mosaics contrasting with the hinterland of pasture with Pembrokeshire hedgebanks and steep wooded valleys give a variety of form and texture which delights all on the coast path.



Stackpole Head- panoramic views

- 3.41. The sea also varies in character, through variations in weather including wind direction, fetch, tides and depth of water and nature of the seabed. Strong

- currents meet around headlands such as St Ann's Head and flow through constricted areas such as Jack Sound, between Skomer and the Marloes peninsula, and Ramsey Sound. This disturbed water can be dramatic such as the standing wave at The Bitches and is apparent to those on the coast as well as those in boats. Larger waves and 'seahorses' are apparent around the islands and islets such as the Bishops and Clerks and the Smalls as well as on the exposed rocky coasts and west facing beaches such as the dramatic and dangerous Freshwater Bay West with its undertow and the rather safer Whitesands Bay and Newgale Sands, popular with surfers and body boarders. These contrast with the sheltered south and east facing beaches with their relatively calm waters such as at Tenby, Lydstep and Saundersfoot.
- 3.42. A key feature of the Pembrokeshire seascape is the feeling of remoteness, wildness and tranquillity in many parts of the coast. This is particularly apparent on the cliffs on the north coast between Cemmaes Head and Newport Bay, the coast around Strumble Head and St David's Head and the Castlemartin peninsula. These are mostly accessible via the coast path along the cliff tops although the rocky shores are often inaccessible. Castlemartin has restricted access due to MOD use which also disturbs tranquillity while in use. The islands can be more remote and some are inaccessible, such as Skokholm. Only small numbers access Skomer and Ramsey Island and these feel particularly wild with their low intensity management and semi-natural vegetation. Caldey Island has enforced tranquillity with the monastery and controlled visits. Of course the most remote areas are offshore where a few in boats, cruising, fishing or diving can feel like they are getting away from it all.
- 3.43. The busiest parts of the coast include Tenby, Saundersfoot and other coastal settlements to the south east and also honeypots such as Whitesands Bay and Broadhaven. These are the parts of the coast which children experience [and probably like] most. The beach is the focus of activity and visitors, young and old, can experience the sand between their toes, the coolness and movement of the water, the sound of waves crashing on the beach, the smell of the salt air and the wind in their hair. These are different experiences from our normal day to day lives and can give a feeling of refreshment and renewal. Evocative holiday experiences can stay with people for the rest of their lives and draw them back to the coast and the sea again and again to 'refresh their batteries'.
- 3.44. The Pembrokeshire coast and islands have a strong sense of place contributed to by both the natural splendour of the indented rocky coastline and islands and the mark of man such as peninsula forts eg Castell Coch, religious sites eg St Govan's Chapel and deserted workings eg Porthgain or Abereddy.



St Govans Chapel

4. Cultural benefits and services

- 4.1. Cultural benefits and services cover the non-material benefits that people obtain from ecosystems such as spiritual and religious enrichment, cultural heritage, recreation and tourism and aesthetic experience. The UK National Ecosystem Assessment, 2011, defines 'Ecosystem cultural services' as '*the environmental settings that give rise to the cultural goods and benefits that people obtain from ecosystems*'. These involve '*a range of complex cultural practices, such as the development of institutions, the application of capital, and human processes involving memories, motions, the senses, and aesthetic appreciation.*' The background to this is discussed further in **Appendix C**.
- 4.2. The Pembrokeshire seascape clearly offers these services in a number of ways. These are set out in **Table 1** as a framework for the brief descriptions for each seascape character area (SCA).

Table 1 Ecosystem cultural services provided by the Pembrokeshire seascape

<i>Generic service category</i>	<i>Typical components in Pembrokeshire seascape</i>
Leisure / recreation	<ul style="list-style-type: none"> walking the Coast Path, rambling, hill walking sailing, canoeing, rowing, windsurfing, surfing, kite surfing swimming, diving, snorkelling, rock-pooling, beach activities angling, shore-based and from boats wildlife boat trips climbing, coasteering horse riding/beach riding land yachting power boating, waterskiing, jet-skiing parks and play areas
Spiritual / religious	<ul style="list-style-type: none"> connection with sense of remoteness, tranquillity and timelessness/time depth connectedness with nature places of worship, monastery and retreat centres places with particular sense of identity for local communities
Artistic / cultural heritage	<ul style="list-style-type: none"> archaeological features such as promontory forts historic sites and buildings environmental education activity festivals and events food and farming traditions craft traditions museums, galleries, and visitor facilities to interpret the environment and cultural heritage
Natural heritage	<ul style="list-style-type: none"> interactions with or observation of wildlife (for example bird watching, seal watching, dolphin and whale watching) interaction with the natural coastal and marine environment as a leisure activity diversity of views, sense of spaciousness, and appreciation of aesthetic qualities

5. Forces for change

- 5.1. Forces for change have been considered in respect of how they affect the special qualities of the National Park. They can be divided into natural processes and climate change, marine/water based activity, coastal development and marine related activity and land management.
- 5.2. Natural processes include erosion of coasts, sedimentation and flooding. Though climate change is likely to have significant effects in the long term in relation to sea level rise and changing weather patterns the study focuses mainly on the existing evident and or likely effects over the next ten years. Sea defences can radically change the character of the coast from natural to one dominated by manmade structures.
- 5.3. The port of Milford is the third largest in the country and used by large tankers and other craft including ferries. The area is very popular for tourism and water based activity is increasing with sailing and motor leisure boating driven by new marinas being developed in Fishguard and Pembroke Dock, with other marinas and moorings also increasing capacity. There is also an increase in wildlife and boat trips, canoes and other craft. The emergence of potentially higher protection around proposed marine conservation areas such as Skomer may have implications as to recreational use and access. One of the major tensions in the National Park is the need to protect wildlife which flourish in the remote coastal waters, islands, cliffs and beaches whilst managing a variety of visitors who increasingly wish to enjoy and access these fragile areas potentially causing damage and disturbance. Offshore there are licensed areas for wind energy [Atlantic Array], for dredging, oil and gas and use by the MOD for firing ranges and military training. Ramsey Sound is being explored for tidal energy. These activities can have physical effects such as pollution or disturbance of sensitive areas but can also disturb tranquillity and a sense of remoteness.
- 5.4. The coast-based infrastructure related to marine commercial activity such as the refineries, storage facilities and power station along Milford Haven will continue to respond to more Liquid Natural Gas [LNG] and other changing requirements for energy. The area's chimneys and structures are already widely visible in the National Park. Onshore infrastructure for renewable energy may affect coastal character eg Ramsey Sound. The Coast Path, once a stand-alone attraction, has now been joined by an all Wales Coast Path which itself is gaining much promotion. This will potentially increase usage with attendant damage to the path structure through compaction and erosion. Coasteering and climbing plus beach based activities are putting pressure on the coastal resource with associated infrastructure, erosion, compaction and litter. Pressure is also increasing on the access points to the water for recreation.
- 5.5. Whilst the study concentrates on marine-related issues, the view along the coast, and its character, are partly defined by the management of landcover such as farmland. Changes to field boundaries with the removal of hedgebanks/replacement with fences and changes to intensity of management either with abandonment of fields or rough grazing or intensification from unimproved pasture to arable can have significant effects. The attractiveness of the area also leads to pressure for housing and tourist development and associated commercial enterprises. Onshore wind energy can also affect coastal character and may cause cumulative effects with port and oil/gas infrastructure.
- 5.6. The relevant forces for change are set out with further background explanation in the table in **Appendix D**.

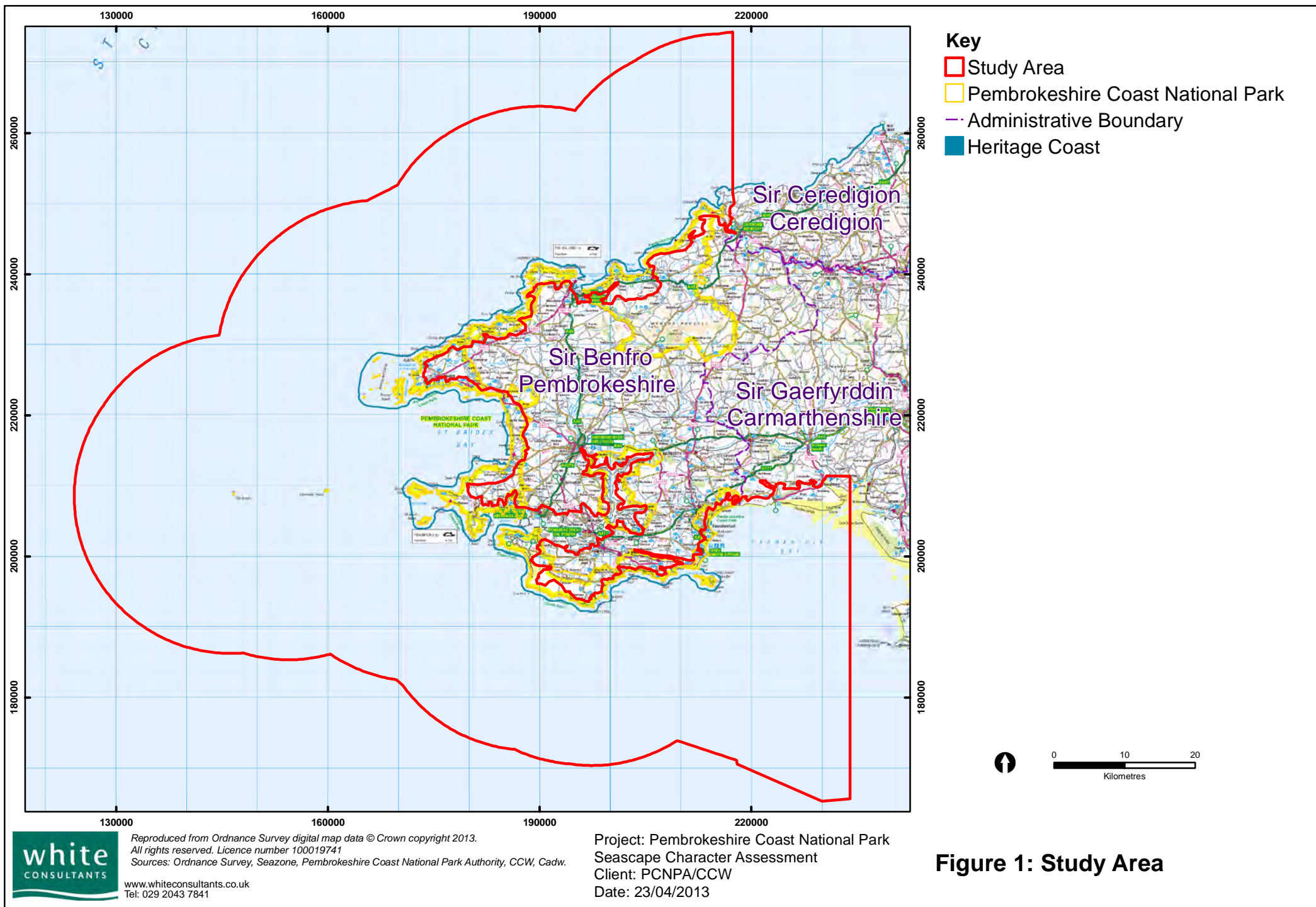
6. Sensitivity of seascape

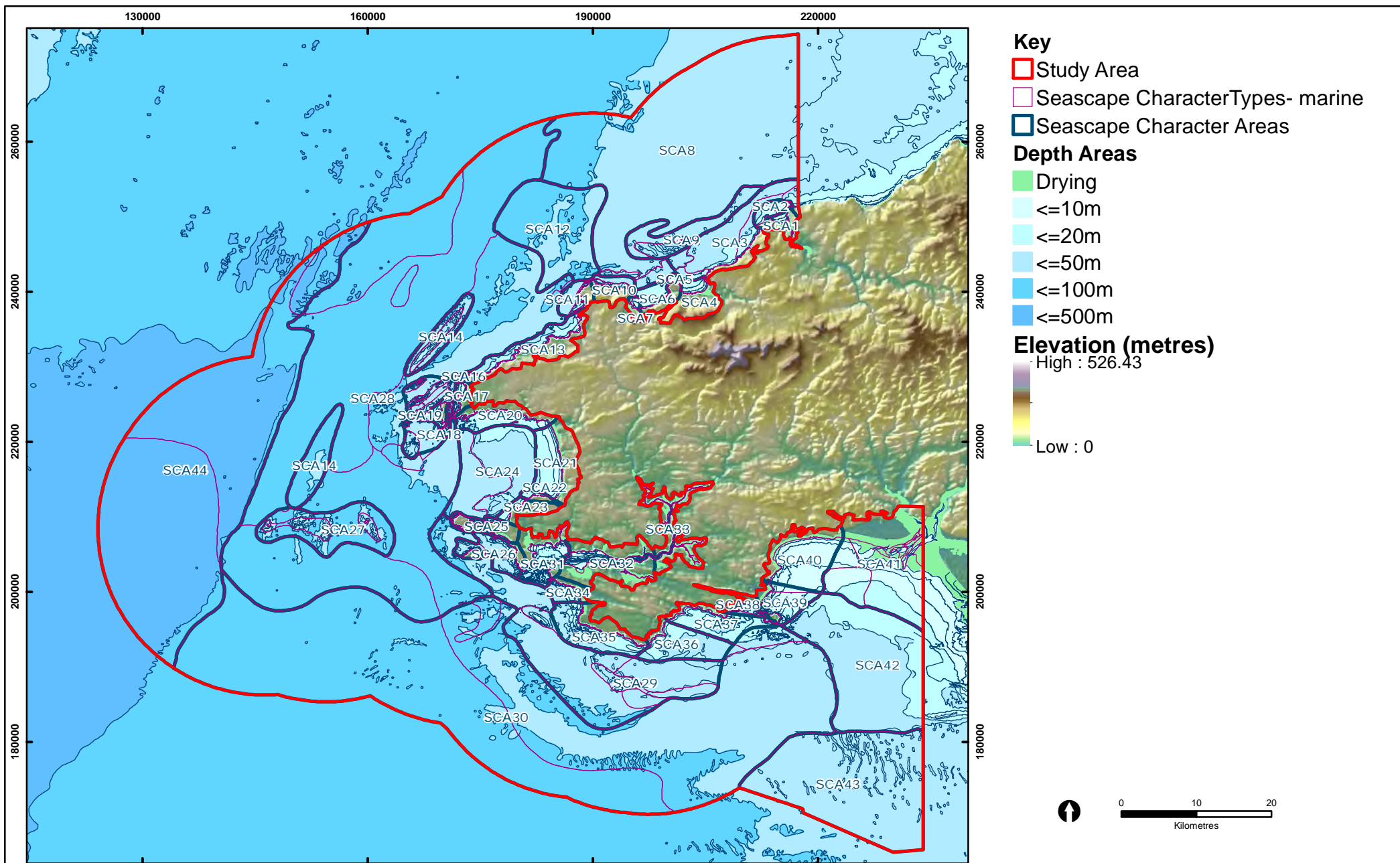
6.1. The sensitivity of the Pembrokeshire seascape to change was explored for each SCA and was found to be generally high. The key sensitive characteristics and features include:

- Intricate, complex, rugged, indented natural coast with dramatic headlands and islands eg St David's Head, Skomer, Ramsey Island, Strumble Head, Stackpole Head.
- Important focal points along the coast and out to sea including islands, islets, headlands and distinctive sweeping beaches such as Whitesands Bay, Freshwater West and Newport Bay.
- Unspoilt hills and backdrops which contribute to seascape character eg Carn Llidi and Mynydd Carningli.
- Views from key places such as headlands, coastal hills and the Coast Path.
- Open views to an unspoilt sea horizon reinforcing a sense of escape and space to breathe.
- Open sea and offshore islands and islets with limited, if any, signs of man.
- Small scale, enclosed, views to horizon framed by landform in the many coves and beaches such as Barafundle Bay, Broadhaven, Abereiddi and Newport Bay and also at St Govan's Chapel. Any development out to sea within this enclosed view could be particularly disruptive.
- Tranquil seascapes where there is little disturbance and signs of development and dark skies.
- Remote undeveloped seascapes with wild, highly natural, elemental character such as the islands, north coast south west of Strumble Head and Castlemartin peninsula.
- Secluded and tranquil, well treed character of the Daugleddau estuary with its historic quays.
- Small scale, traditional historic coastal settlements such as Solva, Abercastle, Porthgain and Newport, and harbours such as Porthclais and Stackpole Quay.
- Other coastal conservation areas with dramatic settlement features such as the skyline and harbour of Georgian Tenby.
- Presence of coastal and island historic features such as peninsula forts, castles, chapels eg St Govan, monasteries ie Caldey Island, other buildings and structures and other heritage features which have a strong relationship with the coast and sea visually, physically and culturally.
- Presence of marine, intertidal and coastal edge habitats with high biodiversity particularly the Skomer Marine Nature Reserve, National Nature Reserves such as Ramsey Island, SACs covering the majority of the coast and out to sea around the Smalls, Carmarthen Bay SPA and coastal SSSIs.
- The connections of the area with St David and Giraldus Cambrensis and other historical figures.

