CARMARTHEN BAY & ESTUARIES EUROPEAN MARINE SITE

comprising

Carmarthen Bay and Estuaries Special Area of Conservation

Burry Inlet Special Protection Area and Ramsar Site

Carmarthen Bay Special Protection Area

MANAGEMENT SCHEME TECHNICAL ANNEX 1 BACKGROUND

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on behalf of the Carmarthen Bay & Estuaries EMS Relevant Authorities Group

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This is a working document and as such will be continually revised in light of any relevant new information and legislation.

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CARMARTHEN BAY AND ESTUARIES EUROPEAN MARINE SITE

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Burry Inlet SPA and Carmarthen Bay SPA

MANAGEMENT SCHEME TECHNICAL ANNEX 1: BACKGROUND

WORKING DRAFT

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FOREWORD

Surrounded by the sea, Britain has a centuries-long history of dependence on it for trade, defence and as a source of food. Almost everywhere marine scientists have explored since interest in natural history began, fascinating wildlife communities have been recorded. Nevertheless, with so little of the marine environment visible from above the sea surface, and with only a minute proportion of seabed sampled by a sediment grab or net, or during an average dive, large areas still remain poorly described and there remains much that is still unknown.

As important as the fascinating wildlife is, the marine environment and marine biodiversity also play a vital role in maintaining global life support systems – including providing a whole host of goods and services essential to humanity. The scale of the contribution from inshore, shallow and estuarine waters, and particularly by the rich biodiversity of all the unglamorous plants and animals living in and on sediment seabeds and shores is both considerable and critical to life on earth as humanity knows it. Despite the importance of these free services that happen to benefit mankind, they are poorly known or appreciated by marine policy makers and managers, and the public at large.

Carmarthen Bay and Estuaries European Marine Site (EMS) is used by a wide range of interests for many diverse activities. It is a significant resource for the fishing industry, a highly valued tourism contributor to the local economy and of considerable recreational and leisure importance to surrounding communities. However, many human activities exert pressures on the marine environment that cause it to become degraded over time. At the same time, marine ecosystems are constantly changing naturally and dynamically.

In attempting to conserve marine ecosystems it is important to recognise that ecosystems cannot themselves be directly managed; only human activities that impact on those ecosystems can be managed. Management is about risk and consequences: what are the risks of activity 'x'?; what consequences follow?; how may those risks be reduced and the consequences mitigated?

However, when faced with management of human activities so as to reduce or minimise their adverse effects on the marine environment, the detailed information required to make the soundest, most wholly objective decisions is all too often lacking. There is often insufficient understanding of the spatial and temporal distribution of marine wildlife, its behaviour and how much human interaction it can tolerate. Making management decisions even more difficult, information on the spatial and temporal distribution and intensity of the many human activities taking place on and in the sea, and their actual consequences, either alone or in combination with other pressures are often also very limited. Nevertheless, because degradation of the marine environment clearly has occurred – often over many years, sometimes centuries – and is clearly still ongoing, decisions must be taken despite these knowledge limitations. Further, this decision making needs to be precautionary where necessary, only being relaxed where there is high confidence activity is benign.

The range of management tools available to managers vary widely in their suitability and efficacy for marine nature conservation. Many were designed for management of specific activities for other purposes, such as fisheries management, or for terrestrial situations, such as SSSI protection. Others require significant levels of resources which are often unavailable to responsible authorities, in order to be used effectively. At the time of writing, a Marine Bill is in passage through the UK parliament which has some considerable potential to improve management structures and capabilities. However, what will eventually emerge, how it will apply in Wales, and what resources will be made available for the implementation of new or revised measures remains to be seen.

The ultimate success of the management scheme however, will dependent not only on the statutory authorities and their management measures, but also all the stakeholders in the site - interested bodies, individual users and local communities. All have a part to play in the site's future management: the statutory authorities to implement the management necessary, to take proper account of the

requirements of the EMS features in their management and consenting decisions, to collect the information necessary to both inform management and to judge the efficacy of that management; stakeholders to comply with the management measures, give due consideration to the needs of the EMS features in all that they do, and to contribute to the knowledge base.

The development of this management scheme has been fortunate to be able to learn from the experiences of other marine EMSs across the UK, and particularly from adjacent neighbouring marine SACs in Pembrokeshire and Cardigan Bay.

"The Little Fort of the Fish" Fishing boats in Tenby Harbour in about 1889,Francis Frith. The Francis Frith Collection, Frith Book Company Ltd., Teffont, Salisbury, Wiltshire

1 INTRODUCTION

This section introduces the background to the Management Scheme, including the legislative background, the infrastructure underlying the Scheme, the agreed aims, scope and principles of the Scheme and its relationship with other plans and strategies.

1.1 INTRODUCTION TO THE MANAGEMENT SCHEME

The designation and management of Special Areas of Conservation (SAC) and Special Protection Areas (SPA) are key measures in meeting the requirements of the European Union's Habitats and Birds Directives and, in turn, the EU's commitments to biodiversity conservation. The management scheme has been developed to contribute to meeting the UK's obligations under the Habitats Directive (section 1.2.1) through fulfilling the requirements of the UK Habitats Regulations (section 1.2.3) for the Carmarthen Bay & Estuaries European Marine Site (EMS).

The Habitats Regulations provides for delivery of the goals of the Directive and Regulation 36 (1) states that: "The relevant authorities, or any of them, may establish for a European marine site a management scheme under which their functions (including any power to make byelaws) shall be exercised so as to secure in relation to that site compliance with the requirements of the Habitats Directive."

The purpose, "vision" and goals of the management scheme are derived from and designed to meet the legislative drivers of the European Union Habitats and Birds Directives, and the UK Habitats Regulations.

The purpose of the management scheme is to set the framework within which activities affecting the Carmarthen Bay & Estuaries EMS will be managed in ways compatible with the achievement of the nature conservation objectives. The key task of the management scheme is to establish and implement the conservation measures necessary to achieve the goal of "favourable conservation status" (FCS), as defined in the Habitats Directive, for the features of the site.

The establishment and implementation of the Carmarthen Bay & Estuaries EMS management scheme is jointly and severally the responsibility of the relevant authorities (as defined in the Habitats Regulations). The relevant authorities, working collaboratively as the Relevant Authorities Group (RAG) are collectively responsible for the scheme – and individually responsible for their contributions to it.

The primary 'clients' for, and the main users of the scheme document are the member authorities of the RAG itself, the competent authorities exercising regulatory functions within the site, and other public bodies and statutory undertakers with statutory biodiversity duties). The production of this management scheme document is intended to assist the relevant authorities:

- review the management of the EMS and maintain management under review;
- identify and highlight any adjustments or changes to the current management of the site that may be required to ensure the achievement of the conservation objectives;
- integrate their management activities;
- collaborate in cross-cutting activities;
- provide a compilation of the undertakings of each relevant authority.

The scheme is intended to be a long-term, ongoing structure that includes strategies, courses of action and agreed guidelines which aid decision-making by relevant authorities, informs competent authorities and identifies management necessary to secure the EMS in FCS.

The scheme is not intended to be a static document, but a dynamic framework that aids decision-making and continually evolves to take account of changes in and changing information about activities, issues, scientific information, management practices and legal obligations.

An underlying aspiration of the scheme is to secure the necessary management through voluntary co-operation and partnership wherever possible rather than regulation. Nevertheless, new regulatory measures may need to be identified, introduced and implemented.

The natural beauty and resources within the Carmarthen Bay & Estuaries EMS provide an important source of employment, economically important resources, environmental goods and services (*eg* coast protection and nutrient cycling) and encourage many recreational activities. The management scheme therefore has the challenging task of maintaining the important wildlife of the site whilst encouraging use of the site to be undertaken in a sustainable way, so as to meet the needs of its many users both now and into the future. There is no intention to prevent all activities, only to identify and secure the appropriate management of those activities which risk causing degradation [1] of the features. Many activities are unlikely to degrade the wildlife or habitats for which the site has been chosen, and so will not be affected. Activities with the potential to cause degradation but that are already appropriately managed in some way are also unlikely to be further affected. New management measures aimed at protecting or preventing degradation of the interest features will only be introduced after consultation with interested parties.

Whilst it is the responsibility of the relevant statutory organisations to develop and implement this management scheme, everyone with an interest in the site has been encouraged to contribute to the scheme's development, and the delivery of the management measures identified as necessary to achieving FCS is dependent on all users of the area playing their part in its management. To this end, it is critical to recognise that the development of a management scheme and the production of this document are not ends in themselves – they are the means under which RAs bring together functions to deliver the Habitats Directive's requirements (see Section 1.2.2).

The vision for the Carmarthen Bay & Estuaries European Marine Site is one of a quality marine environment, where the habitats and species of the site are in a condition as good as or better than when the site was selected, where human activities co-exist in harmony with the habitats and species of the site and where use of the marine environment within the EMS is undertaken sustainably.

This is a working document and as such will be continually revised in light of any relevant new information and legislation.

[1] The terms damage, disturbance and deterioration are used extensively in both legislation and guidance documents. For the purposes of this document, the term degradation is used to encapsulate these and any other terms that may describe the concept of decline in quality or standard or impairment resulting from such human action as have detrimental outcome for features (see Appendix 2, Glossary).

1.2 LEGISLATIVE CONTEXT

The key legislation relevant to the designation and management of the EMS is identified below.

1.2.1 EUROPEAN COMMUNITY HABITATS DIRECTIVE

Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna [2] (commonly referred to as the Habitats Directive) was adopted by the European Community in 1992 as a major contribution to the Convention on Biological Diversity (see below). Its main aim is to maintain biodiversity throughout all member states, but to make such an enormous task more manageable, it focuses on the habitats and species which are rare or threatened on a European scale and listed in Annexes to the Directive.

One of the main mechanisms used to protect the listed habitats and species is the selection, designation and appropriate management of Special Areas of Conservation (SACs). The SACs, together with Special Protection Areas classified under the EC Birds Directive (see section 1.2.2 below) will comprise a "coherent European ecological network of … under the title *Natura 2000"*. Seven marine habitat types are listed in the Directive and nine of the species listed are marine or spend part of their life in the sea and have breeding populations in the United Kingdom"

Article 6(2) of the Directive requires member states to: "take appropriate steps to avoid (*in European sites*) the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the sites have been designated, in so far as such disturbance could be significant in relation to the objectives of the Directive."

The Directive requires managers to take account of the economic, cultural, social and recreational needs of local people when managing the site. A majority of the sites already chosen have been subject to human use for hundreds of years and the implications of the Directive on those patterns of use have to be considered as part of the whole management process.

Further detail on the Habitats Directive is available from the UK Joint Nature Conservation Committee (JNCC) and the EC Europa websites[3].

1.2.2 EUROPEAN COMMUNITY BIRDS DIRECTIVE

Council Directive 79/409/EEC on the Conservation of Wild Birds [4] (commonly referred to as the Birds Directive), adopted by the European Community in 1979, provides a framework for the conservation and management of human interactions with wild birds in Europe. *Inter alia*, it provides for the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species

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[2] Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna. (OJ No L 206, 22.7.92 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:HTML

[3] http://jncc.defra.gov.uk/page-1374 http://europa.eu.int/comm/environment/nature/nature_conservation/eu_nature_legislation/habitats_directive/index_en.htm

[4] Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31979L0409:EN:HTML

listed in Annex I of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.

Further detail on the Birds Directive is available from the JNCC and the EC Europa websites [5].

1.2.3 U.K. HABITATS REGULATIONS

The Habitats Directive was transposed into UK law by the Conservation (Natural Habitats, &c.) Regulations 1994 (commonly referred to as the Habitats Regulations), later amended and eventually consolidated as the 2010 Regulations [6]. These regulations set out the measures to be employed to protect *Natura 2000* sites in the marine environment. They apply to all UK marine SACs and SPAs and key provisions can be summarised as follows:

- Welsh Ministers, the nature conservation body (CCW) and, in relation to marine areas, any competent authority having functions relevant to marine conservation, are required to (must) "exercise those functions so as to secure compliance with the requirements of the Habitats Directive." (Regulation 9(1) and (3))
- … every competent authority in the exercise of any of their functions, shall have regard to the requirements of the Habitats Directive so far as they may be affected by the exercise of those functions. (Regulation 9(5))
- Regulation 35(3) requires statutory nature conservation bodies (the Countryside Council for Wales (CCW) in Wales) to advise other relevant authorities for European Marine Sites as to "(a) the conservation objectives for that site, and (b) any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated."; this advice is generally referred to as *Regulation 35 advice*.
- Regulation 36 provides for one or more of the relevant authorities to establish a management scheme for a European marine site under which their functions (including any power to make bylaws) shall be exercised so as to secure in relation to that site compliance with the requirements of the Habitats Directive. Only one management scheme may be made for each European marine site. A management scheme may be amended from time to time. As soon as a management scheme has been established, or is amended, a copy of it shall be sent by the relevant authority or authorities concerned to the appropriate nature conservation body.
- Regulation 61 *et seq* make provisions for competent authorities, "before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which (a) is likely to have a significant effect on a European site or a European offshore marine site (either alone or in combination with other plans or projects), and (b) is not directly connected with or necessary to the management of that site" to make an appropriate assessment of its implications for the site and to agree to the plan or project "only after having ascertained that it will not adversely affect the integrity" of the European marine site.

[5] http://www.jncc.gov.uk/page-1373; http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

[6] http://www.legislation.gov.uk/uksi/2010/490/pdfs/uksi_20100490_en.pdf

In June 1998 the Department of the Environment, Transport and the Regions and Welsh Office published guidance on the conservation management of European Marine Sites within the UK [7]. Although this guidance is some years old it has not been withdrawn or revised though it has become supplemented by both UK and European case law.

1.2.4 OTHER RELEVANT INTERNATIONAL, EUROPEAN AND & UK DOMESTIC LEGISLATION AND CONVENTIONS

This section makes no attempt to summarise all relevant legislation. For a summary up to 2003, see Boyes, L Warren & M Elliott 2003. *Summary of Current Legislation Relevant to Nature Conservation in the Marine Environment in the United Kingdom*. Report to JNCC from the Institute of Estuarine and Coastal Studies, University of Hull (available for download from http://jncc.defra.gov.uk/PDF/summary.pdf).

1.2.4.1 International conventions

The **Convention on Biological Diversity** was developed under the auspices of the United Nations Environment Programme and signed by 150 government leaders at the 1992 Rio Earth Summit [8]. The Convention was inspired by the world community's growing commitment to sustainable development and was a dramatic step forward in the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources.

The Convention recognises both the inherent and socio-economic importance and value of marine biodiversity and ecosystems, the pressures the marine environment is under and the relative underprotection compared to terrestrial environments. The 1995 "Jakarta Mandate" on the "Conservation and Sustainable Use of Marine and Coastal Biological Diversity" contained provisions to be implemented through a multi-year programme of work, based, inter alia, on the ecosystem approach, precautionary principle and the importance of scientific information.

Ramsar sites are wetlands of international importance designated under the **Ramsar Convention** [9]. As the initial UK emphasis was on selecting sites of importance to waterbirds, many UK Ramsar sites are consequently also SPAs classified under the Birds Directive; Burry Inlet SPA is one such double-badged site (however, the rationale for the Ramsar designation is broader than that for the SPA and includes a list of "noteworthy" fauna and flora which closely aligns to the list of SAC features, or components of those features [10]).

[7] DETR / Welsh Office, 1998. *European Marine Sites in England & Wales. A Guide to the Conservation (Natural Habitats &c) Regulations 1994 and to the Preparation and Application of Management Scheme.* HMSO ISBN 1851120874 Out of print but available online from: http://www.cbeems.org.uk/english/info.html

[8] 1992 International Convention on Biological Diversity http://www.cbd.int/convention/

[9] See http://www.ramsar.org/

[10] See http://www.jncc.gov.uk/pdf/RIS/UK14001.pdf

Government (UK and Wales) policy for Ramsar sites is that the same protection at a policy level is extended in respect of new development as that afforded to sites which have been designated under the EC Birds and Habitats Directives as part of the *Natura 2000* network.

The **Regional Convention for the Protection of the Marine Environment of the North East Atlantic**, the OSPAR Convention, 1998 [11], merged the 1974 Oslo Convention for the Prevention of Marine Pollution by Dumping from Ships and Aircraft and the 1978 Paris Convention for the Prevention of Marine Pollution from Land-Based Sources.

Annex V of the Convention provides for the *Protection and conservation of the ecosystems and biological diversity of the maritime area*. Under this Annex , OSPAR developed a *Strategy on the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area*, which addresses assessment of which species and habitats need to be protected and criteria for their selection.

The Commission's measures and programmes within its Biodiversity Strategy include the identification of identification and selection of marine protected areas and the prevention and control of adverse impacts from human activities.

As an "area within the maritime area for which protective, conservation, restorative or precautionary measures, consistent with international law have been instituted for the purpose of protecting and conserving species, habitats, ecosystems or ecological processes of the marine environment", the EMS is also classified as an OSPAR Marine Protected Area [12].

EMS also contribute to the UK's obligations under other conventions, *inter alia*, **Bern, Bonn** and **CITES Conventions** [13].

1.2.4.2 Other European legislation

Numerous European directives, policies and strategies affects, directly or indirectly, the management of EMS.

The most relevant recent of these is the **Marine Framework Strategy Directive** [14]. The MSFD outlines a transparent, legislative framework for an ecosystem-based approach to the management of human activities which supports the sustainable use of marine goods and services. The overarching goal of the Directive is to achieve 'Good Environmental Status' (GES) by 2020 across Europe's marine environment [15].

[11] See http://www.ospar.org

[12] See http://www.jncc.gov.uk/page-4526

[13] See http://www.jncc.gov.uk/page-1363

[14] See http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:164:0019:0040:EN:pdf

[15] See http://jncc.defra.gov.uk/page-5193

The Directive does not state specific measures on how to achieve GES, except for the establishment of Marine Protected Areas. The Directive complements and provides an the overarching framework for a number of other key Directives and legislation at the European and UK level, including the Habitats, Birds and Water Framework Directives (see below), the Common Fisheries Policy and the UK Marine and Coastal Access Act. It also contributes to helping meet international commitments undertaken at the World Summit on Sustainable Development and under the Convention on Biological Diversity and the OSPAR Convention.