6.2. These sensitivities are set out in more detail for each SCA informed by the factors influencing sensitivity summarised in **Appendix E**. This also sets out those factors which tend to detract from sensitivity in some areas.

SUMMARY FIGURES





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 Sources: Ordnance Survey, Seazone, Pembrokeshire Coast National Park Authority, CCW, Cadw.

www.whiteconsultants.co.uk
 Tel: 029 2043 7841

Project: Pembrokeshire Coast National Park
 Seascape Character Assessment
 Client: PCNPA/CCW
 Date: 23/04/2013

Figure 2: Bathymetry & Topography

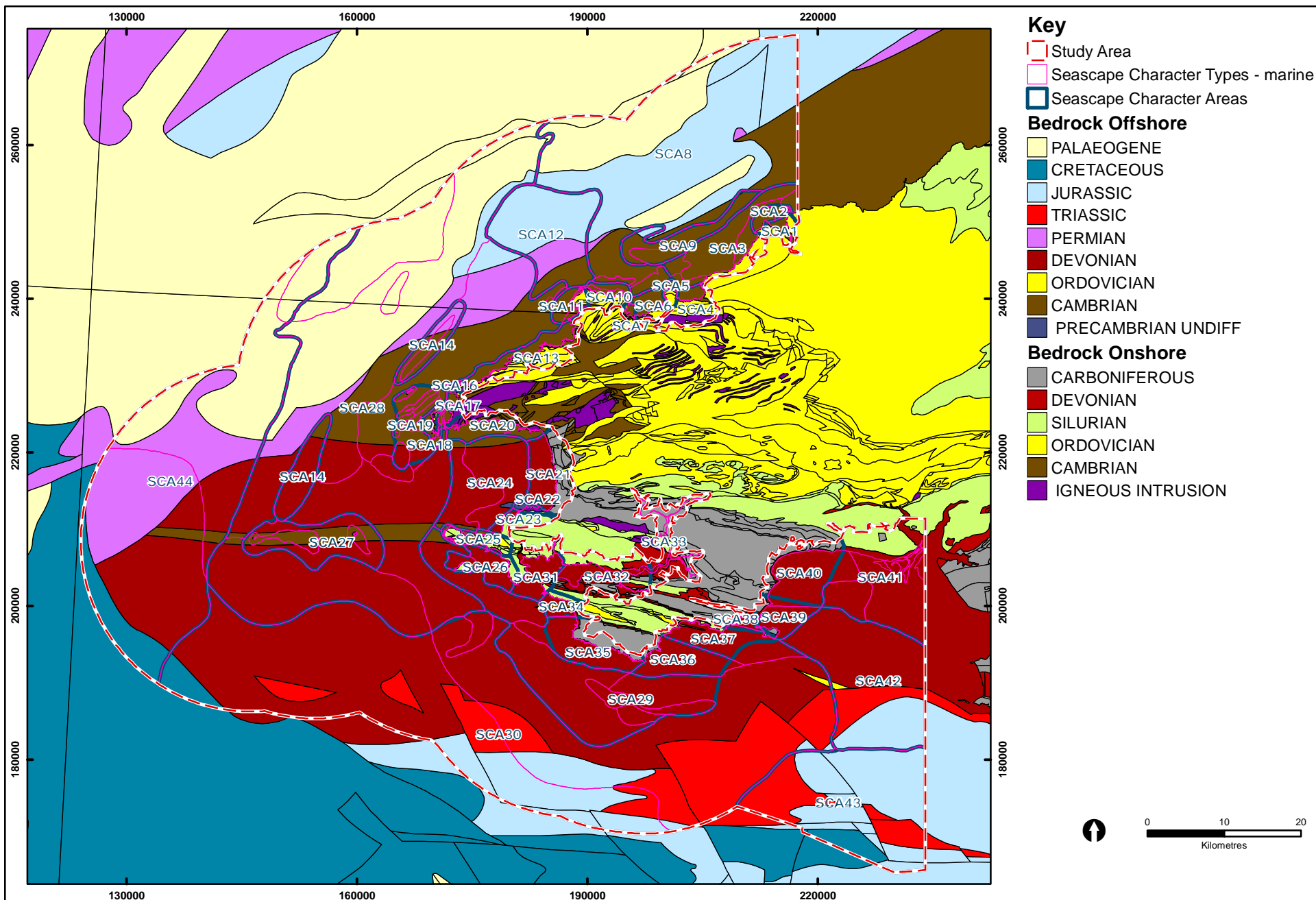
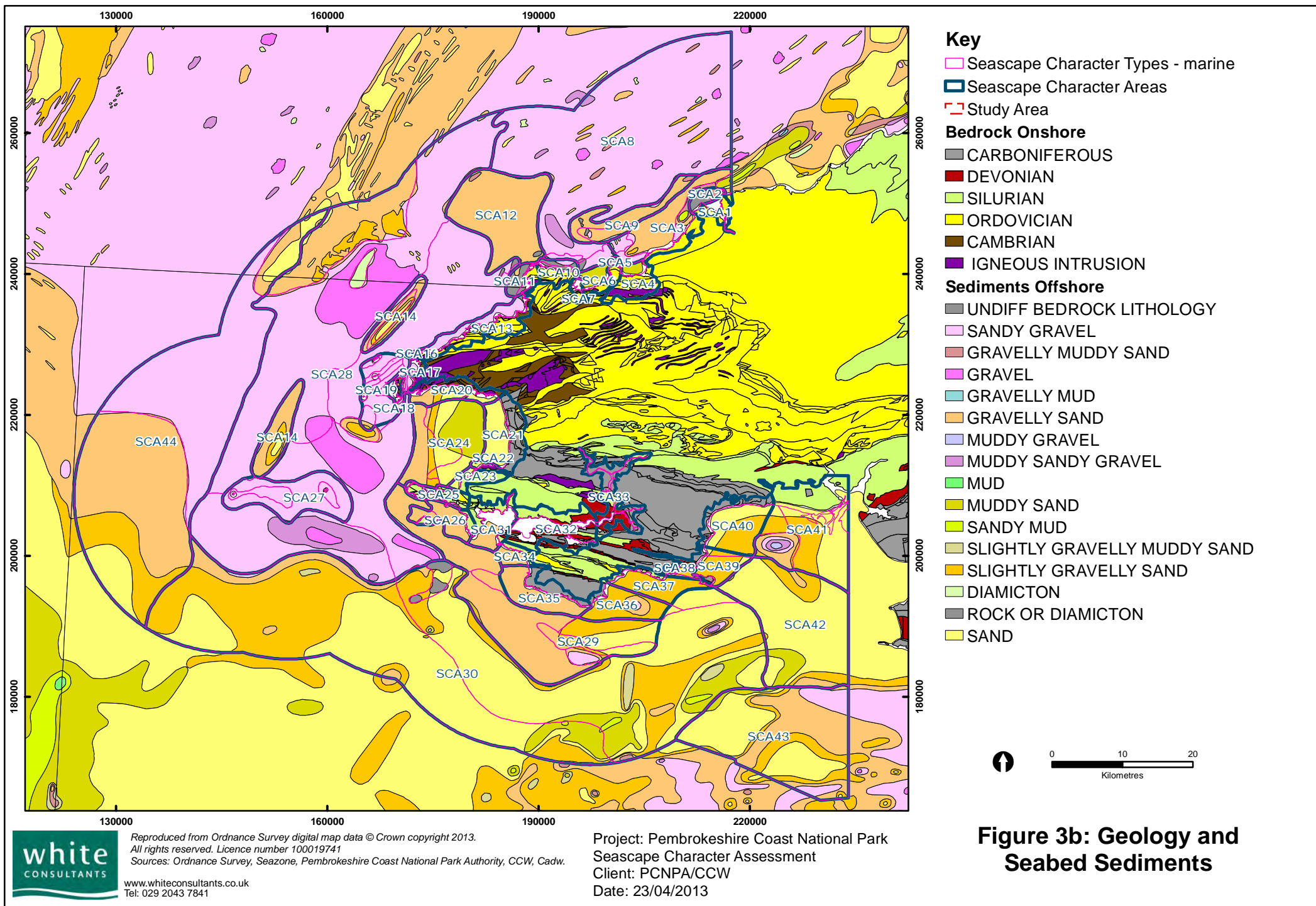
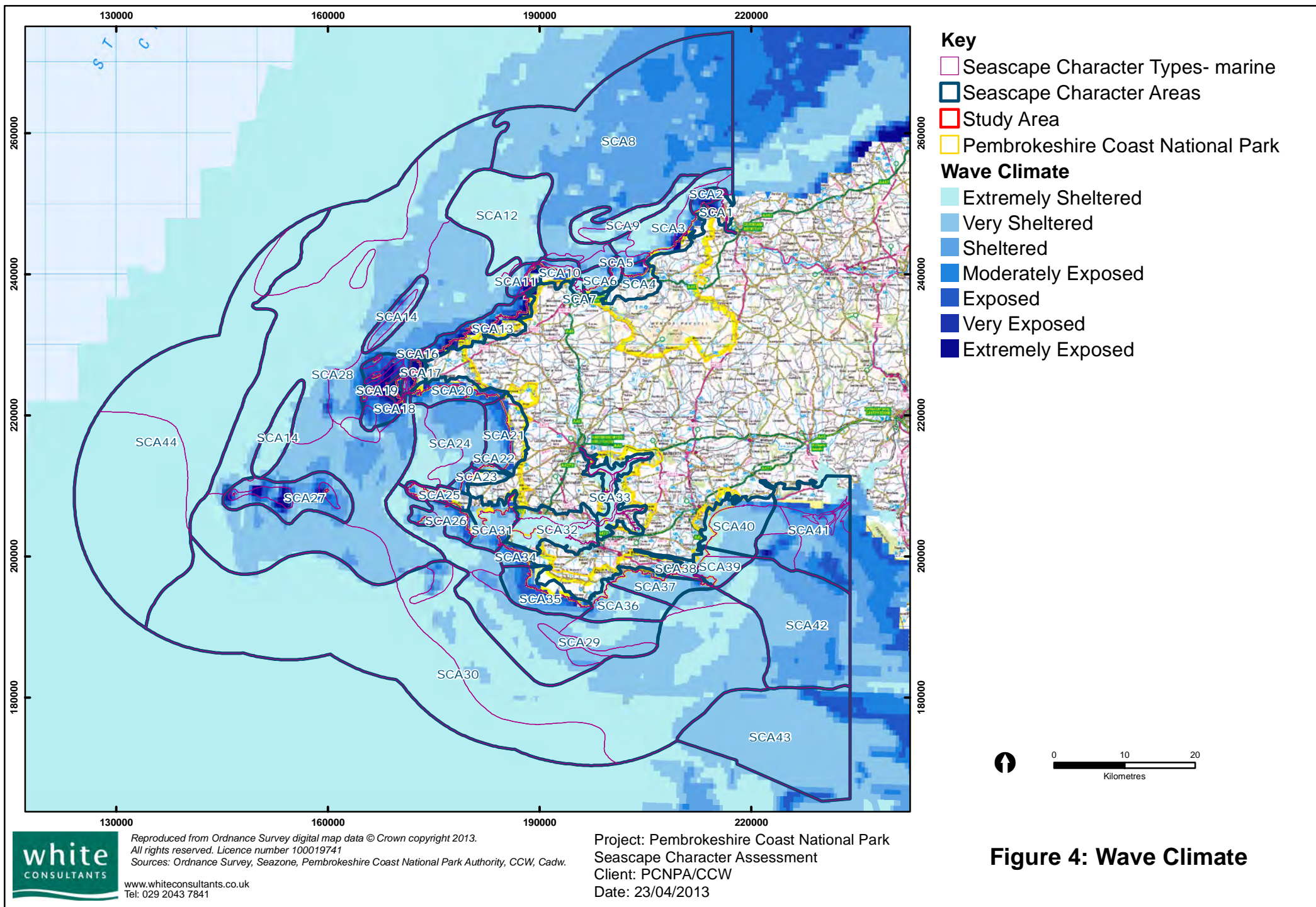