In addition, existing water quality directives (*eg* Water Framework, Urban Waste Water, Bathing Waters and Shellfish Waters Directives), environmental impact assessment directives (Environmental Impact Assessment (85/337/EEC) - the EIA Directive; Strategic Environmental Assessment (2001/42/EC) **-** the SEA Directive) and other directives (Nitrates, Shellfish Hygiene Directives) and policies (*eg* Common Fisheries Policy) have a bearing on the goals and management of EMS. This document makes no attempt to summarise this legislation, but reference and appropriate links are made where necessary.

1.2.4.3 UK domestic legislation

There is a very wide range of UK legislation relevant to the delivery of EMS management. This not only includes specific nature conservation legislation but also, and importantly, a considerable body of sectoral legislation covering, *inter alia*: fisheries, water quality, waste management, development, shipping.

Key relevant legislation includes:

The **Wildlife and Countryside Act 1981**. The marine-specific provisions of this Act were repealed by the Marine and Coastal Access Act (see below). However, other provisions, notably for Sites of Special Scientific Interest in the intertidal, still apply, as amended by the NERC and CROW Acts (see below). For further information see: http://www.defra.gov.uk/wildlife-countryside/cl/index.htm

The **Countryside and Rights of Way Act 2000** (CRoW Act) amended W&C Act. It created duties for the conservation of biological diversity and improved protection of SSSIs and the enforcement of wildlife legislation.

The **Natural Environment and Rural Communities Act 2006** (NERC Act) further amended the W&C Act. *Inter alia*, it updated the designation and management of Sites of Special Scientific Interest (SSSI) and the duty on public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity. Section 40(1) placed a new duty on every public authority, in exercising its functions, to "have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity".

The **Marine & Coastal Access Act 2009** includes multiple provisions relevant to EMS management including:

- creating a Marine Management Organisation to deliver marine functions in English territorial waters and UK offshore waters (for matters that are not devolved); the devolved functions of which are undertaken by the Welsh Government in Wales;

- a strategic marine planning system, within which EMS management schemes will sit and need to be accommodated.
- an integrated marine licensing system, delivered in Wales by a mareine licensing unit within the Welsh Government;
- marine nature conservation powers to enable the designation of Marine Conservation Zones (MCZs) and provide legal mechanisms to deliver other European and international marine conservation commitments (including those identified in under the Marine Strategy Framework Directive, OSPAR Convention and Convention on Biological Diversity)
- modernising inshore fisheries management through the replacement of Sea Fisheries Committees with Inshore Fisheries and Conservation Authorities in England and the transfer of the function of inshore fisheries management into the Welsh Government in Wales, and the creation of duties to conserve marine ecosystems whilst enforcing sea fisheries and marine nature conservation measures.

The ***Marine and Coastal Access Act 2009 (Commencement No.1, Consequential, Transitional and Savings Provisions) (England and Wales) Order 2010*** indentifies the Welsh Government's duties and responsibilities under the MCA Act.

The **Government of Wales Acts 1998 and 2006** introduce a sustainable development duty and require the promotion of that duty in the exercise of the Welsh Assembly Government's functions. The Environmental Assessment of Plans and Programmes (Wales) Regulations 2004 are relevant to the assessment of plans and projects in European Marine Sites.

A wide range of fisheries Statutory Instruments and Sea Fisheries byelaws were converted to Welsh Orders under the *Marine and Coastal Access Act 2009 (Commencement No.1, Consequential, Transitional and Savings Provisions) (England and Wales) Order 2010*. Statutory Instruments relevant to the Wales Fisheries Zone are summarised by the WG [16]. A full review of all Welsh fisheries provisions was commenced in 2011 [17].

In addition to national legislation there is also a range of local legislative measures such as local ports and harbour regulations and byelaws.

1.2.5 SACs, SPAs and the Natura 2000 network

Special Areas of Conservation (SACs) designated under the Habitats Directive, and Special Protection Areas (SPAs) designated under the complementary Birds Directive to protect wild birds, collectively form a network of protected sites across Europe named the *Natura 2000* series. SACs and SPAs cover both terrestrial and marine environments. Where they include the sea or the foreshore, the UK Habitats Regulations refer to them as European Marine Sites (EMS). There are over eighty SACs within the UK that are marine or have a marine element and 73 SPAs with marine components; Carmarthen Bay SPA is the only entirely marine SPA at the time of writing. There are five extensive, wholly marine SACs in Wales, three in South and West Wales (Figure 1). Sizes of sites vary considerably, as do the number of habitats and species for which the sites have been selected.

[16] See http://marinemanagement.org.uk/fisheries/monitoring/documents/fisheries-legislation-wales.pdf

[17] See http://wales.gov.uk/publications/accessinfo/drnewhomepage/environmentdrs2/2010/seafisherieslawreview/?lang=en

In addition to meeting the conservation requirements of any European Marine Site, management of all EMS must also give due regard to the conservation requirements of other adjacent or nearby *Natura 2000* sites.

The SAC designation process is detailed in Article 4 of the Habitats Directive.

Special Areas of Conservation are initially selected by each member state on the basis of the habitats and species listed in Annexes I and II, and of the criteria set out in Annex III of the Directive . The habitats and species found on each site are referred to as the *interest features*. The best examples of these interest features for each country, once agreed locally and nationally through consultation, are then submitted to the EC for consideration. After adoption by the EC, these candidate sites must then be formally designated by their member states.

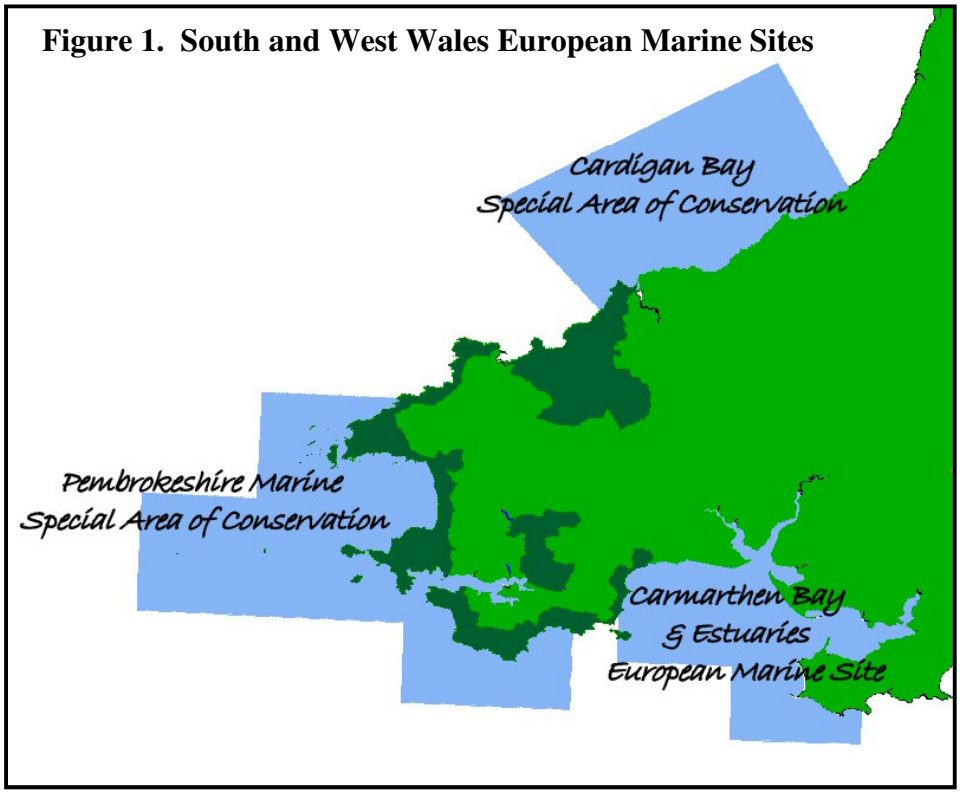
Following identification of interest features and a site boundary but prior to submission to the EC sites are known as *possible* SACs; upon submission as part of a members state's national list of sites they become known as *candidate* SACs. On adoption by the EC they then become *Sites of Community Importanc*e (SCIs). SCIs must be designated as SACs by Member States within six years of adoption by the Commission.

The SPA designation process, as detailed in Article 4 of the Birds Directive, is slightly shorter. Designation, or *classification*, of SPAs in undertaken by the Member State, albeit that Member States are required to "send the Commission all relevant information so that it may take appropriate initiatives with a view to the coordination necessary to ensure that the areas provided for … form a coherent whole which meets the protection requirements of these species …" Following identification of a site as meeting the selection criteria, such identified sites are known as "possible" SPAs prior to classification.

It is generally UK policy that areas classified as SPAs are first notified as Sites of Special Scientific Interest as this provides the legal underpinning for SPAs in domestic legislation. However, SSSI notification is not applicable to marine areas and in these cases, management is promoted by wider countryside measures, while protection relies on the provisions of the Habitats Regulations.

The Birds Directive makes it clear that protection of listed species includes "taking appropriate steps to avoid pollution or deterioration of habitats or any disturbances affecting the birds" both within and outwith designated protection areas.

Figure 1. South and West Wales European Marine Sites



1.3 MANAGEMENT SCHEME INFRASTRUCTURE

1.3.1 RELEVANT AND COMPETENT AUTHORITIES

The Habitats Regulations use the terms relevant authorities and competent authorities to describe statutory bodies to which the Regulations apply.

Regulation 7 identifies as competent authorities to includes any statutory body or public office exercising legislative powers, whether on land or sea; specifically including any Minister, government department, public or statutory undertaker, public body of any description or person holding a public office. ….. "public body" includes any local authority, joint board or joint committee; and (b) "public office" means- (a) an office under Her Majesty, (b) an office created or continued in existence by a public general Act of Parliament, …. "local authority"-… in relation to Wales, means a county council, district council or community council; "joint board" and "joint committee" in relation to England and Wales mean- (a) a joint or special planning board constituted for a National Park …. or a joint planning board within the meaning of section 2 of the Town and Country Planning Act 1990, and (b) a joint committee appointed under section 102(1)(b) of the Local Government Act 1972 …" (Regulation 7).

Relevant authorities are those competent authorities which "have functions in relation to land or waters within or adjacent to that .. { European marine }site" and include "(a) a nature conservation body; (b) a county council, district council, … (c) the National Rivers Authority, a water undertaker or sewerage undertaker, or an internal drainage board; (d) a navigation authority … (e) a harbour authority within the meaning of the Harbours Act 1964; (f) a lighthouse authority; … (h) a local fisheries committee constituted under the Sea Fisheries Regulation Act 1966 or any authority exercising the powers of such a committee" (Regulation 6).

Whereas all relevant authorities are also competent authorities, not all competent authorities are relevant authorities.

1.3.2 RELEVANT AUTHORITIES

The UK Habitats Regulations make relevant authorities (see Box 1) responsible for the conservation and management of the EMS. However, no single relevant authority can have overall responsibility for the site, since none has all the necessary powers. The ultimate responsibility for ensuring compliance with the requirements of the Habitats Directive in Wales, both generally and in relation to the Carmarthen Bay & Estuaries EMS, lies with the National Assembly for Wales and the UK government.

Each relevant authority is individually responsible for meeting its duties under the Habitats Regulations. However by jointly preparing, implementing and reviewing this management scheme, it is anticipated that the relevant authorities will be able to more effectively achieve the aims of the Habitats Directive in relation to this site, than if they acted alone. To this end the relevant authorities for the Carmarthen Bay & Estuaries EMS formed the 'Relevant Authorities Group' (RAG), a voluntary partnership. This Group has no independent statutory authority or powers but serves to ensure that all relevant authorities may contribute to the integrated development and implementation of the scheme. The relevant authorities are committed to working collaboratively as the RAG and this scheme is an expression of their commitment to working together to fulfil their collective responsibility for realising the vision for the site.

The Group's terms of reference are reproduced in Appendix 3.

The relevant authorities comprising the Carmarthen Bay & Estuaries EMS RAG comprise:

- Carmarthenshire County council (CCC)
- City & County of Swansea (CCoS)
- Countryside Council for Wales (CCW)
- Environment Agency Wales (EAW)
- Dŵr Cymru Welsh Water (DCWW)
- Pembrokeshire Coast National Park Authority (PCNPA)
- Pembrokeshire County Council (PCC)
- Saundersfoot Harbour Commissioners (SHC)
- Trinity House Lighthouse Service (THLS)

Each is an equal member of the Carmarthen Bay & Estuaries EMS RAG. However, THLS is a corresponding member (as it is in most or all other RAGs UK-wide) and does not have an active role in the RAG, and SHC have not participated in RAG functioning to date. Each authority's roles, responsibilities and contact information are detailed in Technical Annex 1.

Prior to April 2010 the South Wales Sea Fisheries Committee (SWSFC) was a relevant authority and contributed significantly to the development of this scheme. However, in April 2010 the responsibility for management of inshore and intertidal fisheries was absorbed by the Welsh Assembly Government (now Welsh Government).

1.3.3 COMPETENT AUTHORITIES

The main competent authorities for this EMS include:

- Welsh Government (WG) (for, *inter alia*, fisheries, marine licensing, tourism consenting and permitting functions)
- Ministry of Defence (MoD) / Defence Estates (DE)
- Maritime and Coastguard Agency (MCA)
- The National Trust (NT)
- The Crown Estate

Although the Crown Estate is clearly, based on the definitions in Regulation 6 of the Habitats Regulations, a competent authority, it expends considerable effort to remind the other competent authorities, relevant authorities and stakeholders that it is not a regulator.

Details of the roles and responsibilities of relevant competent authorities are included in Appendix 3.

Competent authorities are kept up to date with the work of the RAG and are directly involved in the development of the management scheme. They are also invited to participate the Liaison Forum (see section 1.3.3.1).

1.3.2 EMS OFFICER

The relevant authorities do not have the capacity, and in many cases the specialist expertise, to undertake or to lead on the work required to develop the management scheme. Consequently the RAG agreed soon after it was formed that its objectives would be best furthered by the employment of an officer to execute and manage the development, introduction and implementation of a management scheme for the EMS. This work would include, but not necessarily be limited to such integral, contributory, tasks as the provision of information to and liaison with interested parties and the collection and utilisation of relevant data and information on behalf of the RAG and the collaborative production and dissemination of all relevant information, and liaison with stakeholders to develop and implement a management scheme.

The long term role of the EMS Officer in the ongoing implementation of the management scheme is considered to be of critical importance to the success of the Management Scheme.

The EMS Officer is jointly funded by and works on behalf of the RAG and is hosted by the City and County of Swansea. The job description is included in Appendix 3.

1.3.3 PUBLIC PARTICIPATION

The RAG recognises that successful conservation management of the EMS depends on awareness of the site and management measures by its users, and their willingness to behave in compliance with those measures (see section 1.4.3.i). Clearly therefore, although only relevant and competent authorities have statutory responsibilities, all interested individuals and organisations have a role to play; all are encouraged to contribute to the development of the management scheme and to participate in the management of the site. Further, government policy and guidance strongly recommends that the public and sectoral stakeholders, including owners and occupiers, users, industry and interest groups be involved in developing the scheme.

1.3.3.1 EMS Liaison Forum

Following initial public meetings held in Llanelli and St Clears in 2001, chaired by an independent facilitator and attended by 45 and 40 members of the public and interested stakeholders respectively, it was agreed that the involvement of local people with expertise in coastal and marine activities and the local marine environment would ensure benefits for all involved. It was further agreed to establish a Liaison Forum where specific sectoral interest groups (see Box 1) could formally meet with relevant (and competent) authorities and help to develop site management.

Box 1: Sectoral interest groups for Carmarthen Bay & Estuaries EMS	
Community	Fisheries
Industry	Nature conservation & environment
Commerce and business	Recreation & tourism

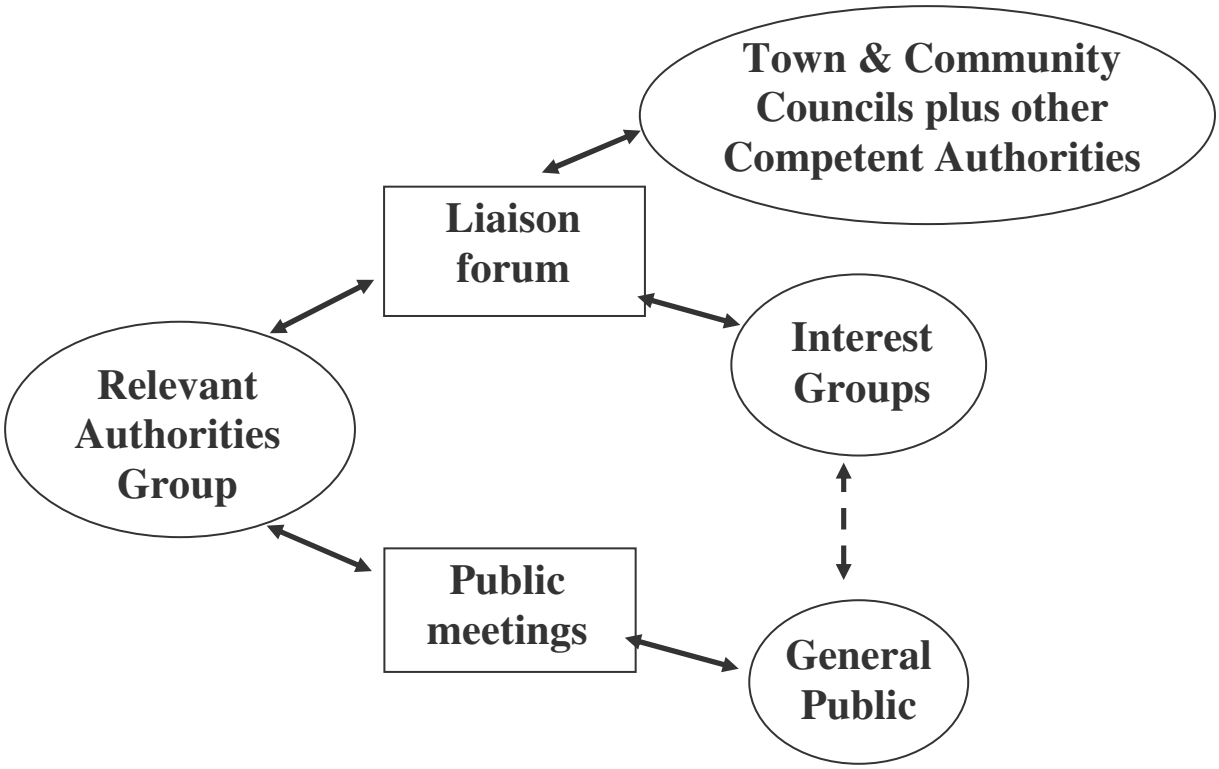
It was agreed that the Liaison Forum should have an important role in ensuring the relevant authorities address issues of concern and interest to local people in the context of the EMS. Members of the Liaison Forum were invited to advise the relevant authorities on local conditions and public opinion in relation to particular activities. Information supplied by this group (and others) and the knowledge

they could bring to the management scheme was seen as essential for its successful implementation. The liaison structure eventually agreed for the site is shown in Figure 1.1 and the purpose and terms of reference for the EMS Liaison Forum are included as Appendix 4.