Figure 3a: Geology and Seabed Geology





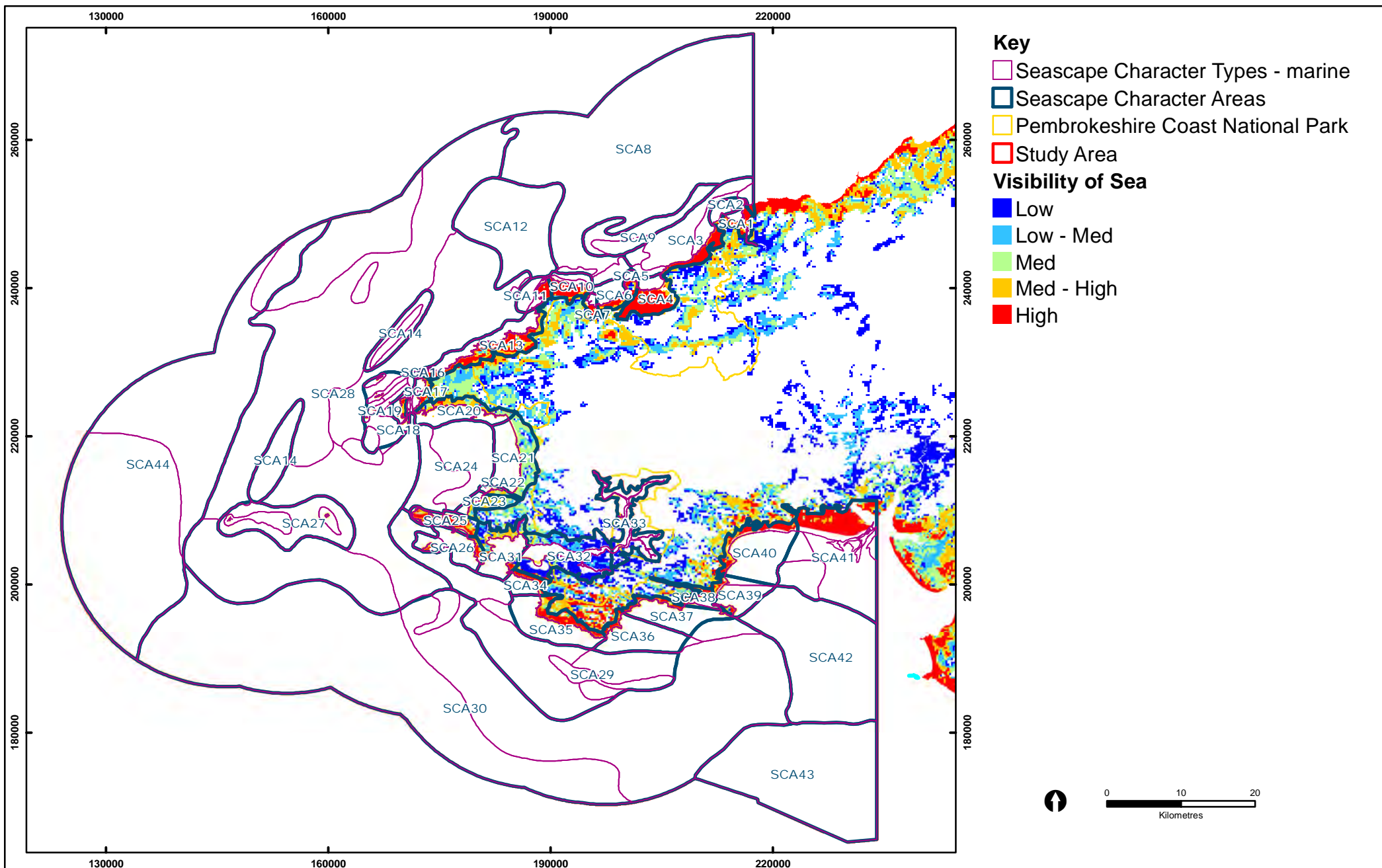
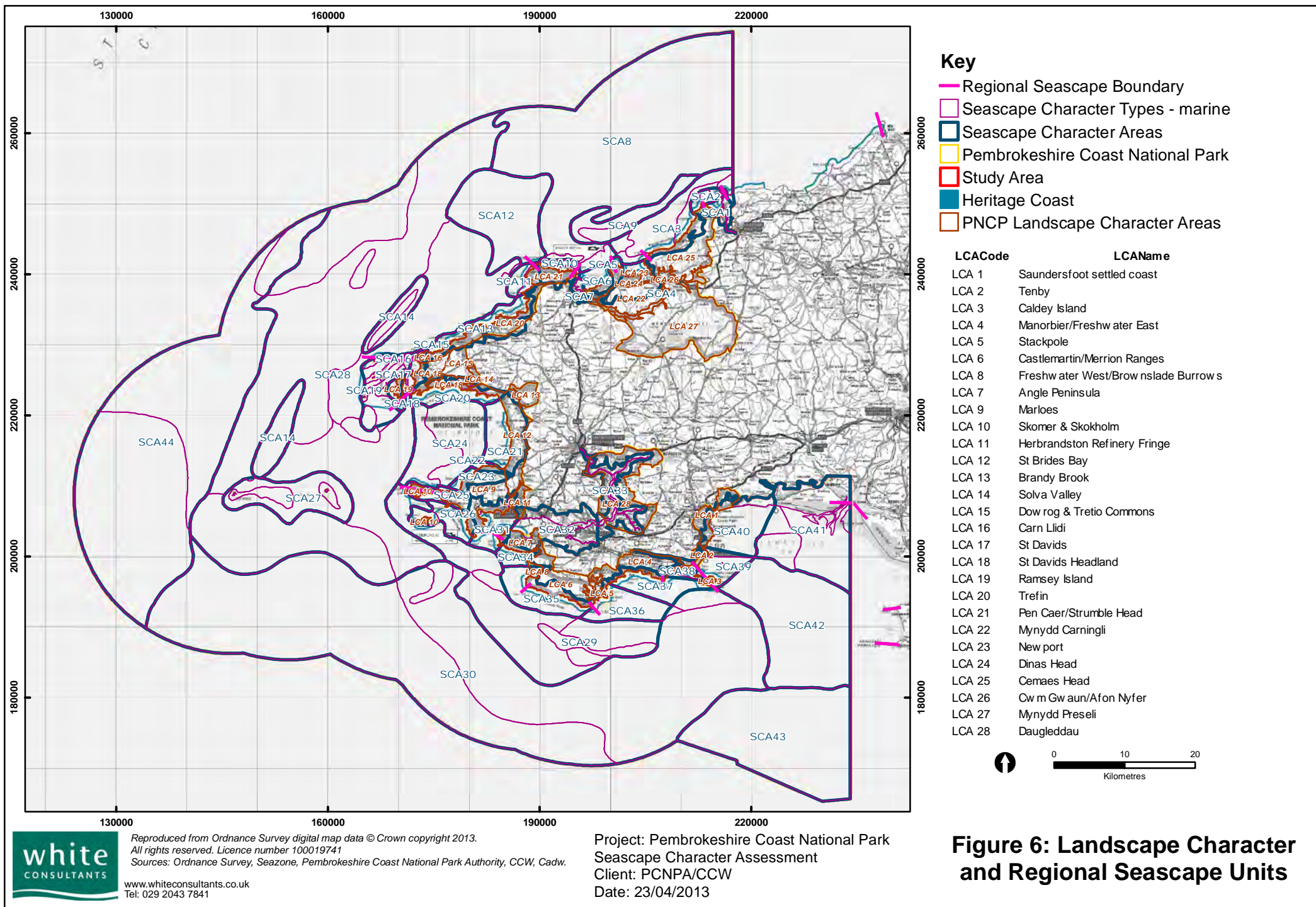
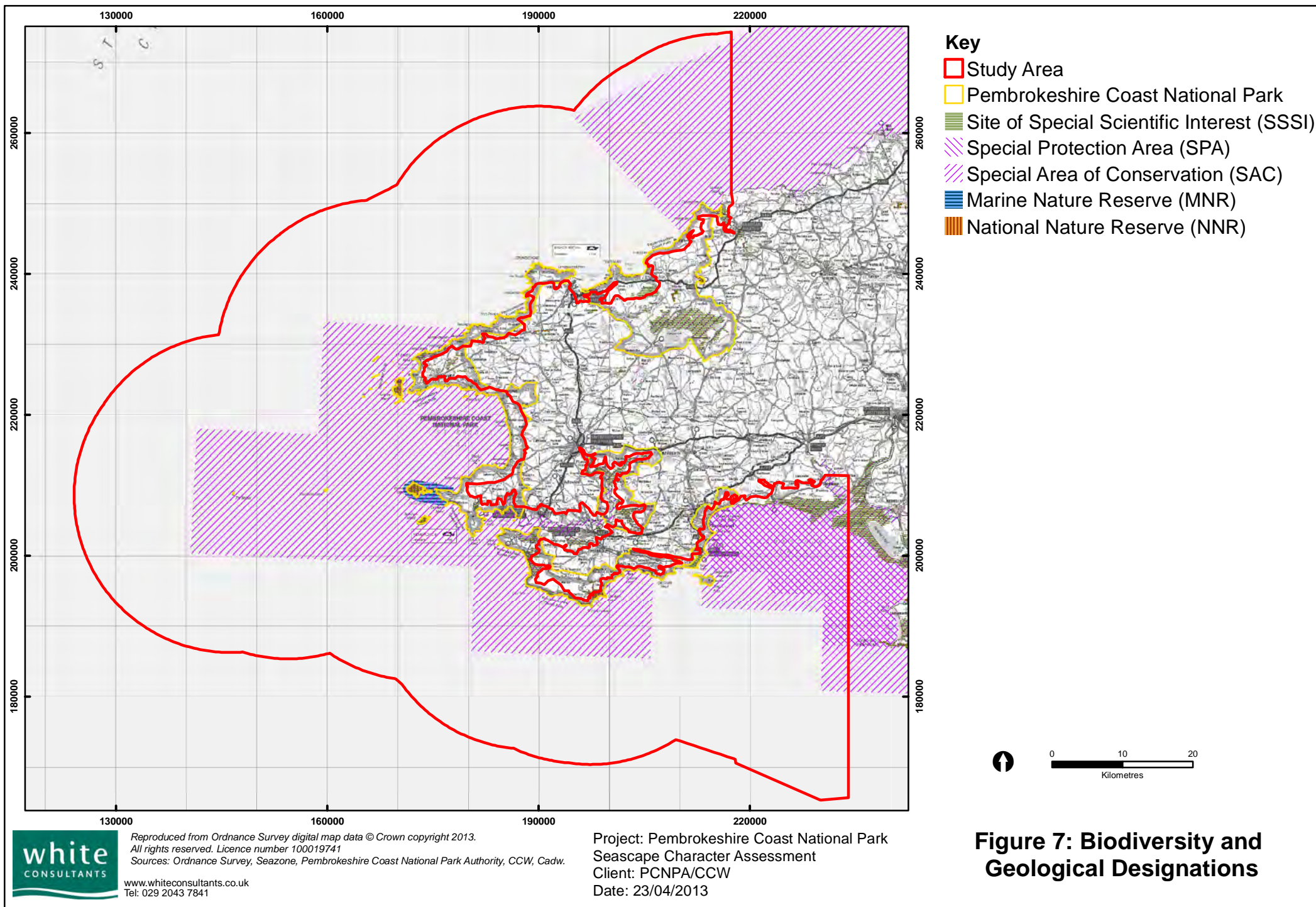
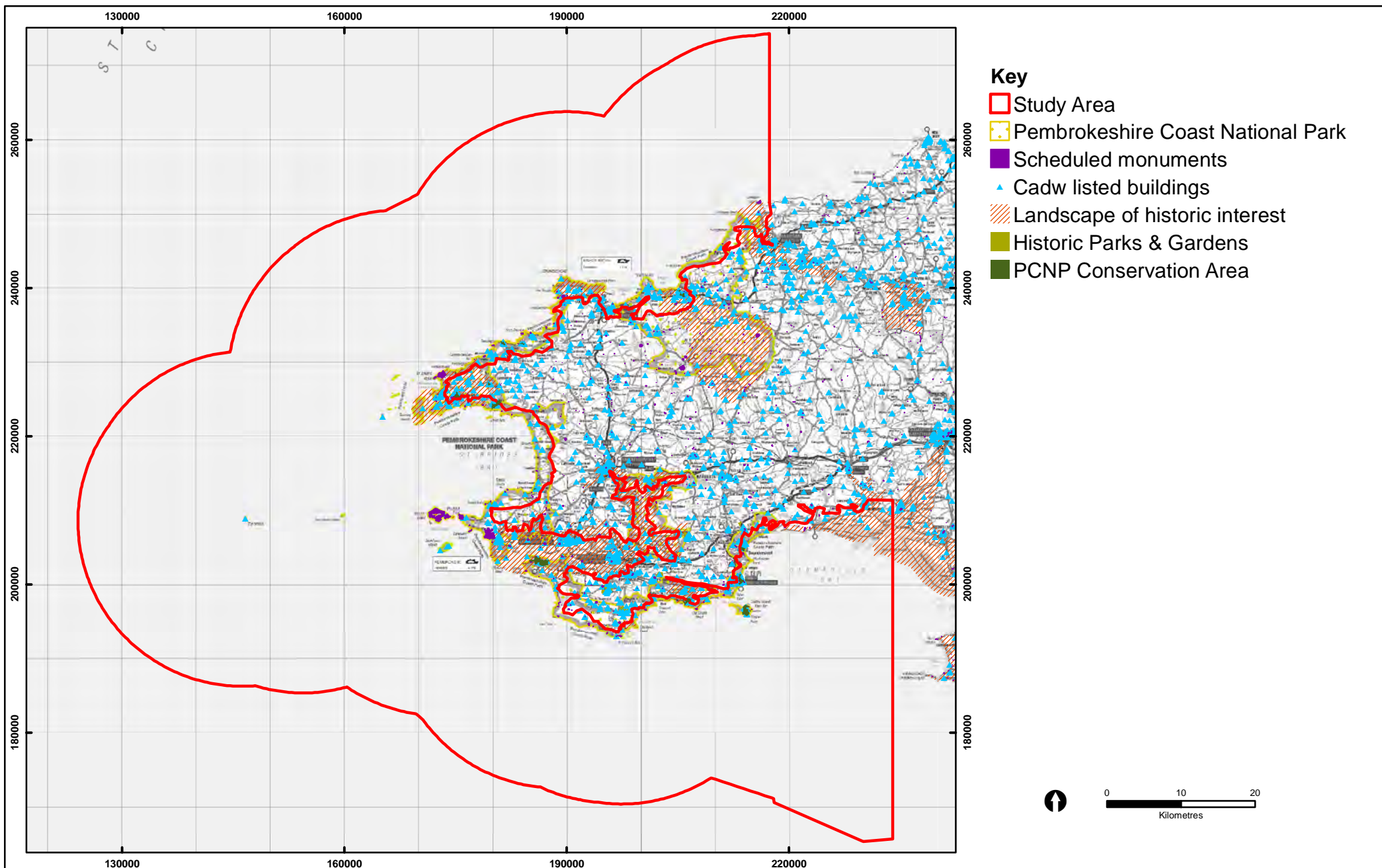


Figure 5: Intervisibility of land with the sea







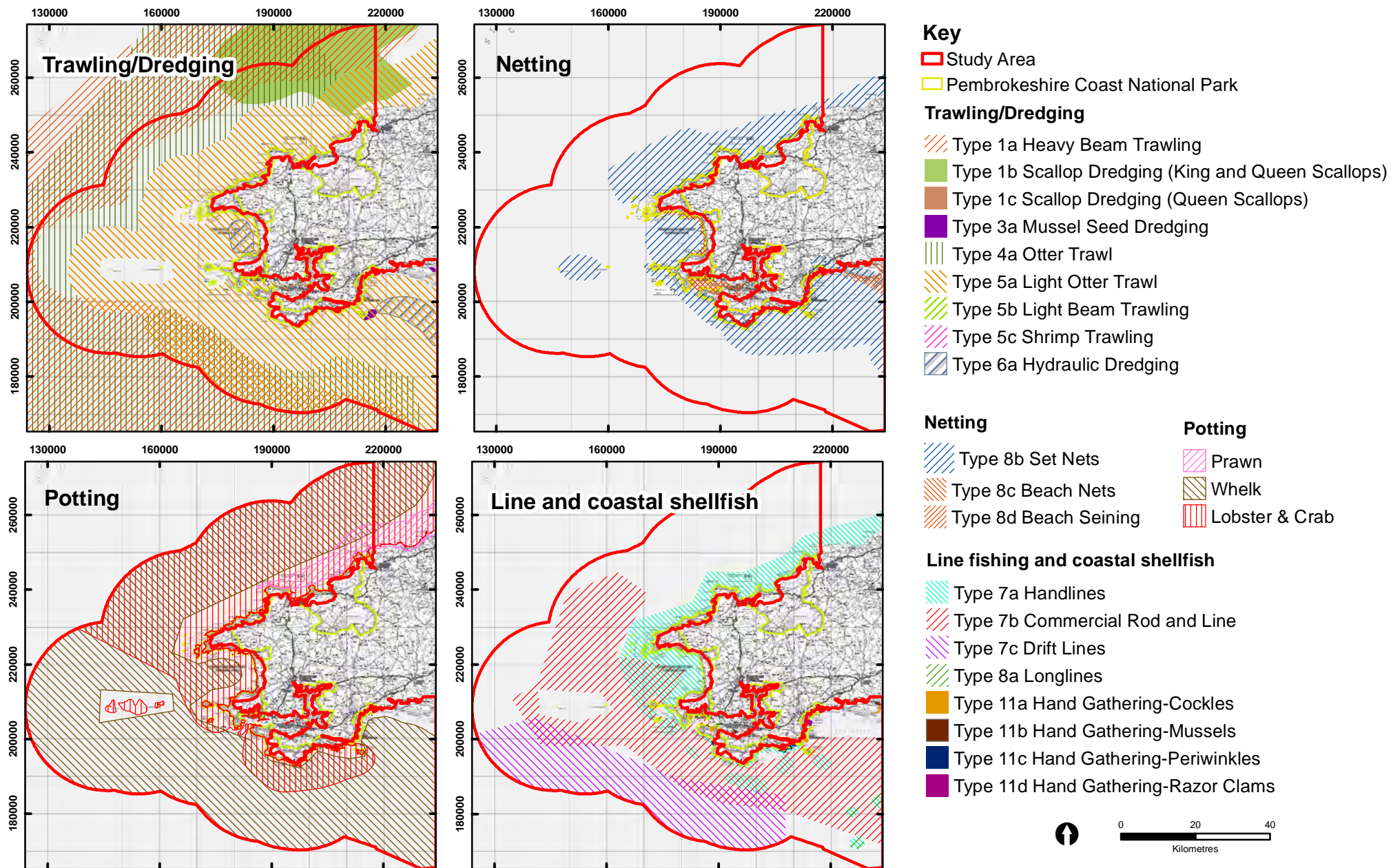


Figure 9: Fishing

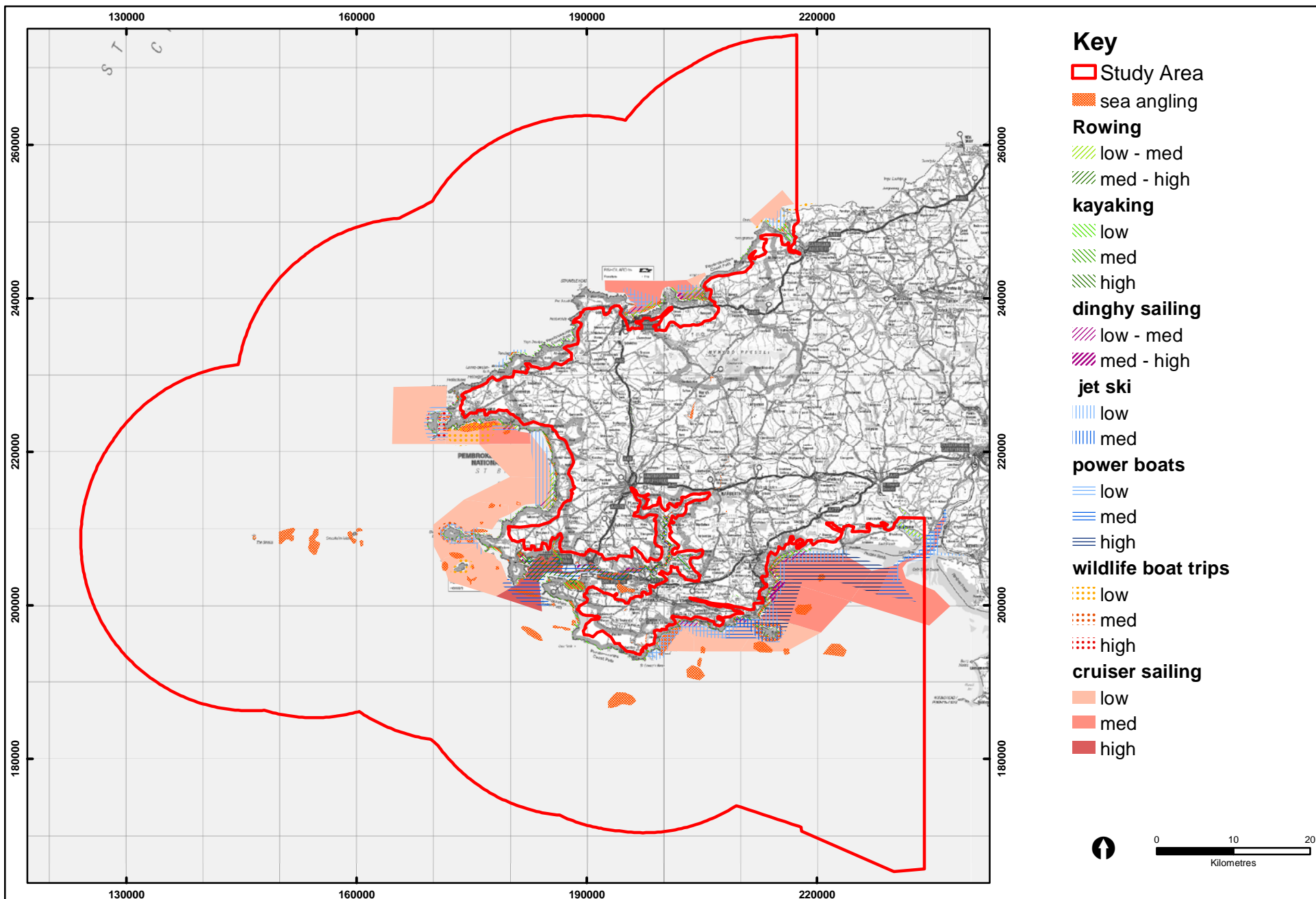
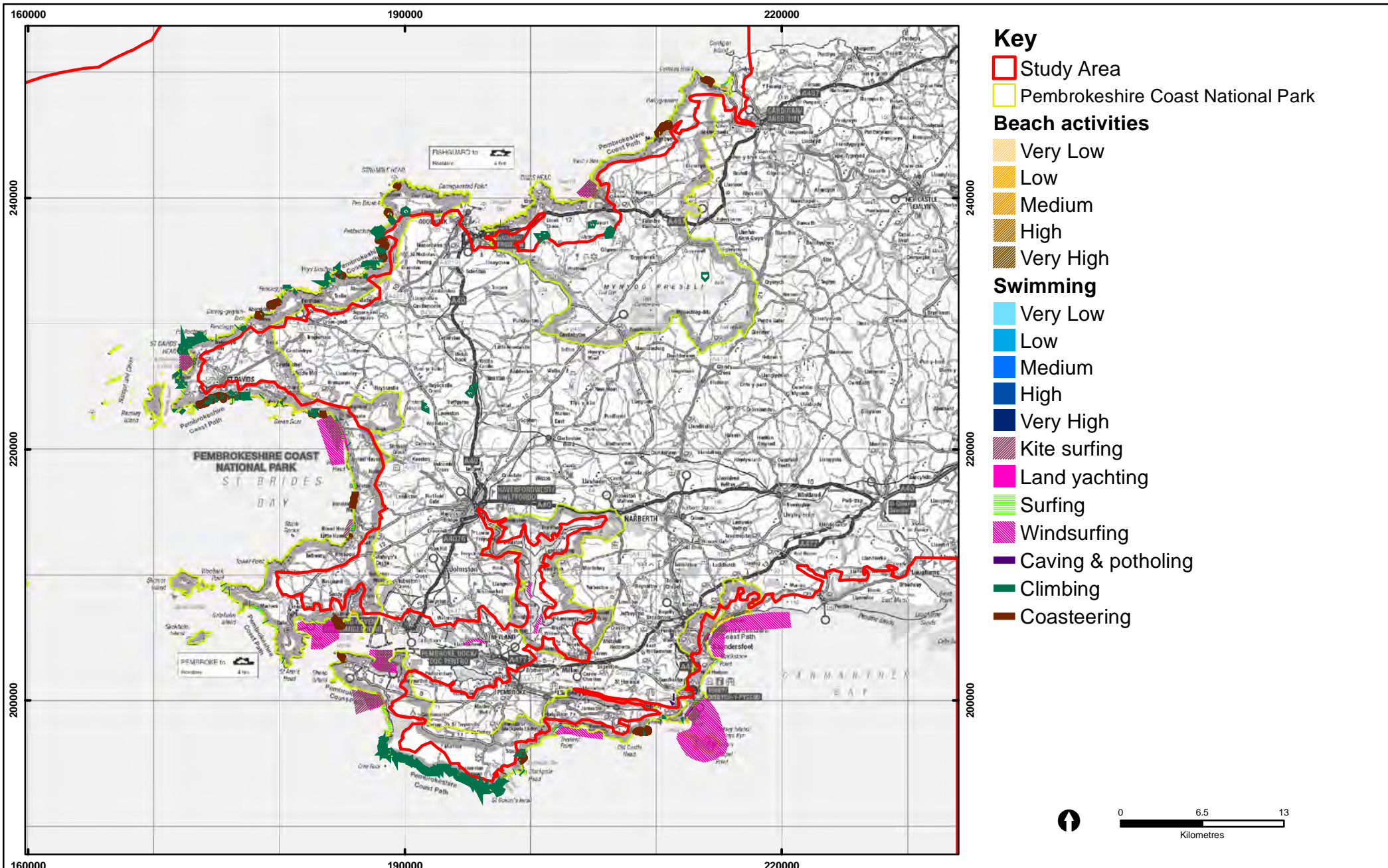


Figure 10: Recreational Activity - Marine



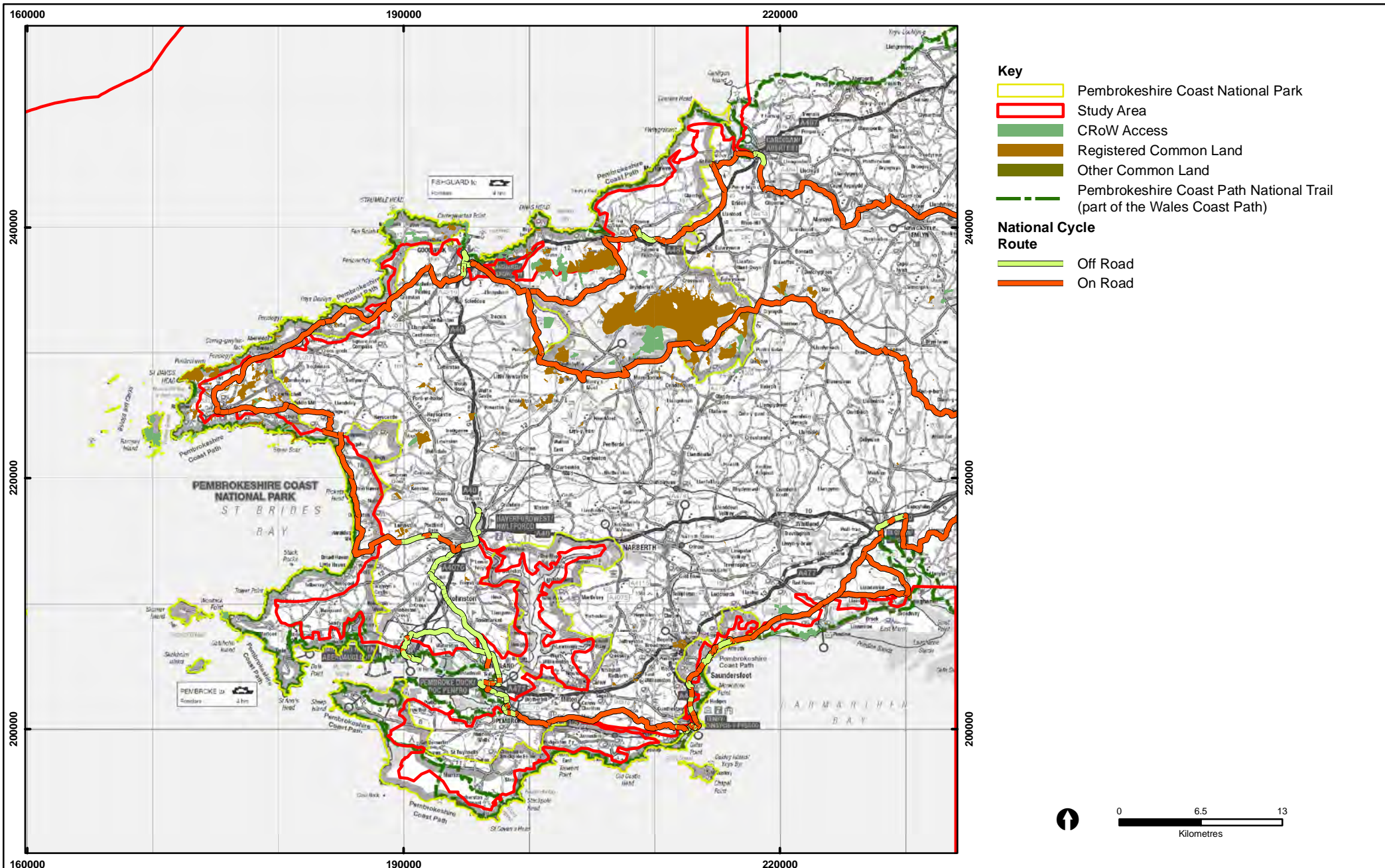
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**Figure 11: Recreational
Activity - Coast**

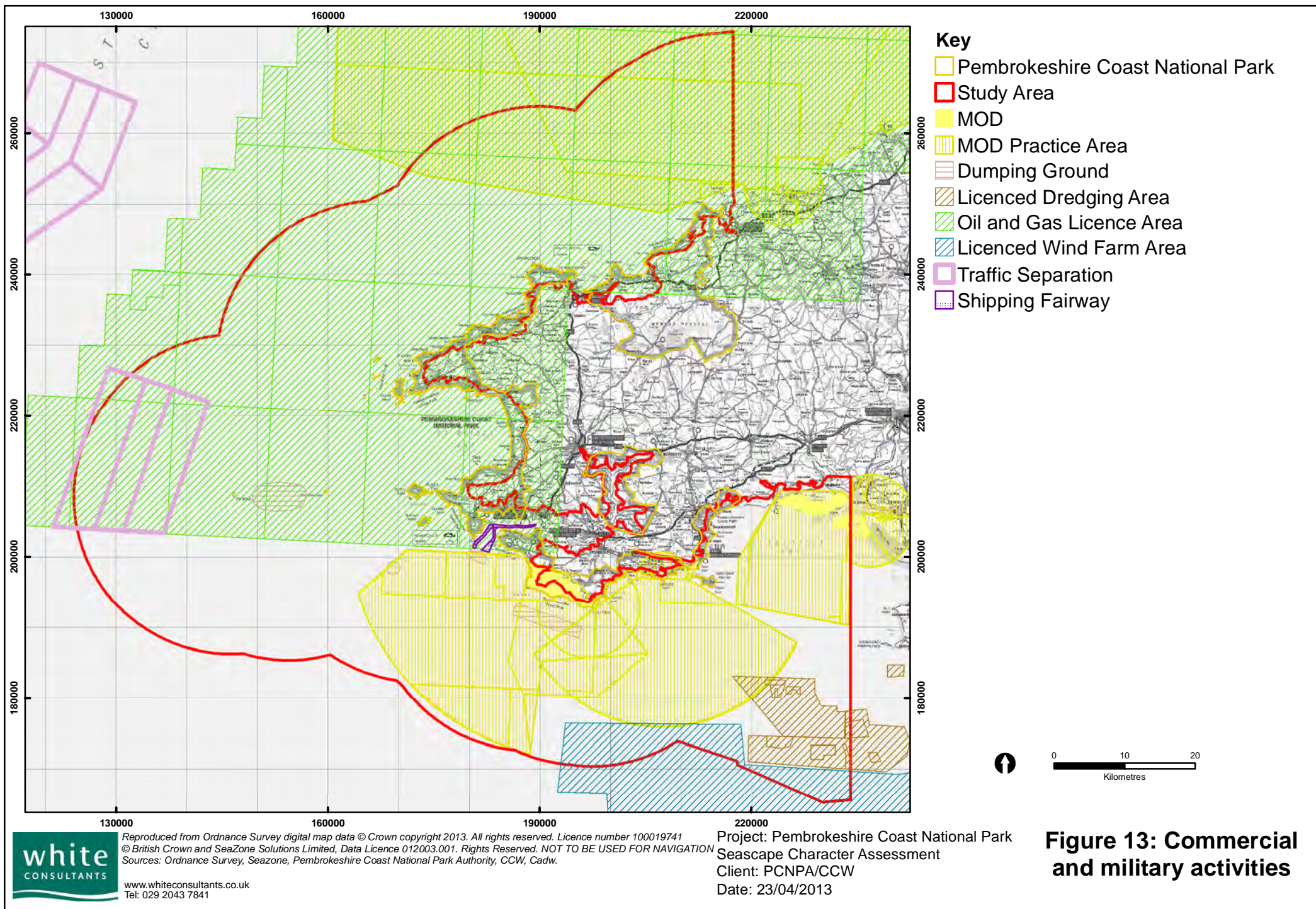


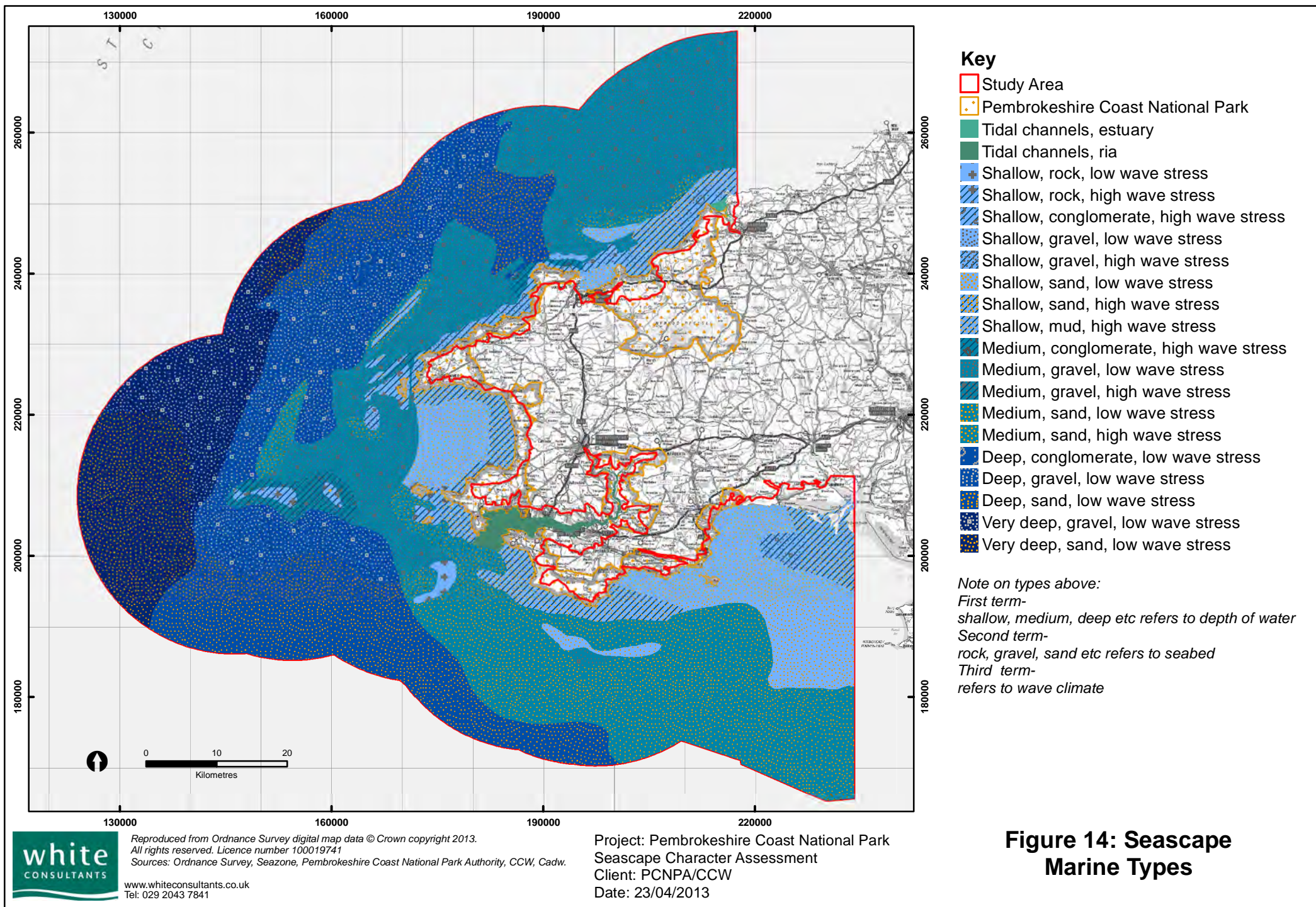
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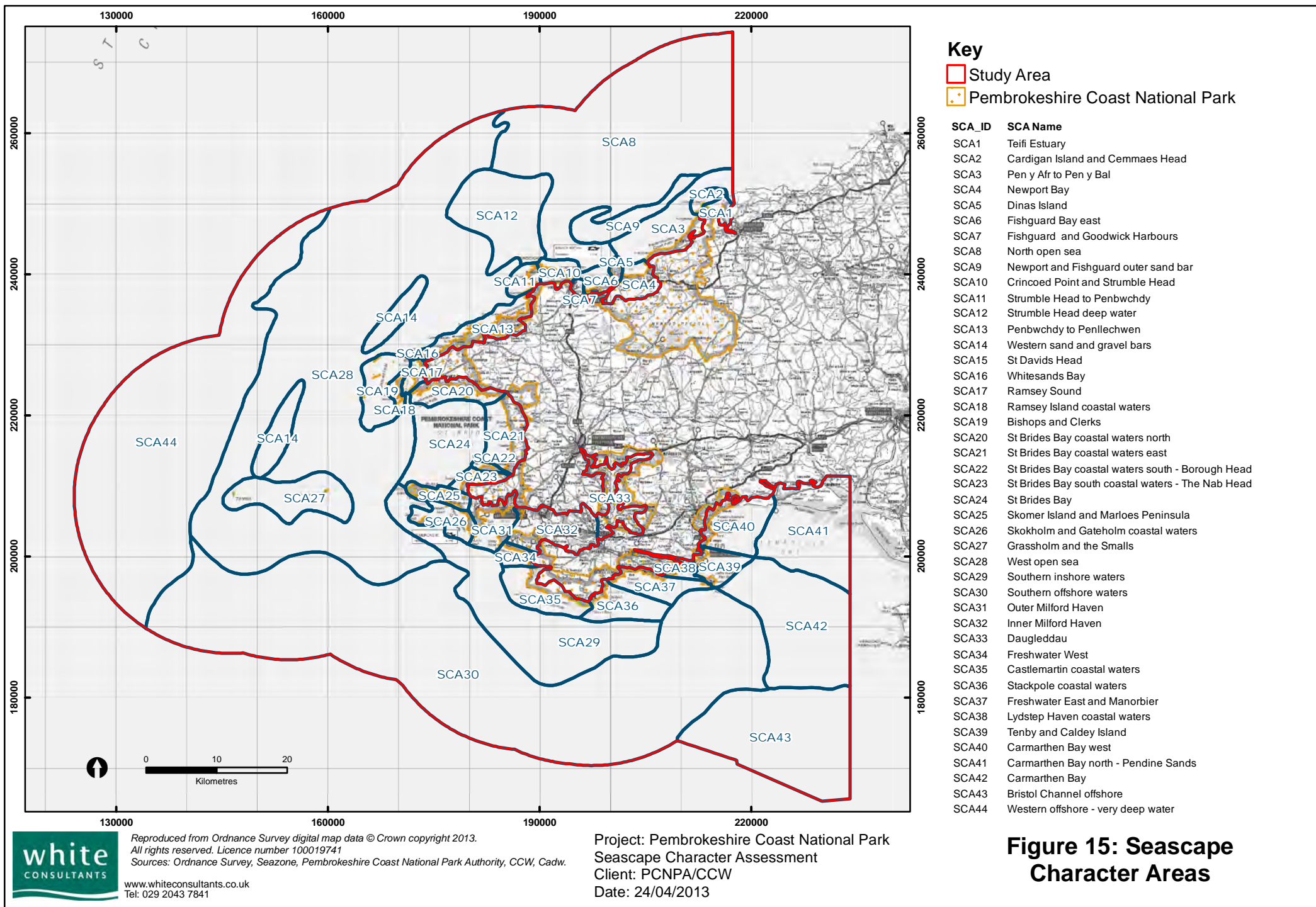
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Figure 12: Access