Although it was originally intended that members of these interest groups would meet individually to discuss relevant issues and then feed into the Liaison Forum via a representative, this did not always occur as membership, representation and the existence of other initiatives evolved. Several representatives were involved in other, usually pre-existing, sectoral interest groups or associations, from which they drew knowledge and opinions, and tended to represent these interests rather than an EMS interest group *per se*.

After establishment the Liaison Forum only met twice – with a very low turnout – before an apparent lack of interest in attending further meetings became clear. Soon afterwards, the then EMS officer resigned to move on to a new role and the post remained unfilled for over two years. On appointment of a new officer in 2006 unsuccessful efforts were made to revive the sectoral interest groups.

Figure 1.1. Carmarthen Bay & Estuaries EMS Liaison Structure



1.3.3.2 Other stakeholders

As shown in Figure 1.1, there was the opportunity for the general public to become involved in site management through public meetings and for local residents via their Community Councils. The

liaison structure also encompasses competent authorities, albeit it was appreciated that only those with a local presence would likely be directly involved in face-to-face meetings.

Following the failure to re-establish the Liaison Forum in its originally envisaged format, liaison and communication effort changed. EMS-specific coastal surgeries - informal public open days - were trialled, though these had very limited success. Since then, public engagement has focussed on opportunities provided by other fora and events such as those organised by Pembrokeshire Coastal Forum, the Pembrokeshire Fish Week and collaboration with the Pembrokeshire Marine SAC, and primarily via a revised and relaunched website (www.cbeems.org.uk).

1.4 MANAGEMENT SCHEME AIM, SCOPE AND PRINCIPLES

1.4.1 STRATEGIC OBJECTIVES

The purpose, vision, goals and 'philosophy' of this scheme are derived from and designed to meet the legislative drivers of the European Union Habitats and Birds Directives, and the UK Habitats Regulations. The main aim of the Directive is to promote the maintenance and conservation of biodiversity; a subsidiary aim is to contribute to sustainable development and the Directive requires socio-economic considerations to be taken into account in management for nature conservation [18].

The key task of the management scheme is the establishment and implementation of the conservation measures necessary "to secure in relation to {the} site compliance with the requirements of the Habitats Directive" (Regulation 35, Habitats Regulations); specifically:

- To meet the requirements of the EU Habitats and Birds Directives by securing and maintaining, for the long-term, the features of the site at *favourable conservation status* (FCS), as defined in Article 1 of the Habitats Directive, safeguarding them from damage or significant disturbance, and safeguarding dynamic natural habitat structures and functions.
- To meet the obligations of UK Habitats Regulations.
- To make an appropriate, long-term, contribution to the favourable conservation status of the *Natura 2000* series of sites and habitats and species of European conservation importance.
- To assist relevant authorities in reviewing the management of the EMS, and identifying adjustments or changes to the current management of the site that may be required to ensure the achievement of the conservation objectives.
- To raise public awareness of the site's biodiversity and conservation value.
- To integrate with other relevant strategies for biodiversity safeguard.
- To integrate with, and positively influence the environmental sustainability of relevant sectoral, spatial and regional plans and strategies insofar as they relate to the site.

The EMS is considered to be multiple use marine protected area rather than a marine nature reserve or highly protected marine area. Nevertheless, the clear requirements of the Habitats Directive to ensure that human activity and use will not compromise the conservation status of the features, except in very

[18] Habitats Directive: *preamble* "the main aim of this Directive being to promote the maintenance of biodiversity, taking account of economic, social, cultural and regional requirements, this Directive makes a contribution to the general objective of sustainable development";

Article 2 (1). "The aim of this Directive shall be to contribute towards ensuring bio-diversity through the conservation of natural habitats and of wild fauna and flora in the European territory of the Member States to which the Treaty applies. *(2)* Measures taken pursuant to this Directive shall be designed to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest. *(3)* Measures taken pursuant to this Directive shall take account of economic, social and cultural requirements and regional and local characteristics."

Article 6(1). "For special areas of conservation, Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans specifically designed for the sites or integrated into other development plans, and appropriate statutory, administrative or contractual measures which correspond to the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the sites."

specific circumstances, are acknowledged and the management scheme will be designed to achieve this.

1.4.2 SCOPE

The management scheme sets the framework within which activities in the Carmarthen Bay & Estuaries EMS will be managed by relevant and competent authorities, individually and collectively, in ways compatible with the achievement of the nature conservation interests, and for self-guidance. It is not, and should not be confused as, a full set of management regulations for the site.

This scheme encompasses the three designated *Natura 2000* sites, Carmarthen Bay and Estuaries marine SAC, Burry Inlet SPA and Carmarthen Bay SPA, and considers them to comprise a single, integrated EMS that the scheme applies to jointly [19].

The scheme is the sum of several parts, and includes, *inter alia*:

- a liaison and consultation structure;
- each relevant and competent authorities' management measures and constraints;
- a register of assigned actions (detailed in section 5, Action Plan);
- a means for recording completion of, and failure to complete, actions [20];
- a monitoring programme;
- a means of reviewing actions, and required actions;
- reporting (*inter alia*, to government and thence to the EC).

This scheme is designed as a long-term, rolling programme with a time-scale of 25 years [21]. Within this period, the scheme will be substantially reviewed at six yearly intervals (in parallel with the EU reporting cycle) and revised and rolled forward accordingly.

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[19] Habitats Regulations Regulation 35(2): "Only one management scheme may be made for each European marine site". UK government guidance (*European Marine Sites in England & Wales. A Guide to the Conservation (Natural Habitats &c) Regulations 1994 and to the Preparation and Application of Management Schemes*. DETR / Welsh Office. 1998. HMSO. ISBN 1851120874; para 3.12): "There will however be areas where marine SACs and SPAs overlap, either partially or entirely. In such cases, whilst the Regulations allow separate management schemes to be established for each site, there will often be practical advantages in establishing a single management scheme to cover both. In such cases the specific management measures may vary in different parts of the whole area according to the respective nature conservation interests. In other circumstances, two or more European marine sites may be adjacent. A single scheme covering the sites would be legitimate and if separate schemes are established co-ordination efforts should be made to ensure they are complementary."

[20] At the time of writing, CCW are developing a *Special Sites Project* which is intended to identify the management actions CCW deem essential to address specific issues of conservation concern, and to provide a mechanism for identification of which actions have or have not been completed. Although theres is a considerable degree of overlap and commonality, clear differences in scope, detail and timescale between the SSP's identified actions and the long-term management actions identified as necessary as a result of this schemes assessment of pressures and threats (see Technical Annexes 2 and 3) have emerged during the period of development.

[21] DETR / Welsh Office 1998 guidance, *ibid*, para 4.16.

The scope of the management scheme excludes the determination of individual consents and permissions for "plans and projects" (Habitats Directive Article 6.3; Habitats Regulations 47 *et seq*). Nevertheless, because the effects of many consents and permissions are inseparable from the effects of many activities, and because many facilitate consequential activities that require management, the scheme also takes account of development or new activities and, where relevant, the resultant need for subsequent management, and identifies where consenting or permitting such developments or new activities may have an adverse effect on the site's features or management. In so doing, the scheme complements the advice on "operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated" provided by the Countryside Council for Wales (CCW) as required by Regulation 35(3)(b) of the Habitats Regulations (see section 1.2.3) in informing competent authorities in their assessment of plans and projects.

Further, in pursuance of effective collaborative working, the scheme encourages the exchange and sharing of information on relevant consents, permissions, plans or projects, provision of advice from relevant and competent authorities as necessary and informing the RAG of any decisions or changes in management relevant to the conservation management of the EMS.

1.4.3 PRINCIPLES

The scheme is founded on the following principles.

a) Favourable conservation status (FCS)

All management action will be designed to contribute towards achieving and maintaining favourable conservation status for the EMS features including, where appropriate, enhancement or restoration to FCS.

From the context and purpose of Habitats Directive Article 6, EC guidance [22] advises that the term *management* is to be treated as referring to the conservation management of a site. In the context of this scheme therefore, the meaning of the term management will be construed the sense in which it is used in Article 6(1).