**Figure 14: Seascape
Marine Types**



SEASCAPE CHARACTER AREAS

7. Seascape Character Areas

- 7.1. The 44 seascape character areas are now described in detail. The description is divided into physical, cultural and aesthetic and perceptual influences with ecosystem cultural services, key forces for change and sensitivities defined. The seascape character areas are listed as follows:

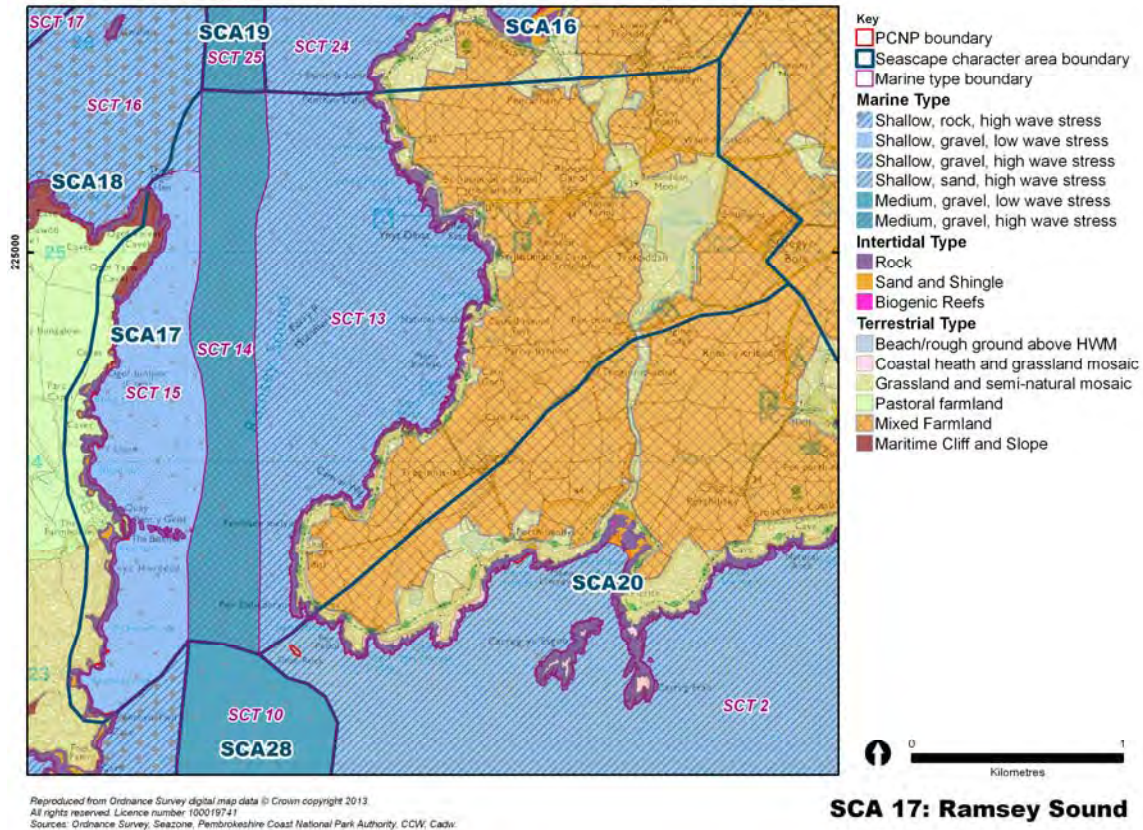
Number	Name
SCA1	Teifi Estuary
SCA2	Cardigan Island and Cemmaes Head
SCA3	Pen y Afwr to Pen y Bal
SCA4	Newport Bay
SCA5	Dinas Island
SCA6	Fishguard Bay west
SCA7	Fishguard and Goodwick Harbours
SCA8	North open sea
SCA9	Newport and Fishguard outer sand bar
SCA10	Crincoed Point and Strumble Head
SCA11	Strumble Head to Penbwchdy
SCA12	Strumble Head deep water
SCA13	Penbwchdy to Penllechwen
SCA14	Western sand and gravel bars
SCA15	St Davids Head
SCA16	Whitesands Bay
SCA17	Ramsey Sound
SCA18	Ramsey Island coastal waters
SCA19	Bishops and Clerks
SCA20	St Brides Bay coastal waters north
SCA21	St Brides Bay coastal waters east
SCA22	St Brides Bay coastal waters south- Borough Head
SCA23	St Brides Bay south coastal waters - The Nab Head
SCA24	St Brides Bay
SCA25	Skomer Island and Marloes Peninsula
SCA26	Skokholm and Gateholm coastal waters
SCA27	Grassholm and the Smalls
SCA28	West open sea
SCA29	Southern inshore waters
SCA30	Southern offshore waters
SCA31	Outer Milford Haven
SCA32	Inner Milford Haven
SCA33	Daugleddau
SCA34	Freshwater West
SCA35	Castlemartin coastal waters
SCA36	Stackpole coastal waters
SCA37	Freshwater East and Manorbier
SCA38	Lydstep Haven coastal waters

SCA39	Tenby and Caldey Island
SCA40	Carmarthen Bay west
SCA41	Carmarthen Bay north- Pembrey
SCA42	Carmarthen Bay
SCA43	Bristol Channel offshore
SCA44	Western offshore- very deep water

No: 17

Seascape Character
Area Name:

Ramsey Sound



Ramsey Sound viewed from Carn Rhosson



St Justinians with Lifeboat station and moorings



Mainland coast from Ramsey Sound- the lifeboat station is centrally located with Carn Llidi to the left and Carn Rhossion to the right

Summary Description

Ramsey Sound is located at the western end of St David's Peninsula between Ramsey Island and the mainland. It is a dynamic stretch of water with strong tidal currents and hazardous rocks with very limited settlement but rich in historic and wildlife features and with superb maritime views. It is very popular for wildlife trips and thrill seekers in kayaks and other craft.

Key Characteristics

- Ramsey Sound is a north-south tidal sea passage separating the island from the mainland with a central deep channel, strong tidal currents and hazardous rocks.
- Indented rocky coasts on both sides with cliffs up to 20-90m high interspersed with one small anchorage on the mainland and small inaccessible sandy coves.
- Coastal edge with heath and coastal grassland and bracken with a wild character.
- Open pastoral landscape gently sloping to the coast with some medieval strip fields and low cut hedgebanks.
- Built form limited to St Justinian's chapel which is a monument, the lifeboat station, a few dwellings and one farm on Ramsey Island.
- St Justinians is the embarkation point for RHIB wildlife boat trips around Ramsey and offshore and the anchorage is popular and busy in season.
- The Sound is a dynamic stretch of water used by kayakers and others for white water around the Bitches and other rocks.
- There is rich wildlife using the sound and adjacent coasts including porpoises and seals.
- The Coast Path runs along the length of the mainland coast.
- Vehicular access to coast limited to the one locations with associated car park.
- Unspoilt open views out to Ramsey Island, out to sea and long views along coast to major headlands to north east and south west.

Physical Influences

Ramsey Sound (<500-1600m) is a north-south tidal sea passage separating the island from the mainland. The sea floor of sandy gravel, covering north east-south west striking bedrock, can be subdivided into three marine types: a central moderately deep channel (30-60m) is bordered by a moderate to steeply sloping (>10°) sea floor towards the east and a moderately sloping (1-10°) sea floor to the west. The sea is exposed to high wind and wave stress in the central and eastern types, but to reduced wave stress in the lee of the island. Tidal currents are strong (<6 knots), with gyres and tidal races (around the Bitches) leading to treacherous waters. Horse Rock is the main hazard which dries to 0.9m at low tide. Tidal currents split around Ramsey Island. The tidal range is ~5.5m.

The mainland headlands (60-70m aod) are composed of a north east-south west striking succession of Precambrian-Cambrian tuffs, intrusions and sandstones. The Ramsey Island

bedrock, which is much faulted, also includes Ordovician shales, and reaches 134m aod at Carn Llundain. The Sound is bordered by cliffs (25-90m aod), some with caves and coves. Intertidal areas are almost entirely (98%) high energy rocky shores, with minor sandy coves. Wind and wave erosion occur through abrasion, attrition and hydraulic action.

The sea and intertidal areas are covered by the Pembrokeshire Marine SAC. The cliffs, associated coastal heath and grassland are designated as the Ramsey Island and St David's Peninsula SPA and they are also an Important Bird Area as defined by RSPB. Ramsey Island is designated as a National Nature Reserve and SSSI. It is an important reserve owned by RSPB - puffins, seals, auks, razorbills, porpoises and occasional dolphins are all evident. The mainland cliffs are designated as St David's Peninsula Coast SSSI. The strong currents cause the upwelling of organisms from the deep channel which attracts fish and birds/larger predators.

The coast is a mixture of semi-natural grassland and heath along the cliff tops and on outcrops such as Carn Rhosson. The mainland hinterland is predominantly a mix of pasture with some arable use, rough grazing and wetland. Ramsey Islands east coast is mainly semi-natural grassland and heath with bracken.

Cultural influences

Historic use includes Medieval communication between Ramsey Sound and the mainland episcopal estate and pilgrimage. The hinterland's farming economy was supported by coastal trading and fishing.

Clegyr Boia to the west of St Davids was occupied in the Neolithic and Iron Age periods. Dated Neolithic settlements in Wales are extremely rare, but the discovery of crude huts and Neolithic round-bottomed pottery confirms occupation of this rock 5-6,000 years ago. St Justinian's Chapel a place of pilgrimage for medieval travellers to St David's and gathered donations which were passed to the cathedral. The present 16th century stone building may obscure an earlier structure, possibly dating to the early Christian period. The tidal race in Ramsey Sound is fierce. Four recorded shipwrecks all lie on the eastern side of the Sound including the coastal cargo ship, Count d'Aspremont's whose boiler still stands proud of the seabed (sunk in 1903). The Magella, a small fishing boat, was sunk as recently as 1991, even though the lifeboat station is located nearby.

Scheduled monuments include:

- PE014 (St Justinian's chapel): community: St David's
- PE109 (Clegyr Boia hillfort): community: St David's
- PE295 (Castell Heinif promontory fort): community: St David's
- PE421 (chambered tomb): community: St David's

This area lies entirely within the St David's Peninsula and Ramsey Island Landscape of Outstanding Historic Interest.

Clegyr Boia is associated with the 6th century Irish pirate Boia although is of Neolithic origin. There is place-name evidence for other Irish settlement. The area as a whole is associated with the sea-borne nature of early Medieval Christianity.

Settlement is limited to a few dwellings around St Justinians, vernacular farmsteads further inland and the one farm complex on Ramsey, close to the landing place and now used by the RSPB. There is a Lifeboat Station at St Justinians. The current facility is located on columns with a slipway in front of the old station which is a small stone built shed set back against the cliffs. A further modern lifeboat station is proposed which indicates the changing requirements of life saving around Pembrokeshire's waters.

St Justinians is a major centre for wildlife boat trip operators taking visitors out and around Ramsey Island, Ramsey Sound and The Bitches which are known as a wild water phenomenon. There is pontoon access to the water, swinging moorings for operators' boats and a well used car park both close to the Station and inland in a discreet location. Motor and sail cruisers are active throughout this area as well as day boats, kayaks, sailing dinghies and jet-skis. The Sound is used as a coastal cruising route linking Milford and Solva to North Wales/Cardigan Bay. Sea angling also takes place both from boats and the rocks. Coasteering is a popular activity around this coast. Walking the Coast Path affords spectacular views across the Sound to Ramsey Island in addition to wildlife watching from cliffs.

Fishing in the area comprises of lobster and crab potting and potential for light otter trawling.

The area has a Round 24 licence for oil and gas.

Aesthetic, perceptual and experiential qualities

The scale of the Sound is large and open but with enclosure from Ramsey Island and the mainland cliffs running south from St John's Head backed by outcrops back from the coast. These landforms focus views out to sea north to St David's Head and the Bishops and Clerks rocks and south to St Bride's Bay and Skomer in the distance. The rough textures of the cliffs and rocks are complemented by qualities of the water which, apart from around 20 minutes slack, clearly moves swiftly north or south on the flood and ebb tides respectively, creating standing waves and turbulence over rocks such as the Bitches. On the water these create drama and excitement and attract sightseers and thrill seekers on powerful RHIBs and kayakers who surf the waves in optimum conditions. The indented cliffs which provide interest and superb changing vistas onshore from the Coast Path appear to be two dimensional when halfway across the Sound [around 500m] and man-made structures such as the lifeboat station are hardly apparent. This gives a strong sense of tranquillity, wildness and remoteness which is reinforced by sightings of grey seals and, occasionally, porpoises. Tranquillity is reduced to an extent by the RHIBs and other boats which frequently ply the Sound, emanating from St Justinians which is a busy and colourful little harbour in season. However, this use does not significantly diminish the natural beauty, unity and balanced composition of this stretch of water and coast, rather providing further animation of the water, with sweeping wash. Detractors include the few isolated mid 20th century houses and bungalows in prominent locations, the caravan and camping sites and ad hoc WCs adjacent to the car park at St Justinians.