Identification and prioritisation of management action will be informed by the advice provided by the Countryside Council for Wales under Regulation 35, Habitats Regulations, as to: "(a) the conservation objectives for that site, and (b) any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated" (*Regulation 35 advice*).

b) Feature focus

The scheme will focus on the features for which the site has been designated, informed by *Regulation 35 advice* (*op cit*). Nevertheless, it will take full account of the scope of FCS, as defined in the Habitats Directive, encompassing ecosystem structures and functions as integral to the conservation status of the features. It will also take full account of the broad scope of the 'typical species' of habitat

[22] European Commission (2000). *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* DGXI, Brussels ISBN 92-828-9048-1
http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm
http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf

features that is drawn in the *Regulation 35 advice*: "Species that are, from time to time, associated with a specified habitat within the site; i.e. all species that contribute to the biodiversity of the specified habitat within the site" (*Regulation 35 advice* Appendix 1).

c) Best available scientific information

The need for management and management solutions will be identified as far as possible using the best available scientific survey, monitoring, surveillance and causal relationship information.

However, the current and likely future limitations on information availability are acknowledged. Consequently, where risk is perceived as likely, or cannot be discounted, and robust scientific information is limited, the need for management and management solutions will be determined following the precautionary principle, and taking account of any other appropriate information and / or management good practices deemed relevant.

d) Precautionary principle [23]

All potential sources of risk to the EMS features will be examined, and systematically and objectively risk assessed. Such risk assessment will focus on the direct and indirect impacts of human activities, and be based on the best scientific information available (*qv*).

However, where there is identified risk or justifiable cause for concern, lack of full scientific uncertainty will not be used as a reason for postponing identification and introduction of management measures likely to be cost effective in preventing damage or deterioration to EMS features or their components.

e) Sustainability

The management scheme is designed to:

- provide a framework that enables activities to be undertaken in environmentally sustainable ways,
- facilitate and inform the integration of social and economic objectives with the conservation objectives for the site.

In so doing, the scheme should both benefit the conservation management of the site and make a contribution to the environmental [24] sustainability of developments.

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[23] The precautionary principle is defined differently, with different strengths of formulation, in differing circumstances. Although the basis for European environmental law, the Treaty on European Union (1992) specifies adherence to the principle without defining it. As the EU Habitats Directive was part of the European response to the 1992 World Summit, the Rio Declaration definition: lack of "full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation", will be adopted in the context of this scheme, subject to the guidance in the EC communication on the precautionary principle (http://ec.europa.eu/dgs/health_consumer/library/pub/pub07_en.pdf).

The precautionary principle (= do-no-harm principle) is a proactive method of dealing with the environment that places the burden of proof on those whose activities could harm the environment. (Opposite: wait-and-see principle) - if the costs of current activities are uncertain, but are potentially both high and irreversible, the precautionary principle holds that society should take action before the uncertainty is resolved. [GBA] Source: http://biodiversity-chm.eea.europa.eu/nyglossary_terms/P/precautionary_principle

The principle of sustainability includes the activities and operations of the RAG, which will seek to minimise its environmental footprint whilst carrying out its functions. To this end, for example, there will be a presumption in favour of distributing information electronically rather as paper copies wherever possible.

f) Appropriate and fit-for-purpose management

The relevant authorities will individually and collectively ensure that the management scheme strategies developed, and management actions identified are appropriate, fit for purpose and adequate to secure features at FCS. "Finding the correct balance so that proportionate, non-discriminatory, transparent and coherent decisions can be arrived at, which at the same time provide the chosen level of protection, requires a structured decision making process with detailed scientific and other objective information" [25].

- Single management scheme: the scheme will address the management requirements of the three encompassed *Natura 2000* sites: Carmarthen Bay and Estuaries marine SAC, Burry Inlet SPA and Carmarthen Bay SPA. The specific management measures needed to conserve the respective nature conservation interests will likely vary in different parts of the EMS; management solutions and actions will be determined and implemented with regard to spatial and temporal requirements as necessary.
- Objective assessment: identification of management action will be based on a full inventory and objective assessment of the management requirements necessary to secure and maintain favourable conservation status.
- Integrated management: management measures identified as necessary for the conservation of the EMS will, wherever possible, build upon existing plans and initiatives without duplication.

  The scheme will clearly identify other management, development and spatial plans with relevance to the conservation management of the site and the obligation placed on the bodies responsible for other plans to ensure that their plans take into account and meet the conservation requirements of the Habitats Directive. Developers of land-use (*eg* LDP) and sectoral (*eg* regional transport, waste management or water management) plans will be encouraged be take account of the conservation objectives and management requirements of the EMS to the extent that their plans are likely to have relevant significant effects on the EMS.

  The scheme will clearly establish and make clear the precedence and priorities of EMS management requirements in relation to other plans, and identify where they should be superimposed on the other measures contained in those plans.

  The scheme will identify actions necessary to fill gaps in existing management measures.
- Wherever possible, management will be designed to meet the good practice ideals summarised by the *SMART* acronym; *ie*:
  - Specific, straightforward and (preferably) simple;

[24] In line with the EC guidance on management being conservation management, in the context of this document, the scope of the term *environmental* is confined to the natural environment, *ie* biodiversity, wildlife and habitats.

[25] Communication from the commission on the precautionary principle COM(2000) 1 (http://ec.europa.eu/dgs/health_consumer/library/pub/pub07_en.pdf)

- Measurable;
- Agreed, achievable and assigned;
- Realistic, relevant and resourced;
- Time-framed and timely.

g) Objective and consensual determination of management strategies, requirements and actions

Management strategies and the requirement for management measures will be developed by consensus between the relevant authorities wherever possible, and take account of the views of competent authorities, stakeholders and the public.

Management requirements will be determined as objectively as possible from consideration of the direct and indirect impacts of operations and activities that may affect factors, and thus the features.

The need for management of operations or activities, and the generic type of management response required (as distinct from the identification of specific management measures) will be determined by consensus wherever possible.

Determination of management requirements will:

- be an iterative process;
- be proportionate to the risk to the features of the site; but also
- take account of the potentially cumulative and/or in-combination effects of individually small and / or occasional and / or apparently insignificant effects which could nevertheless combine to damage or degrade one or more features, or components of those features, including essential hydrological and ecological systems.
- take account of short-term environmental and biological dynamism, and long-term environmental and biological evolution, and management will acknowledge and work with, not against, natural processes of change.
- determine, recognise and work with, not against, the absence or softness of spatial boundaries between biological features, and spatial gradients of environmental structures and processes.
- determine, recognise and work with, or accommodate, modification resulting from historical influences and potential rebound from such influences. The scheme will welcome, accommodate and encourage the reduction or removal of human influences or modifications if such reductions or removals are likely to result in more natural geomorphological or biological conditions. The scheme will draw attention to the likely research needs generated by any such proposed reductions or removals.
- recognise and accommodate, where appropriate, local or small-scale opportunities for feature safeguard and enhancement that may be significant and build into major contributions over time.
- determine and differentiate inevitable (locked-in) oceanic and global-scale anthropogenic or natural changes (*eg* climate change, sea-level rise; isostatic rebound [26]), from local anthropogenic effects and impacts, and develop strategies for accommodating such inevitable changes that cannot

[26] The upward movement of the Earth's crust following decrease in weight on the surface since the last continental glaciation when the crust was depressed by the weight of ice.

be resolved locally, and / or appropriately advocating and / or locally contributing to improvement in their global management.

- take account of human influences and structural and functional processes at the most appropriate spatial scale, *eg* local, geomorphological feature, coastal cell, marine landscape, regional sea.

Management measures may include the provision for different degrees of protection depending on need and circumstance, potentially including spatial and temporal zoning of activities and high protection zones if deemed appropriate.

Management measures will be subject to review and revision informed by feedback from compliance and feature surveillance monitoring (*adaptive management*).

The scheme will identify the responsibility for direct management of sectoral activities as lying with the appropriate relevant authority. However, when any specific management measures are proactively proposed, planned and/or developed by a relevant authority in response to actions attributed to them in the scheme's Action Plan, or any other measures are proactively planned by a relevant authority to meet the goals of the scheme or to contribute to meeting the conservation requirements of the site, the relevant authority will undertake to:

- consult with the RAG;
- ensure that the proposed measure(s) integrate and are compatible with the strategic objectives and goals of the management scheme detailed in section 1.3.

The responsibility for the promulgation of management actions arising from the scheme or any specific sectoral EMS action plan to the target managed sector will lie with the appropriate relevant authority.

Where management measures are identified as necessary but where responsibility or authority for action cannot be identified, the RAG will collectively take the action deemed most appropriate; this may range from establishing voluntary provisions to seeking new legal powers for one or more authorities.

h) Minimal possible additional regulation

The scheme will seek to identify management solutions that use existing regulatory powers wherever possible. This will include the identification of potentially relevant but underused regulatory powers, exploration of their fitness for purpose and their use as appropriate.

Where this is not possible, voluntary solutions (*eg* codes of conduct) will be developed where deemed likely to be effective.

New or additional regulation (*eg* new byelaws) will be sought only where it appears likely to be the only effective solution.