Cultural benefits and services

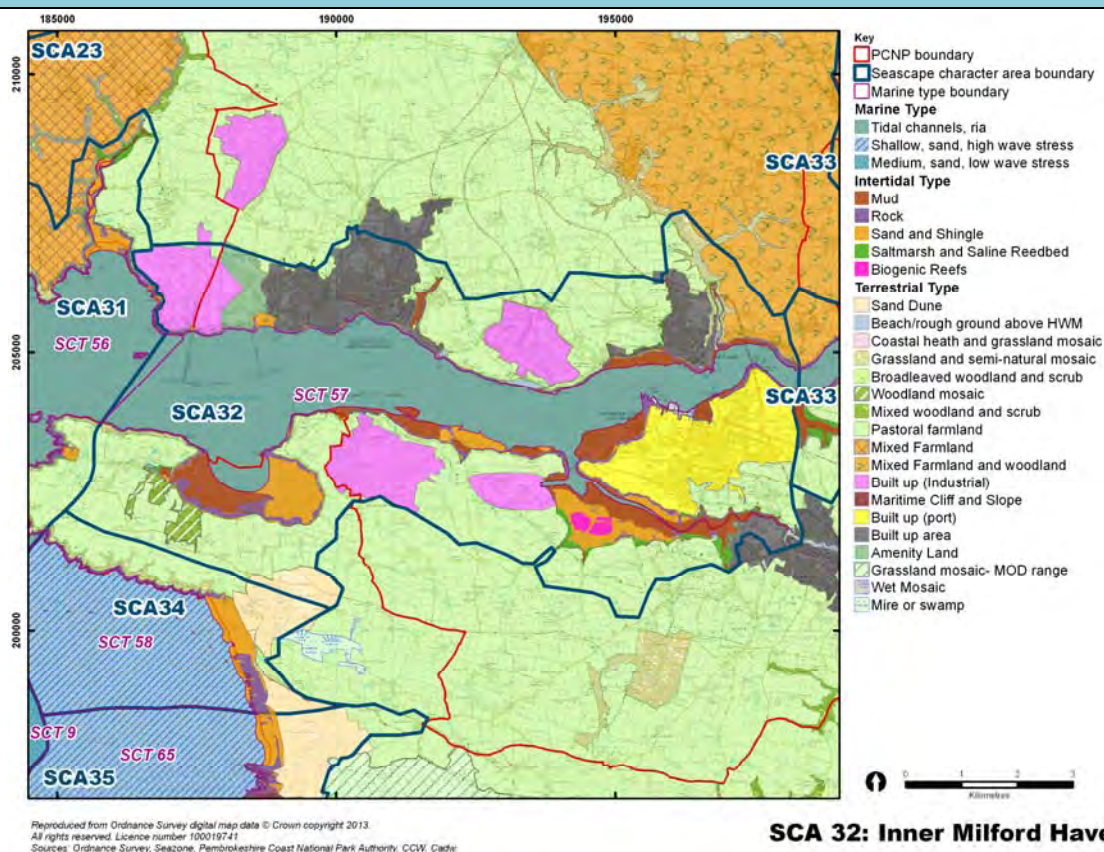
The area contributes significantly towards leisure and recreational services in the form of marine recreation including wildlife trips, to natural heritage in the form of the sound with the strong tidal streams and rocks, and mainly unspoilt coast, and to cultural and spiritual services in respect of its national historic interest and features related to St David's including the chapel at St Justinian's.

Forces for change								
Summary		Key forces for change						
<p>Slow coastal erosion of rocky cliffs, more in back of bays. The shoreline management plan states ‘do nothing’.</p> <p>Pilot site for tidal energy project (Delta Stream) in Ramsey Sound, if successful, this area may be developed as landfall for access to energy grids.</p> <p>A further modern lifeboat station is proposed which indicates the changing requirements of life saving around Pembrokeshire’s waters.</p> <p>Increasing use by boat trip operators and other boat users, emanating mainly from St Justinians- with effects on tranquillity and potentially on wildlife and habitats.</p> <p>Coast Path increasing use by walkers.</p> <p>Increasing use of car park and access.</p>	Special Qualities	Natural processes/ climate change	Visitor pressure	Marine use- commercial and fishing	Offshore energy or minerals	Development pressure	Land management changes	MOD use
	Coastal Splendour							
	Islands							
	Diversity of Landscape							
	Remoteness, Tranquillity and Wilderness							
	Diverse Geology							
	Richness of Habitats and Biodiversity							
	Rich Archaeology							
	Distinctive Settlement Character							
	Cultural Heritage							
	Accessing the Park							
	Space to Breathe							
	Key		Change occurring in the area affecting the selected special quality					
Key sensitivities								
Factors that contribute to sensitivity				Factors that detract from sensitivity				
<p>Unspoilt Sound with strong tidal currents and hazardous rocks.</p> <p>Indented, natural rocky coasts and small inaccessible sandy coves with strong natural and wild character.</p> <p>Nature conservation value including coastal habitats.</p> <p>Rich wildlife using the sound and adjacent coasts including porpoises, seals and chough.</p> <p>Historic rural pastoral character of the hinterland, and hill backcloth.</p> <p>Historic features and very limited settlement.</p> <p>Prominence of small hillsides and intervisibility of the coast.</p> <p>Superb, virtually unspoilt views across the Sound and along the coast.</p> <p>Pembrokeshire Coast Path as a sensitive receptor.</p> <p>Boat trips users as sensitive receptors.</p>				<p>Lifeboat station is a functional structure.</p> <p>St Justinians is the embarkation point for RHIB wildlife boat trips around Ramsey and offshore and the anchorage is popular and busy in season.</p> <p>Presence of scattered 20c dwellings.</p>				

No: 32

Seascape Character
Area Name:

Inner Milford Haven



Overlooking the inner Haven from near the Cleddau Bridge



Main channel with jetties in use

Summary Description
<p>This deep water ria acts as a commercial and ferry shipping channel and sheltered harbour, serving oil refinery, gas and oil storage, power station and related industrial and urban settlement with tall structures rising up above the surrounding slopes. This contrasts with indented bays and silted inlets with nature conservation interest and recreational uses, and farmed hinterland.</p>
Key Characteristics
<ul style="list-style-type: none"> • A large sheltered natural harbour of a ria with mudflats and sandy inlets, creeks and bays • Busy commercial shipping channel with tanker terminals, ferry terminal and marinas • Visually dominant refineries with gas/oil storage and power station • Gently sloping enclosing hills with pastoral landcover with arable • Historically rich area associated with the sea with the main urban settlements of Milford Haven and Pembroke Dock and historic small villages • Deciduous woodland on some sea edges, along creeks and minor valleys • Long views down the main channel and framed views from inlets and bays
Physical Influences
<p>The east-west stretch of Milford Haven is controlled by the deep seated Ritec Fault, and is incised into east-west striking Devonian Old Red Sandstone (Cosheston Group, Raglan Mudstone Formation, Ridgway Conglomerate Formation) and locally Carboniferous Limestone. The channel has deeply indented bays of incised river valleys on both sides (Angle Bay, Pennar Gut, Cosheston Pill, Cresswell and Carew rivers, Westfield Pill, Castle Pill, Hubberston Pill, Gelliswick Bay, Sandyhaven Pill). Of intertidal areas, extensive mudflats fringe the estuary along both sides (41%), and there are sandy embayments (29%), as well as areas of low energy rocky shores (23%). The tidal estuary is a depositional sediment sink, with sediment transported through traction, suspension and saltation.</p> <p>The sandy channel floor slopes moderately (1-10°) into the shipping channel (<25m), which has areas of dredging. The muddy sand to sand shallows slope only gently (<1°) into the channel. The waters are sheltered from wave stress and are strongly tidal. Tidal range is upto 6.3m.</p> <p>Surrounding hills rising to 70m AOD at Green Hill to south, and 67m at Waterston to north. The coastal plateau slopes down to the haven, steeply in places, with a variety of low cliffs, rocky or soft shores.</p> <p>Semi-natural vegetation forms a narrow strip along the shore, sometimes with deciduous woodland in more sheltered areas and steeper hillsides or narrow valleys, and silted or marshy inlets and inter-tidal mud flats in the shallow embayment of Angle Bay, and heavily silted Pembroke River, both important over-wintering grounds for waders and wildfowl. The whole of the haven is part of the Pembrokeshire Marine SAC.</p>
Cultural influences
<p>A great water-way, with historic links to the Atlantic, to Ireland and to other parts of the world- latterly and most evidently through the development of defensive systems, to the naval presence, to Brunel's choice of Milford as the terminus of the South Wales railway and the oil industry.</p> <p>An exceptionally dense historic seascape. The Norman period is represented by the planned village and fields at Angle. Later defensive structures reflect the establishment of Naval ship-building, at Neyland c. 1760 and at Milford Haven in 1796, relocated to Pembroke Dock in 1812. This became one of the most important naval ship-building centres in Britain. Facilities were substantially extended in 1830-32 and again in 1844. These reflect changes in sea-going vessel design. Decline set in after the introduction of the Dreadnoughts and the dockyards finally closed in 1926. The industrial settlement at Pembroke Dock was laid out from c. 1818.</p> <p>Brunel's Great Western Railway initially sponsored (1845) and eventually assumed control of (1852), the South Wales Railway, which originally intended to reach Fishguard, to tap the</p>

Atlantic and Irish traffic, but made Milford Haven its terminus; trains connected with the Atlantic steamships.

There are a number of wrecks in the waterway, two of which are aircraft. Some are dangerous to shipping.

In 1957 work began on the Herbranston refinery; oil supplies reflected shifts in global politics, such as the nationalisation of the Suez canal, which required larger tankers to make the journey around the tip of Africa viable.

Scheduled monuments include:

PE005 (Pembroke castle): community: Pembroke

PE068 (tower): community: Angle

PE069 (Angle castle - building, unclassified): community: Angle

PE186 (rath): community: Milford Haven

PE262 (enclosure): community: Hundleton

PE263 (manor): community: Hundleton (also partly in SCA 33)

PE332 (tower): community: Pembroke Dock

PE337 (fort): community: Herbranston

PE338 (fort): community: Milford Haven

PE379 (barracks): community: Pembroke Dock

PE380 (tower): community: Pembroke Dock

PE387 (observatory): community: Milford Haven

PE400 (enclosure): community: Hundleton

PE415 (dovecote): community: Pembroke

PE435 (cave): community: Pembroke

PE452 (battery): community: Neyland

This area lies within the St David's Peninsula and Ramsey Island Landscape of Outstanding Historic Interest.

Milford Haven was the landing-place of Henry Tudor, Henry VII, who marched from here to defeat and kill Richard III at Bosworth field. In *Cymbeline*, Imogen refers to Milford.

Passenger ferries run from Pembroke Dock to Ireland [Rosslare] and oil and gas tankers use the extensive large scale deep water port facilities with large jetty structures/terminals by the navigable channel. There is a coastguard station based on the haven.

The Port of Milford is the third largest port in the UK and handles 29% of the UK's seaborne trade in oil and gas. There is port operational activity including tugs, service and pilot vessels with occasional dredging. The tall refinery chimneys and structures are vertical elements and with the recently built power station stacks (75m high) are visible from long distances. These are added to by onshore wind turbines and LNG and other storage tanks situated at around 50m AOD are visible on skyline. Lighting [such as on the chimneys] is focused on Milford Haven with a degree of intensity between along transport corridors.

There are marinas at Milford marina and Neyland Yacht Haven. There is a heavily used cruising route from here around the coast west to Fishguard, across the Bristol Channel and to points east such as Tenby. There are also numerous routes across to Ireland. Angle Bay is a popular anchorage although safe anchorage. There is a slipway at Angle Point. There is a lifeboat station at Angle.

Fishing in the area comprises of hand gathered cockles and mussels and periwinkles on southern shores, beach seining and beach nets, set nets and limited areas of lobster and crab potting.

Aesthetic, perceptual and experiential qualities

This is a medium scale seascape dominated by the linear form of the main channel and industrial plant and tall chimneys. This main channel is rough textured due to man-made elements imposed on form of the natural landscape, and these highly prominent structures are only tempered by the natural form and scale of the wide ria and surrounding green hills.

The intensity of commercial shipping and scale of tankers and jetties creates an uncomfortable experience for the small boat user in the main channel.

Contrasting with the main channel, Angle Bay is a semi enclosed bay which dries, with a containing woodland belt and adjacent historic village and church, creating a much more tranquil location with a high degree of naturalness despite longer views to refineries.

The narrow pills are highly contained and natural with wooded valley sides and marshy edges, within which one can feel highly remote despite the closeness of the urban context.

Cultural benefits and services

The area contributes significantly towards leisure and recreational services in the form of marine facilities and urban centres, to natural heritage in the form of the scale and character of the Sound and bays and inlets, and to cultural and spiritual services in respect of the richness of historical and current uses relating to shipping, energy and military purposes.

Forces for change

Summary	Key forces for change							
<p>The estuary is a dynamic sediment environment and will evolve with time. The Shoreline management plan states 'do nothing' along the southern coast except Angle Bay where it advises 'hold the line' to protect village assets which otherwise may be subject to landward migration of foreshore. Possible retreat of the line at Pembroke River and changes to silted areas. SMP advises 'hold the line' on the northern coast.</p> <p>Potential expansion of energy related facilities and infrastructure related to port use.</p> <p>Wind energy onshore creating clutter with existing vertical elements.</p> <p>Potential impact of industrial plant on ecology of waterway, especially on water temperatures and pollution.</p> <p>Pollution threat by tankers.</p> <p>Continuity of use of ferry terminal.</p> <p>Demand for more marina space or moorings for recreational boats.</p>	Special Qualities	Natural processes/ climate change	Visitor pressure	Marine use- commercial and fishing	Offshore energy or minerals	Development pressure	Land management changes	MOD use
	Coastal Splendour							
	Islands							
	Diversity of Landscape							
	Remoteness, Tranquillity and Wilderness							
	Diverse Geology							
	Richness of Habitats and Biodiversity							
	Rich Archaeology							
	Distinctive Settlement Character							
	Cultural Heritage							
	Accessing the Park							
	Space to Breathe							
	Key		Change occurring in the area affecting the selected special quality					

Key sensitivities

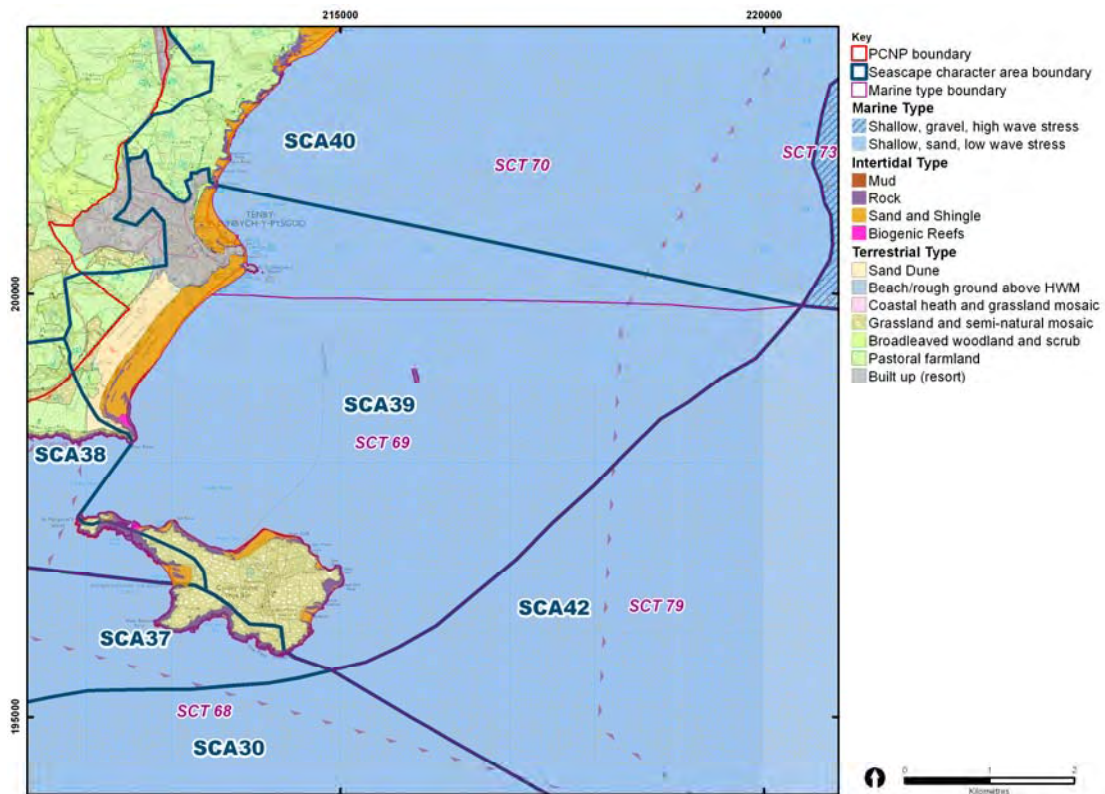
Factors which contribute to sensitivity	Factors which detract from sensitivity
Historic character of older urban settlements and villages, historical features and key views such as to and from Pembroke	Existing impacts of towers, wind turbines, tanks and associated industrial features may appear to justify further development.