The scheme will identify gaps in existing statutory management capability (*ie* regulatory tools) and capacity (*ie* resources and 'political' commitment) where appropriate.

i) Public ownership

The willing participation of everyone that uses or is in any way concerned with the EMS is important to the success of the management scheme. Public ownership of the scheme will therefore be sought through:

- partnership, gathering information from and consultation at appropriate intervals with all stakeholders, including users, local communities and the general public;
- raising public and user awareness of the EMS and its features, and their European importance;
- clearly explaining the need and rationale for changes in management measures and gaining public acceptance and support for them.

j) Regular monitoring, review and evaluation

The effectiveness of the scheme will be regularly and systematically monitored, reviewed and evaluated.

The scheme will be regularly reviewed and revised to reflect the best available scientific information, and will take into account and include all relevant monitoring information relating to activities and uses, conservation features and their interactions.

Reviews and revisions of the scheme will take into account good practice from other EMS, and elsewhere as appropriate, and adopt or adapt UK or other good management practices and tools.

The scheme will include a framework for monitoring of achievement of objectives and of compliance with actions.

1.5 INTEGRATION WITH OTHER RELEVANT PLANS AND STRATEGIES

A wide range of plans, strategies, policies and initiatives of relevant and competent authorities, third parties and partnerships have the potential to either contribute to or to undermine achieving FCS for the EMS. This management scheme should be used to inform the development and implementation of such plans, strategies, policies and initiatives that have the potential to damage the designated interests of the site.

Specific relevant plans, strategies, policies and initiatives are cross referenced as appropriate in the text and Technical Annex 2.

2 SITE DESCRIPTION

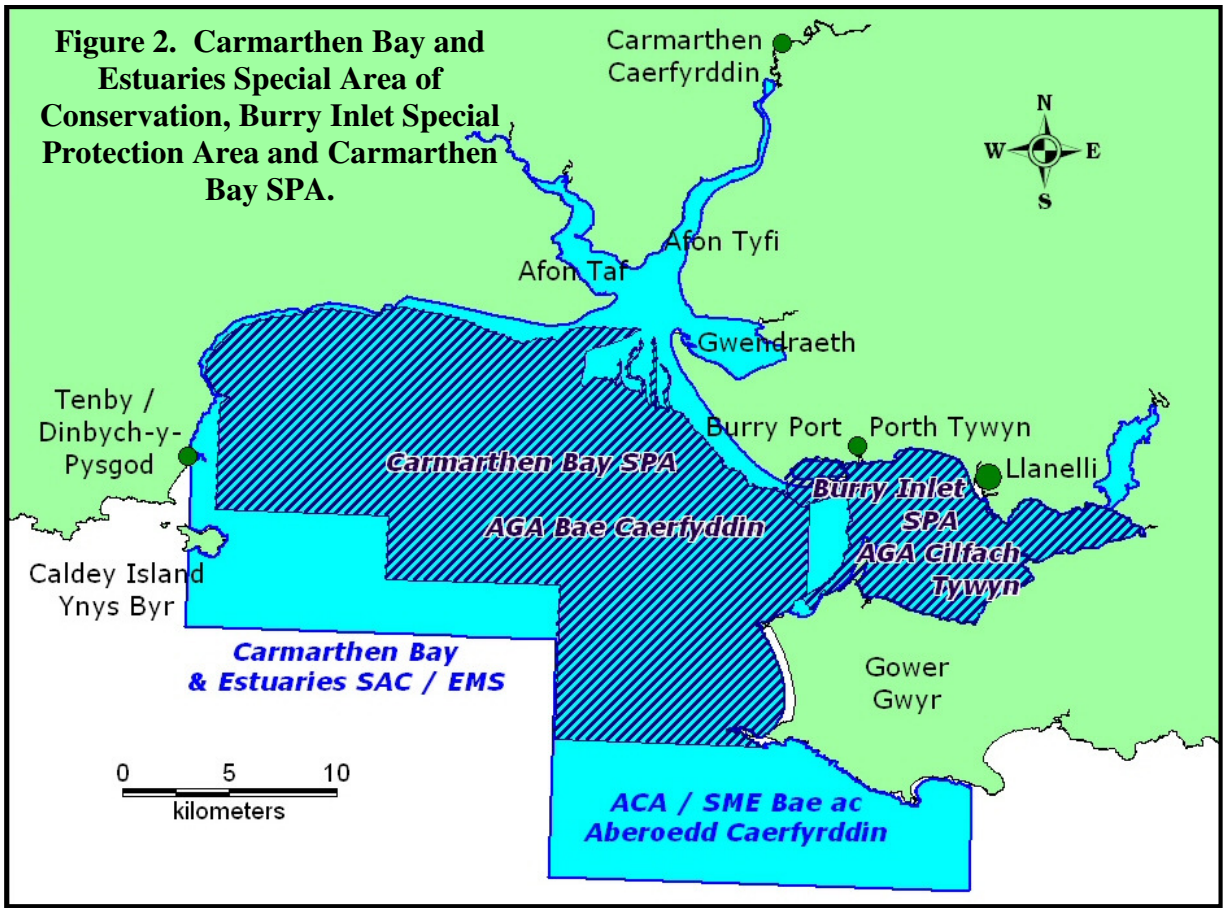
This section describes the history of the site's designation (s.2.1), lists and defines the designated features (ss 2.2 – 3), identifies the site boundaries (s.2.4), briefly describes the current condition of the features (s.2.5) and the human activities that are known or are likely to occur within the site in the foreseeable future (s.2.6).

A more detailed description of the structure and function of the site, its biological components and socio-economic activities are included in CCW's Regulation 35 advice. Considerable further detail may be found in the documents listed in the bibliography in Technical Annex 4.

2.1 CONTEXT AND HISTORY

Carmarthen Bay and Estuaries EMS is a large, multi-designation site that encompasses Carmarthen Bay, the area southwest of Gower peninsula encompassing the Helwick Bank and the Loughor, Tâf, Tywi and Gwendraeth estuaries, south Wales (Figure 2).

Figure 2. Carmarthen Bay and Estuaries Special Area of Conservation, Burry Inlet Special Protection Area and Carmarthen Bay SPA.



In 1991, statutory agencies and voluntary organisations involved in the Burry Inlet estuary established the Burry Inlet and Lougher Estuary Liaison Group with the aim of resolving the needs of conservation, public enjoyment and commercial interests, through information sharing, liaison and consultation. The liaison group organised the second Burry Inlet and Loughor Estuary Symposium (State of the Estuary Report) in March 1995, which identified and documented the changes which had taken place in and around the Burry Inlet and Loughor Estuary since the first Symposium in 1976 [27].

The Burry Inlet SPA was classified (= designated) and included in the register of European Sites in Great Britain in 1992 for the wetland birds knot, oystercatcher, redshank and pintail duck; and the whole waterfowl assemblage which also includes the waders dunlin, curlew and grey plover, and the ducks wigeon, shelduck and shoveler. Summary information provided to the European Commission by the UK and the *Natura 2000* data sheet is available in Appendix 5 and from the Joint Nature Conservation Committee website [28].

The site is also designated as a Ramsar wetland of international importance under the 1971 Convention on Wetlands for the same bird species. However, the wetland designation also lists as important plant, invertebrate, fish and further bird species. The Ramsar information sheets for Burry Inlet can be accessed by accessing the Ramsar database and entering the site name [29]. Further information on the Ramsar convention and UK Ramsar sites is available in Appendix 5 and from the Ramsar website [30].

The Carmarthen Bay and Estuaries SAC was originally submitted to the European Commission (EC) for consideration as a European Marine Site in 1996 as the smaller Burry Inlet: Saltmarsh and Estuary possible Special Area of Conservation for estuaries, Atlantic salt-meadows, Mediterranean salt-meadows and *Salicornia* and other annuals colonising mud and sand.

Following submission, the proposed SAC became a candidate (*qv* section 1.2.5) site. UK government and the National Assembly for Wales' policies were that candidate sites should be protected as though they were already designated in an attempt to ensure no (further) damage would occur before formal designation could take place [31].

In 1999, the European Union's Atlantic biogeographical region member state's (including the UK) list of candidate SACs were reviewed at meetings convened by the EC. Following this review, member states were asked by the EC to submit further sites, and to identify additional features of interest on existing sites.

The EC considered that the UK's list of sites did not sufficiently cover about half of the many different habitat types and species listed in Annexes I and II of the Directive as requiring SACs, and that

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[27] Atkins, J (ed) 1995 *Burry Inlet and Loughor Estuary Symposium: State of the Estuary Report*. (Parts 1 & 2) Publ West Glamorgan County Council.

[28] Summary information: http://www.jncc.gov.uk/default.aspx?page=2065; *Natura 2000* data sheet: http://www.jncc.gov.uk/pdf/SPA/UK9015011.pdf

[29] Access the Ramsar database at http://www.wetlands.org/rsis/ and enter the site name.

[30] www.ramsar.org

[31] DETR / Welsh Office, 1998 *op cit* (section 1.4.2) para 3.6

therefore additional sites for a number of habitat types and species should be identified by the UK. They also considered that all Annex I/II habitats and species with a significant presence on existing listed should have been sites as interest features of those sites.

The process of identifying the additional sites, and the additional habitats and species (referred to as the *moderation process*) began in November 1999 and was completed by the end of 2000.