<p>Castle.</p> <p>Use by recreational boats who can be sensitive receptors.</p> <p>Close association with Daugleddau river system, of nature conservation and recreational importance.</p> <p>Nature conservation importance of wetlands and mudflats.</p> <p>Pembrokeshire Coast Path as a sensitive receptor.</p> <p>Large numbers of urban receptors and passing traffic for example on Cleddau Bridge.</p>	<p>Urban centres close to and visible from the water.</p> <p>Limited tranquillity except in sheltered bays.</p> <p>Main roads such as A477 further reducing tranquillity.</p> <p>Presence of established recreational use of waterways.</p> <p>Use by recreational motor boats.</p>
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No: 39

Seascape Character
Area Name:

Tenby and Caldey Island



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SCA 39: Tenby and Caldey Island



Tenby with cove from the south



Tenby North Beach with harbour



Tenby- sailing dinghy activity off North Beach



View across to Caldey island from South Beach

Summary Description

The area is located on the western edge of Carmarthen Bay bounded by Tenby with its two large beaches on the mainland coast and by Caldey Island to the south. Tenby is a popular resort with a harbour and busy beaches and the sea is used for sailing and pleasure boating in fairly safe, sheltered waters, including trips to Caldey Island. The monastery on the island restricts visitors and the island has a tranquillity that is less apparent on the mainland. Tenby with its spire, Georgian houses and Conservation Area is an important landmark and feature on the coast.

Key Characteristics

- A relatively sheltered area of sea on the western side of Carmarthen Bay enclosed to the south by Caldey Island and Giltar Point.
- South east facing coastline with the resort town of Tenby flanked by two popular beaches.
- Town with Conservation Area, church spire and Georgian Houses on cliffs dominates the coastline with St Catherine's Island particularly prominent.
- The South beach is backed by dunes and links.
- Caldey Island with its monastery and lighthouse is tranquil with carefully managed visitors.
- There is a harbour for fishing vessels and lifeboat station and the sea is used for sailing, sail training and pleasure boating in fairly safe, sheltered waters, including trips to Caldey Island.
- Long views out to sea (including to Lundy Island from Caldey) but also across to the Gower to the east.

Physical Influences

The headland behind Tenby South Beach to Goskar Rock is composed of east-west striking Carboniferous Limestone 50-90m aod, bordered by cliffs at the points up to 30m. Tenby South Beach is a long east-facing bay between Giltar Point and Sker Rock/St Catherine's Island. Caldey Island lies 1km offshore to the south east, made of Limestone except in the south [in SCA37]. On Caldey Island (57m aod) the cliffs are 30-40m in height around a generally rocky coast indented with bays. Intertidal areas are dominated by the sandy bay of South Beach and coves on Caldey (64%), while rocky coasts surround Caldey Island and headland points (34%). Coastal erosion of the limestone through wind and wave action takes place through corrasion, solution and attrition. The long sandy stretch of Tenby South Beach, backed by dunes in the south (the Burrows), is subject to longshore sediment drift, with sediment transport through traction, suspension and saltation. Cliffs and headlands of the upper carboniferous sandstone and shales bound the sandy north beach at Tenby.

The shallow (<30m) sea floor has sandy sediments overlying the limestone, and slopes from gently (<1°) in the bays to moderately (<10°) off the rocky coasts. The seas are fairly sheltered from wind and wave stress, particularly along the east facing coast. Caldey Island is more exposed. Tidal streams set to east and west, but flow north east and south west though Caldey Sound. Tidal streams through the sound can reach <2.5 knots. Tidal range is 7.7m.

Carmarthen Bay just offshore is an SPA and an Important Bird Area holding 33,000 wintering water birds on a regular basis such as scoter. Tenby Cliffs and St Catherine's Island and Lydstep Head and Tenby Burrows are SSSIs so the area has significant nature conservation interest. Species include otter and bats.

Cultural influences

Tenby's promontory position makes it an ideal location to control maritime trade in the Severn; it has long-standing links with Ireland and continental Europe. Caldey Island illustrates the importance of the island community to the monastic ideal; monks first came there in the 6th century. In 1906 the Anglican Benedictines purchased Caldey. Since 1929 the Island has been owned by the Cistercian order. The present Italianate style abbey on Caldey evokes the international reach of the monastic order.

Tenby's walls indicate its importance and the need to defend it. Tenby has been a prosperous

port since the Middle Ages; the Welsh name *Dinbych y pysgod* indicates the importance of the fishing trade. It may have attracted the Vikings but was developed as a castle-borough by the Normans. It became a popular resort in the 19th century when the need for better landing facilities led to the straightening and widening of the pier. The harbour is a castellated stone structure of 1848. The town Conservation Area includes all of North Beach and its hinterland, the town walls, Castle Hill, St Catherine's Island and the built seafront facing South Beach. Its key qualities including the above and its Georgian architecture are explained in the Conservation Area statement. The land based area lies in LCA2: Tenby.

Scheduled monuments include:

- PE007 (town wall): community: Tenby
- PE163 (castle): community: Tenby
- PE424 (Nanna's Cave (Prehistoric/multi-period): community: Tenby
- PE425 (cave): community: Tenby
- PE426 (Daylight Rock Mesolithic Site - cave): community: Tenby
- PE436 (kiln): community: Penally
- PE439 (beacon): community: Penally
- PE450 (St Catherine's Fort): community: Tenby

'Etmic Dinbych' ('In Praise of Tenby') from the 9th century *Book of Taliesin* is amongst the oldest of Welsh poems. Robert Recorde (c. 1512-1558) the mathematician was brought up in Tenby. Nelson and Lady Hamilton visited it. Artists such as John Knapp Fisher have painted scenes in Tenby.

There are just two wrecks in the area- one just off Tenby and the other off Caldey.

The mainland coast is dominated by the picturesque resort and fishing town of Tenby set on rising ground and extending out to Castle Hill, a minor headland, which divides the North and South Beaches and which protects the harbour from prevailing winds. To the south there is pasture, sand dunes, dune grassland and golf links. Semi-natural grassland on sand lies on the cliffs running to Giltar Point to the south. The land based area lies in LCA2: Tenby.

Caldey Island's monastery is surrounded by mixed farmland with some deciduous woodland and coniferous plantations on land sloping from the higher southern cliffs to the lower northern shore with its sweeping sandy beach. The coastal strip consists of a semi-natural mosaic. The island is described in the landscape assessment as LCA3: Caldey Island.

There are four visitor mooring buoys near the harbour wall at Tenby. Dinghy and cruiser sailing, including racing, is popular as is the use of motor cruisers, day boats and jet skis. Wildlife and angling boat trips go regularly out of Tenby Harbour as well as the boat to Caldey Island. Kayaking takes place around the coastline of both the mainland and island. Surfing is popular, especially towards the north end of North Beach and windsurfing can be found across the whole bay. Some diving and snorkelling takes place round Catherine's Island which is immediately adjacent to Tenby. Sea angling from boats and the shore is popular and local fishing vessels have placed pots around both the mainland and island waters. Sea rowing also takes place out of Tenby.

Tenby's small harbour provides shelter for a small fleet of coastal fishing vessels and recreational craft with a slipway next to the beach. It is a popular town for tourists. There is a yacht club on the beach in the centre of Tenby. Beach activities are popular at both North and South Beaches.

The Pembrokeshire Coast Path runs behind North Beach and around the coastal edge of the town before splitting along the back of the beach or the Burrows and then running south around the cliff edge to Giltar Point.

Fishing in the area comprises of hand gathered cockles and razor clams, beach seining and beach nets, set nets, whelk, lobster and crab potting. The area is used extensively both for general sailing, sail training and for sail racing. There is a heavily used cruising route from here around the coast west to Milford Haven and Fishguard, across the Bristol Channel and to points east across Carmarthen Bay. There are also numerous routes across to Ireland.

A new lifeboat station is located at Tenby. The new structure sits alongside the older station. The lighthouse at Chapel Point on Caldey Island is an important navigational aid and landmark.

Aesthetic, perceptual and experiential qualities

The seascape has a feeling of some containment provided partly by Caldey Island but also by the headlands of Castle Hill and Giltar Point. The sense of scale is moderate with the town of Tenby giving a human reference and scale. There is diversity in coastal form and balance between the manmade and natural forms although south of Tenby there are discordant features including the school and MOD features such as the structure on Giltar Point. The mainland beaches and coastal waters are areas of activity with trips out to and around Caldey Island, especially in summer. This contrasts with the imposed and managed tranquillity of Caldey Island itself.

Key views are to and from Tenby, Caldey Island and Giltar Point and along the coast. The spire of the St Mary's church in Tenby is a strong landmark.

Cultural benefits and services

The area contributes significantly towards leisure and recreational services in the form of marine recreation and beaches, to natural heritage in the form of the coastal SSSIs, and to cultural and spiritual services in respect of the natural beauty of the coastline with Caldey island, the monastery, and Tenby Conservation Area with its medieval walls and Georgian architecture.

Forces for change								
Summary	Key forces for change							
<p>Slow coastal erosion of rocky cliffs on Caldey.</p> <p>Shoreline management plan on Caldey in this area is Do Nothing.</p> <p>On Tenby South Beach longshore sediment movement is restrained by Castle Hill and St Catherines Island.</p> <p>Shoreline management plan recommendations are from managed realignment in the dune area to hold the line elsewhere.</p> <p>Development pressure on Tenby.</p> <p>Intense recreational use leading to erosion of coastal path and habitats such as the dunes and around Giltar Point, plus effects on marine/littoral habitats.</p> <p>Potential for visual impact from offshore turbines (Atlantic Array) to the south east, affecting sense of remoteness and tranquillity on Caldey. Potential for elevated and sustained and sequential views from Coast Path, and from key points along the coast.</p>	Special Qualities	Natural processes/ climate change	Visitor pressure	Marine use- commercial and fishing	Offshore energy or minerals	Development pressure	Land management changes	MOD use
	Coastal Splendour							
	Islands							
	Diversity of Landscape							
	Remoteness, Tranquillity and Wilderness							
	Diverse Geology							
	Richness of Habitats and Biodiversity							
	Rich Archaeology							
	Distinctive Settlement Character							
	Cultural Heritage							
	Accessing the Park							
	Space to Breathe							
	Key		Change occurring in the area affecting the selected special quality					
Key sensitivities								
Factors that contribute to sensitivity				Factors that detract from sensitivity				
<p>Undeveloped, tranquil character of Caldey Island.</p> <p>Views from Tenby, the beaches and Giltar Point to Caldey Island.</p> <p>Historic character of Tenby and associated features such as the church spire and St Catherine's Island and their prominence along the coast.</p> <p>Historic character and religious use of Caldey Island.</p> <p>Pembrokeshire Coast Path is a sensitive receptor.</p>				<p>Presence of unsympathetic 20c housing and development in Tenby.</p> <p>The bustle of the town.</p> <p>The movement and use of the beaches and sea area reducing tranquillity.</p> <p>Presence of the Links golf course.</p>				

8. Appendix C Cultural benefits and services

- 8.1. Cultural benefits and services cover the non-material benefits that people obtain from ecosystems such as spiritual and religious enrichment, cultural heritage, recreation and tourism and aesthetic experience. The Pembrokeshire seascape clearly offers these services in a number of ways.
- 8.2. We define cultural benefits and services based on the UK National Ecosystem Assessment, 2011. This provides a '*comprehensive overview of the state of the natural environment in the UK and a new way of estimating our national wealth*'. The assessment includes a review of the state of natural resources, including coastal margins and the marine environment, their value to society, and forces for change and future threats. It builds on a Natural England report NECR024 'Experiencing landscapes: capturing the *cultural* services and *experiential qualities* of landscape, October 2009.
- 8.3. A Green Paper by the Welsh Government in 2012³ states that ecosystems should form the basis for a fresh approach to management and regulation of the environment in Wales. '*Wales' nature, land, water and air are our ultimate resource*'. The consultation responses to the green paper were positive agreeing with a holistic approach. A White Paper is to be produced in 2013-2014 informing the Environment Bill and Planning Bill. It is therefore crucial to collect data to inform our knowledge of the ecosystems resource.
- 8.4. The UKNEA identifies 'ecosystem cultural services' provided by the environment; which it defines as '*the environmental settings that give rise to the cultural goods and benefits that people obtain from ecosystems*'. These involve '*a range of complex cultural practices, such as the development of institutions, the application of capital, and human processes involving memories, motions, the senses, and aesthetic appreciation.*'
- 8.5. It notes that '*encounters with the natural world maintain their fascination for very substantial numbers of people*' and that '*daily contact with nature is part, still, of being human*'. Interactions with green space, for example, have been linked with longevity and decreased risk of mental ill-health, and '*children's relationship with nature is a fundamental part of their development.*'
- 8.6. Evidence is noted that '*every environmental setting is capable of being interpreted as possessing a distinctive sense of place which can contribute to a range of human value needs*'. What are described as '*heritage goods*' can '*contribute to a sense of identity, place, freedom and understanding*'. It goes on to suggest that '*environmental settings are valuable surroundings for outdoor learning where engaging with nature can lead to enhanced connectedness to nature and increased ecological knowledge.*'
- 8.7. The UKNEA notes that an '*ecosystem services approach to understanding culture-nature interactions is a relatively new perspective and consequently many key sources of social, economic and environmental data are not designed to examine key aspects of cultural services and goods.*' It also notes that spiritual and religious 'goods' are provided by interaction with the natural environment, although quantifying the evidence for this is difficult.

³ Sustaining a Living Wales: A green paper on a new approach to natural resource management in Wales, January 2012

- 8.8. Urbanisation means that *'more people have a set of local environmental settings with urban characteristics. At the same time, however, increased mobility has allowed more people to travel longer distances nationally and internationally to environmental settings for tourism and recreation purposes.'* Places such as Pembrokeshire and its seascape therefore have a valuable role to play in delivering cultural ecosystem services. Broad categories of what the Pembrokeshire seascape offers are set out in Table 1 in the main report as a framework for the brief descriptions for each seascape character area.

9. Appendix D Forces for change

- 9.1. The seascape of Pembrokeshire is undergoing change through a number of natural and man-related forces. These forces for change are explored and defined to ensure consistent use and to avoid repetition in the individual SCA descriptions.
- 9.2. The National Park Management Plan notes the ways of 'particular significance' in which the appearance and integrity of the landscape may be under threat:
- **Climate change** and responses to it
 - The UK's National Security Strategy (March 2008) cites climate change and competition for energy as key challenges, and also makes reference to security of food and water supplies, the longer term impact of climate change from habitat fragmentation and environmental degradation to energy-hungry food production and fuel poverty.
 - Climate change may, specifically, put pressure on wildlife and marine fish populations as well as coastal scenery.
 - It may also affect farming, particularly in terms of crop suitability, growing seasons, availability of drinking water and shade, effects on livestock, and losses to soils (and consequent soil run off to water courses) and trees or hedgerows
 - Some areas may become inaccessible due to flooding or instability, including coastal paths or recreational areas.
 - **Land management practices**, which have particular implications for semi-natural habitat and its wildlife, and for management of natural stocks and flows, such as soils and water. Traditional farming practices, such as extensive grazing, are critical contributors to the character of the landscape, yet farming continues to suffer an uncertain future with an aging farming population and more part time farmers, with barely viable businesses. Farming is also very vulnerable to fuel price changes and consequent cost of input materials such as fertiliser and feed.
 - **Development** - the National Park has a very limited landscape capacity for development in general and for housing in particular. Development proposals must be considered against the special qualities listed at para 4.56 of the Pembrokeshire Coast Local Development Plan (to 2021); LDP Strategy Policy 8 and Policy 15 in particular apply.
- 9.3. The National Park Management Plan notes that factors particularly likely to affect **remoteness and tranquillity** in the National Park are:
- visible development or intensive land use,
 - traffic noise,
 - light,
 - intrusive noise from recreational activity,
 - firing on the ranges,
 - waste and litter, and
 - activity arising from mineral and aggregate workings.
- 9.4. **Tourism and recreational use** of the National Park, whilst one of its core functions, can also have significant impacts, such as erosion of paths, effects of parking and road access, noise from power craft in particular, and impacts on fauna. The Pembrokeshire Coastal Forum are working to ensure that adventure

activities such as coasteering, kayaking and cliff climbing, do not impact on the environments and wildlife of Pembrokeshire

- 9.5. A number of areas and settlements have been identified as at risk from the **effects of storms and sea level rise** over the next decade. The shoreline management planning process is largely concerned with managing these flood risks and associated potential impacts. Shoreline Management Plans are non-statutory documents. The latest plans for the Pembrokeshire coast were prepared in 2000 by WS Atkins. New plans are in the process of being developed.
- 9.6. Pembrokeshire is being promoted as a Hub for Marine Renewables. Marine energy is being researched with proposals such as tidal turbines in Ramsey Sound.
- 9.7. The UKNEA examines the trends for change throughout the UK. Findings for coastal margins and marine areas are set out below:

Table D1: Relative importance of, and trends in, the impact of direct drivers on Broad Habitat extent and condition.

<i>Location</i>	<i>Habitat Change</i>	<i>Pollution & Nutrient Enrichment</i>	<i>Over-exploitation</i>	<i>Climate Change</i>	<i>Invasive Species</i>
Coastal margins	Moderate, increasing	Very High, continuing	Low, decreasing	High, increasing	Moderate, increasing
Marine	Moderate, increasing High and increasing impact on wild fish.	Moderate, decreasing	Very high, increasing	Moderate, increasing	Low, increasing

- 9.8. The UKNEA continues to explain these changes in more detail.
 - **Coastal Margins:** Coastal Margin habitats have declined in extent, by about 10%, and quality in the last 60 years due to development and coastal squeeze. Sand dune and saltmarsh have been lost due to agricultural improvement and forestry, as well as land-claim, while rapid coastal development for industry, housing, military activities and tourism has affected all habitats. The quality of these habitats has been impacted by widespread installation of artificial sea-defence structures and increased armouring of soft cliffs, which reduces sediment supply and natural dynamics, crucial to contributing to protection elsewhere. Furthermore, reductions in traditional forms of management, such as grazing of levees, have led to the risk of increased erosion and potential flooding (TR 11.2).
 - **Marine:** The Marine habitats around the UK deliver a very wide range of ecosystem services and goods of value to society. However, the delivery of many of these provisioning and regulating services in the Marine environment are declining because of heavy exploitation and sea temperature rise associated with climate change. Wild fisheries are declining, while trawling also has an adverse effect on seabed life, which plays a key role in cycling nutrients crucial to ensuring the productivity of the seas. The breakdown of waste and detoxification of freshwater runoff appears to be keeping pace but is locally problematic in estuaries and coastal waters. Increasing sea temperatures also raise concerns about the potential outbreak of pathogens (TR 12.3).

- 9.9. Whilst these may not correspond exactly with what is happening in Pembrokeshire it sets the national context.
- 9.10. In relation to Pembrokeshire other particular forces for change apply. The use of the safe deep water harbour of Milford Haven for the importation of oil and gas has resulted in associated oil storage, refineries and power station. The use of Castlemartin and Manorbier areas for military firing ranges provide a further distinctive effect on the seascape.
- 9.11. The broad categories of what forces for change in Pembrokeshire's seascape are set out in **Table D2** as a framework for the brief descriptions for each seascape character area.

Table D2 Forces for change

Natural processes and emerging climate change	
Threat to what	Nature of threat
Coastal Splendour Islands Diversity of Landscape Remoteness, Tranquillity and Wilderness	Effects on seascape character and visual amenity through: <ul style="list-style-type: none"> erosion or sedimentation altering the character of the coastline eg removal of sand from beaches increased frequency of extreme weather eg storms exacerbating flooding and erosion eg dunes, shingle beaches. sea defences and flood protection measures affecting natural character of coastline in low lying areas eg dunes, shingle beaches
Diverse Geology Richness of Habitats and Biodiversity	<ul style="list-style-type: none"> coastal erosion leading to direct loss of habitat eg cliff top semi-natural heathland, dunes increased flooding affecting low-lying habitats habitat fragmentation, for example in estuarine ecosystems
Rich Archaeology Distinctive Settlement Character Cultural Heritage	<ul style="list-style-type: none"> coastal erosion leading to potential loss of archaeological resource eg coastal prehistoric forts Sea defences and flood protection measures affecting natural character of traditional vernacular of settlement eg harbours stress to buildings and other man made features from extreme weather events and flooding inundation of historic coastal landscapes
Accessing the Park Space to Breathe	<ul style="list-style-type: none"> erosion of coastline blocking or diverting coastal path or access to open access land or other recreational areas flooding blocking or diverting coastal path or access to recreational areas change in coastal processes eg sedimentation or threat of flooding changing use of harbours or anchorages weather-related changes to patterns of tourism and recreational activity
Marine/water activity	
Threat to what	Nature of threat
Coastal Splendour Islands Diversity of Landscape Remoteness, Tranquillity and Wilderness	Effects on seascape character, visual amenity and tranquillity through: <ul style="list-style-type: none"> offshore wind, tidal or wave energy installations other offshore development such as rigs dredging- boats and infrastructure commercial shipping movements and anchorages eg tankers, ferries increasing recreational/tourism boat trips and motor watersports eg powerboats and ribs around Ramsey increasing non motor powered boat and small craft use eg canoes visitor litter and seasonal waste marine rubbish, tank cleaning and oil spills on physical environment and visual quality MOD uses including firing ranges fishing intensification eg potting user conflicts eg anglers and powerboats
Diverse Geology Richness of Habitats and Biodiversity	<ul style="list-style-type: none"> increasing recreational/tourism boat trips and leisure sailors motor on sensitive marine habitats and breeding populations eg marine nature reserves and estuarine habitats impacts of marine rubbish, tank cleaning and oil spills on wildlife and habitats impacts of wind, tidal or wave energy installations eg on bird populations effects of dredging on seabed

	<ul style="list-style-type: none"> • effects of fishing such as trawls and dredging on seabed and on associated habitats • increasing pressure on fish populations from exploitation • effects of static fishing such as baited pots and fixed lines • physical effect on seabed and associated habitats of MOD firing range • erosion of estuary banks from high-speed motor craft
Rich Archaeology Distinctive Settlement Character Cultural Heritage	<ul style="list-style-type: none"> • direct effects and effects on the setting of heritage features through tourism development, commercial, energy and rural diversification • loss of traditional small boat fisheries and associated processing and distribution infrastructure
Accessing the Park Space to Breathe	<ul style="list-style-type: none"> • MOD uses including firing ranges restrict access to sea • Motorised leisure craft can cause disturbance to other users/feeling of space to breathe • Commercial marine and energy users can cause disturbance to other users/feeling of space to breathe
Coastal development and marine related activity	
Threat to what	Nature of threat
Coastal Splendour Islands Diversity of Landscape Remoteness, Tranquillity and Wilderness	<p>Effects on seascape character, visual amenity and tranquillity through:</p> <ul style="list-style-type: none"> • oil and natural gas harbour/port, storage, processing facilities and users eg refineries, oil and liquid gas tanks, gas fired power station, power lines and pipelines on coast • intensification of ferry port use and associated infrastructure on the coast • energy infrastructure related to offshore energy development such as sub stations and power lines. • wind turbine development onshore • solar photovoltaic panels, at field scale or on building roofs • tourism development infrastructure, such as marina development parking and visitor facilities, paths, slipways, moorings etc • development/pressure of tourist accommodation eg new caravan parks or extensions, campsites • increasing use of coast for active sports eg coasteering, climbing, walking, beach related activity • visitor pressure on honeypots including wear and tear, litter, parking. • new housing or other development potentially suburbanising coast and not responding or respecting landscape or settlement character • light pollution from commercial, residential and tourist accommodation • MOD uses including firing ranges • particular pressure of all of the above on the undeveloped coast.
Diverse Geology Richness of Habitats and Biodiversity	<ul style="list-style-type: none"> • sea defences causing loss of or changes to coastal habitats eg dune and saltmarsh • direct loss of land or habitat from new buildings such as for housing, tourism or other development structures including roads/parking and access provision • indirect effects on habitat and local ecosystems such as habitat fragmentation or impact on breeding bird populations • increased development leading to pollution of water or air and additional waste management implications • increased recreational activity and access leading to trampling, disturbance or erosion impacts on habitat eg semi natural coastal heathland vegetation • invasion of bracken into semi-natural coastal habitats eg heathland • effect on fauna of light pollution from development

Rich Archaeology Distinctive Settlement Character Cultural Heritage	<ul style="list-style-type: none"> • effects on the sense of remoteness and tranquillity • erosion of coast and threat to coastal heritage eg cliff forts or harbours • neglect of heritage features eg in estuary and on coast
Accessing the Park Space to Breathe	<ul style="list-style-type: none"> • effect on coastal path continuity of exclusion zones relating to use of firing range • direct impacts/erosion of walkers/bikers/horse riders on paths bridleways and lanes eg coastal path erosion • pressure on honeypots such as embarkation points for boat trips including parking and congestion • visitor pressure and numbers can conflict with 'space to breathe'
Land management	
Threat to what	Nature of threat
Coastal Splendour Islands Diversity of Landscape Remoteness, Tranquillity and Wilderness	<p>Effects on seascape character, visual amenity and tranquillity through:</p> <ul style="list-style-type: none"> • intensification of agriculture such as grass 'improvement' of unimproved grass, overgrazing and polytunnels • abandonment of agricultural land with incursion of bracken and scrub • reduced maintenance/management or removal of elements of landscape eg field boundaries such as Pembrokeshire hedgebanks and walls and introduction of fences leading to degraded landscapes, • farm/rural diversification to tourism uses, selling off farm dwellings or buildings for second homes or holiday homes changing settlement character and pattern • onshore wind turbines and other renewable energy such as solar voltaic panels • an increase in forestry and woodland and changes in management eg for biomass heating systems, and associated processing and storage areas, could change landscape character inland [eg Daugleddau] • Intensification of tourism and commercial activities could increase congestion of roads, traffic noise and demand for parking and other infrastructure could change the tranquillity and character of the area • MOD uses including structures and firing ranges
Diverse Geology Richness of Habitats and Biodiversity	<ul style="list-style-type: none"> • intensification of agriculture such as grass 'improvement', new crops, overgrazing or removal of hedge banks leading to loss of biodiversity • loss of or reduction in agricultural management through non-viability of farm business, leading to incursion by scrub and ruderal species, and loss of species-rich pasture which depends on grazing • changes in forestry management or new areas of commercial forestry • pollution of water courses and marine ecosystem from nutrient run-off / enrichment • MOD uses generally positive for biodiversity but physical effect on land/habitats of exploding munitions
Rich Archaeology Distinctive Settlement Character Cultural Heritage	<ul style="list-style-type: none"> • reduced agricultural management leading to loss of distinctive features of landscape including historic field systems, hedge banks and walls • reduced management of parks and gardens • impacts of changing food marketplace on viability of raising heritage breeds of farm animals
Accessing the Park Space to Breathe	<ul style="list-style-type: none"> • increase in infrastructure including main roads reducing tranquillity • pressure on honeypots including parking and congestion • congestion on narrow roads leading to coast with associated effects on highway detailing and signage

10. Appendix E Sensitivity of seascape character areas

- 10.1. We define sensitivity within the framework of Countryside Agency Topic Paper 6 and LCA guidance. Though the brief states that the *inherent* sensitivity of an SCA should be addressed, it also mentions that the study needs to explore sensitivity to different types of development citing the Regional Seascape Assessment [RSA] in relationship to offshore renewable energy as a template. We therefore examine the different characteristics of SCAs and where they may be more or less sensitive to development- see **Table E1**. This table acts as the framework for discussion of sensitivity to relevant forces for change for each SCA.
- 10.2. Landscape designations and their associated value should be considered separate to judgements on sensitivity. Designations are derived through a number of criteria, some subjective, including scenic beauty, wildness, cultural associations and necessarily involve consensus. Boundaries are placed along easily defined permanent features on the ground such as roads. As such, there can be areas of varying value within a designation, as indicated by LANDMAP studies, and also areas of varying sensitivity. However, it would not be surprising if there was an increased incidence of sensitivity in designated areas due to their intrinsic characteristics.

Table E1: Factors affecting the sensitivity of seascape character areas

<i>Criteria</i>	<i>Factors that add to sensitivity</i>	<i>Factors that detract from sensitivity</i>
Heritage features	<p>Presence of wrecks and other submerged historic features.</p> <p>Presence of coastal and island historic features such as forts, castles, chapels, monasteries, other buildings and structures and other heritage features which have a strong relationship with the coast and sea visually, physically or culturally.</p>	Limited number or no heritage features
Nature Conservation features	<p>Presence of marine habitats with high biodiversity.</p> <p>Presence of intertidal and coastal edge habitats with high biodiversity.</p> <p>Presence of BAP species or habitats.</p>	Limited range and extent of biodiverse areas.
Cultural associations	Where there are strong collective cultural associations with the sea and coast through people and events and their expression through literature, art, music or other media. These can include religious connections, military connections, legends, books and poems, pictures, music, films, plays and other cultural media.	Where there are limited cultural associations.
Scale	<p>Small scale, enclosed, views to horizon limited by landform</p> <p>Introduction of an element of scale into previously un-scaled area</p> <p>Where scale is huge and smaller elements would detract</p>	Large scale views
Openness and enclosure	Where openness is a key characteristic and introduction of built elements would compromise this.	Unframed open views unimpeded by natural elements or features.

<i>Criteria</i>	<i>Factors that add to sensitivity</i>	<i>Factors that detract from sensitivity</i>
Coastal and hinterland form	<p>Intricate, complex, rugged forms and dramatic headlands/ends of peninsulas</p> <p>Where great simplicity is the key characteristic and introduction of structures into very horizontal composition would compromise this.</p> <p>Gently sloping towards coast allowing views of near shore elements.</p>	<p>Flat, horizontal or gently undulating or indented coast.</p> <p>Simple forms</p> <p>Plateau or flat hinterland.</p>
Settlement/ Development pattern and foci	<p>Small scale, traditional, historic settlements and monuments. Small clustered villages.</p> <p>Lack of infrastructure</p>	<p>Ports, industrial facilities, larger scale infrastructure, urban form, linear settlements</p>
Seascape Pattern and Foci	<p>Complex or unified pattern which would be disrupted by development.</p> <p>Important focal points eg islands, islets, headlands, distinctive sweeping beaches, and high hills.</p> <p>Open unspoilt views of the sea with no signs of development offshore.</p>	<p>Simple pattern</p> <p>Lack of natural focal points</p> <p>Presence of existing vertical or other elements at sea including shipping/ferries.</p>
Movement	<p>Where stillness is a key feature</p> <p>Where/when movement is highly natural, irregular or dramatic (currents, tidal streams, waves crashing on exposed coastlines) and regular mechanical movement or presence of development would detract.</p>	<p>In busier areas where development movement relates to other forms of mechanical movement present e.g. commercial shipping, ferries, boats, cars, lorries, aircraft or to a lesser extent other movement eg crowded swimming and surfing beaches</p> <p>Where/when waves are gentler and slow, regular movement of development could complement lapping of waves.</p> <p>Where clear current gives meaning/purpose to tidal renewable energy.</p>
Dark skies/ Lighting	<p>Where the area is unlit at night and is classified as such in dark skies study.</p> <p>Little impact of lights from sea and land traffic.</p> <p>Where lighting is from scattered small settlements, lighthouses etc and where marine development lighting would introduce a new, different scale.</p>	<p>Area is already well lit at night</p> <p>Lights of sea and land traffic or installations present.</p>

<i>Criteria</i>	<i>Factors that add to sensitivity</i>	<i>Factors that detract from sensitivity</i>
Aspect	Development would interfere with sunrises and particularly sunsets Where turbines would be most often backlit, thereby increasing visibility. Front lit development from higher level views.	Development located away from sunrise and sunset positions Development front lit
How seascape is experienced	From remote little use stretch of sea with little shipping or boat use. From secluded coastline, intimate coastal roads and footpaths. From important viewpoints and elevated positions where the focus is the view and not the activity.	From ferry/shipping. From main coastal, busy roads. Crowded beaches where focus is on beach activities.
Remoteness, Tranquillity, Wildness	Undeveloped seascape Wild character Highly natural, unmanaged Remote or isolated Tranquil	Highly developed seascape Highly modified / managed. Not remote Lacking in tranquillity
Exposure	Sheltered and calm seascapes Where seascape is extremely exposed such that the perceived wild, elemental nature is a key characteristic and development would significantly change this perception.	Open, exposed seascapes which does not provide a perception of elemental or wild seascape character and development would be perceived as relating to these characteristics.

Annex 3 Sustainable Design Supplementary Planning Guidance changes.

6.6 Place and Local/Historic Distinctiveness

‘Local planning authorities have an important role in securing the conservation of the historic environment while ensuring that it accommodates and remains responsive to present-day needs. This is a key aspect of local authorities’ wider sustainable development responsibilities.’

Planning Policy Wales Edition 4 (p.87)

The problem defined - background and measures

The design of new buildings must enhance the quality of their surroundings, being sympathetic to the immediate and wider context. This does not eliminate contemporary design; rather it should promote it.

Buildings, building groups and settlements must respond to their landscape settings and their visual, aesthetic, historical, cultural and ecological aspects.

Pre 1939 buildings which represent over 30% of the existing built structures will be treated with respect for their traditional form and vernacular details.

However creating new, modern contexts can also be encouraged, by designing a modern sustainable building which differs from the historical aesthetic of an area, but contributes to the landscape and ecology.

Measures

Your Design and Access Statement should demonstrate an integrated and inclusive approach to sustainable design, proportionate to the scale and type of development proposal. Statements should deal with all relevant aspects of design throughout the process and the life of the development, clearly stating the design principles adopted and including illustrative material in plan, elevation and section where relevant.

Modifications to pre 1939 buildings will need to reflect the local character and historic context. Traditional vernacular design and materials would be requested for applications affecting windows, doors, porches, chimney stacks, roofs and curtilage buildings All proposed schemes should be taken through the Planning Authority’s pre-application service, which will closely consider conservation aspects. .

- For small scale developments, illustrated design and access statement must be produced dealing with form, scale, mass and materials. Applications should include scheme design drawings at an appropriate scale in the context of their surrounding landscape and adjoining buildings.
- In addition, for other developments, a comprehensive illustrated design and access statement must be produced dealing with form, scale, mass and materials.
- The conversion or change of use of a building must be considerate to its architectural and historical qualities.
- See matrix for further details of what needs to be included in the design and access statement for each development.