The moderation process resulted in:

- additional features being identified: shallow inlets and bays (Carmarthen Bay); subtidal sandbanks (Helwick Bank); interidal mud and sandflats; twaite and allis shads; sea and river lampreys; otters;
- a boundary extension to include the full extent of the Bay and the Helwick Bank sandbank and its immediate area;
- a name change from *Burry Inlet: saltmarsh and estuary* (which was a poor descriptor in any case since the site already encompassed much of the adjacent Three Rivers estuary complex) to *Carmarthen Bay and Estuaries*;
- loss of the Mediterranean salt-meadows feature following clarification of the definition of the feature.

The list of proposed sites in Wales was agreed following discussion between Countryside Council for Wales (CCW), the English, Scottish and Northern Irish conservation agencies and the UK's JNCC to ensure consistency across the UK. Subsequent discussions with the National Assembly for Wales and UK government departments helped ensure that the proposed revisions to the UK site list met the requirements of the European Commission.

In 2003 further amendments were made to the boundary in order to ensure consistency with UK conservation designations, in particular Sites of Special Scientific Interest (SSSIs).

The Carmarthen Bay and Estuaries SAC was subsequently resubmitted, in November 2004 the site, along with all other then candidate SACs in Wales, was added to the EC's list of Sites of Community Importance and was then formally designated as an SAC in December 2004.

Summary information provided to the European Commission by the UK and the *Natura 2000* data sheet is available in Appendix 5 and from the Joint Nature Conservation Committee website [32].

Carmarthen Bay was identified as a possible SPA for common scoter sea duck for a number of years prior to designation. The Sea Empress oil spill in 1996 (which severely impacted scoter) focussed attention on the need for protection of overwintering scoter in the Bay, leading to a question being asked in the House of Commons as to when the government proposed "to complete the designation of the… Carmarthen Bay candidate (*sic*) special protection area." The government response claimed that "additional bird counts are needed to assess whether Carmarthen bay (*sic*) qualifies for consideration as a special protection area." [33]

A threat of hydraulic dredging for razor clams (*Ensis* species) in the late 1990s resulted in a complaint to the EC and the commencement of pre-infraction proceedings in September 2001 for, in part, the

[32] Summary information http://www.jncc.gov.uk/ProtectedSites/SACselection/sac.asp?EUCode=UK0020020; *Natura 2000* data sheet available from link on this web page.

[33] Hansard, 7 May 1996: Column: 27

UK's failure to classify Carmarthen Bay pSPA. In June and December 2002 *Reasoned Opinions* (the second step in infraction proceedings) were issued to the UK government "on account of failure to ensure that the requirements of Article 6 of the (Habitats Directive) have been respected". Although advice to Ministers in August 2002 argued that the JNCC's "observation" on Carmarthen Bay's importance for common scoter did not amount to the necessary formal "recognition" of qualification for SPA designation, work to complete synthesis of the necessary information and to identify a site boundary was begun and the Joint Nature Conservation Committee endorsed a recommendation that Carmarthen Bay be proposed as an SPA in September 2002. The UK's final response to the EC in February 2003 accepted that "Carmarthen Bay is a site where appropriate steps need to be taken in line with ,… the Birds Directive".

Carmarthen Bay was eventually classified (designated) in June 2003. It was the first, and for several years the only, fully marine SPA in the UK. It is a single feature site, designated solely for the common scoter [34].

Key Carmarthen Bay & Estuaries European Marine Site designation dates	
1991	Burry Inlet and Lougher Estuary Liaison Group established
1992	Burry Inlet SPA classified and designated as Ramsar wetland of international importance
1996	Burry Inlet: Salt-marsh and Estuary possible Special Area of Conservation submitted to European Commission (EC)
2000	SAC features and boundary reviewed and revised following moderation of site member state site lists by EC site.
2003	Carmarthen Bay SPA classified.
2004	Renamed Carmarthen Bay & Estuaries pSAC resubmitted to EC.
2004	Carmarthen Bay & Estuaries candidate SAC accepted on EC list of Sites of Community Importance and formally designated as an SAC.

The whole of the intertidal area within the EMS lies within Sites of Special Scientific Interest [35]. Adjacent to the EMS on the Gower peninsula are part of the Limestone Cliffs of Southwest Wales SAC, the two National Nature Reserves Gower Coast NNR and Whiteford NNR, and the Gower Outstanding Area of Natural Beauty (AONB).

2.2 DESIGNATED CONSERVATION FEATURES

2.2.1 CARMARTHEN BAY & ESTUARIES SPECIAL AREA OF CONSERVATION.

The Carmarthen Bay and Estuaries SAC was selected for six Habitats Directive Annex I habitat types and five Annex II species.

[34] The *Natura 2000* data sheet for Carmarthen Bay is available in Appendix 5 and from the Joint Nature Conservation Committee website http://www.jncc.gov.uk/pdf/SPA/UK9014091.pdf

[35] Encompassed SSSI are listed in CCW's *Regulation 35 advice* document

The site is considered to be one of the best areas in the UK for Annex I habitat types:

- Sandbanks which are slightly covered by seawater all the time (abbreviated to *subtidal sandbanks*)
- Estuaries
- Mudflats and sandflats not covered by seawater at low tide (abbreviated to *intertidal mud and sandflats*)
- Large shallow inlets and bays
- *Salicornia* and other annuals colonising mud and sand (abbreviated to *Salicornia*)
- Atlantic salt-meadow

and Annex II species:

- Twaite shad *Alosa fallax*

The site area is considered to support a significant presence of four further Annex II species which were qualifying features but not a primary reason for site selection:

- Sea lamprey *Petromyzon marinus*
- River lamprey *Lampetra fluviatilis*
- Allis shad *Alosa alosa*
- Eurasia otter *Lutra lutra*

2.2.2 BURRY INLET SPECIAL PROTECTION AREA / RAMSAR SITE

The Burry Inlet SPA regularly supports large numbers of overwintering wetland birds that feed in the saltmarshes and on the intertidal areas. Burry Inlet is the most important wholly Welsh estuary for overwintering waterfowl.

Burry Inlet was classified as an SPA under Article 4.2 of the Birds Directive for four species of waders and wildfowl: knot (*Calidris canutus*), oystercatcher (*Haematopus ostralegus*), redshank (*Tringa tetanus*) and pintail (*Anas acuta)*; and the assemblage of over 20,000 waterfowl, including: Eurasian curlew (*Numenius arquata*), dunlin (*Calidris alpina alpine*), grey plover (*Pluviatilis squatarola*), common shelduck (*Tadorna tadorna*), shoveler (*Anas clypeata*), teal (*Anas crecca*), turnstone (*Arenaria interpres*), and wigeon (*Anas penelope*I.

Since classification, the numbers of individual waterfowl species have, naturally, fluctuated. Populations of some of the originally qualifying species have fallen below the qualifying thresholds for various periods of time; other species, below the thresholds at the time of the site's classification, have since increased above qualifying thresholds. These population and species changes have been documented by the Joint Nature Conservation Committee-led, UK SPA Network Review, which provides advice on any changes in SPA citations required as a consequence.

The Ramsar information sheet lists the waterfowl assemblage as qualifying under Ramsar Criterion 5 (Assemblages of international importance) and Northern pintail and Eurasian oystercatcher as qualifying under Ramsar criterion 6 (Species/populations occurring at levels of international importance). It further refers to "noteworthy" flora, including *Salicornia spp*, other salt-marsh plants and eelgrass (*Zostera angustifolia*), and fauna including invertebrates and the same species features as the Carmarthen Bay & Estuaries SAC, and an extensive list of additional bird species occurring at levels of national importance: little egret (*Egretta garzett*), whimbrel (*Numenius phaeopus*), Eurasian

curlew, common greenshank (*Tringa nebularia),* dark-bellied brent goose (*Branta bernicla bernicla*), common shelduck; grey plover (*Pluvialis squatarola*), dunlin, knot and *s*potted redshank (*Tringa erythropus*).

2.2.3 CARMARTHEN BAY SPECIAL PROTECTION AREA

Carmarthen Bay was classified as an SPA under Article 4.2 of the Birds Directive for a single species, the sea duck common scoter (*Melanitta nigra*).

2.3 SITE BOUNDARIES

The boundary of the site was determined to encompass the features for which the site was selected; it is not a representation of the precise extent of any one feature [36].

The site includes the intertidal area for the most part; included intertidal areas are also designated as Sites of Special Scientific Interest under domestic UK legislation. The actual landward boundary varies depending on the SSSI boundary and with where the site abuts other, terrestrial SACs designated for terrestrial and /or coastal features and lies at Mean High Water, Highest Astronomical Tide or at a topographical discontinuity (such as a cliff line) or other mapped feature (such as a fence-line).

The seaward boundary follows the simplest possible arrangement of straight lines along lines of latitude and longitude to encompass the designated features. As illustrative site maps are drawn using the Ordnance Survey grid, the difference between OS grid north and true north (to which longtitude to drawn) results in the seaward boundary lines not appearing vertically and horizontally on the page.

The formal SAC and SPA site maps are reproduced in Appendix 5.

2.4 INTRODUCTION TO THE SAC FEATURES

This section includes the definition of the features from the European Interpretation Manual [37] and describes the scope and location of each feature in the site. Specific description of the features is provided in sections 3 and 4 of CCW's Regulation 35 advice document for the site [38]. Further detail is

[36] "As a general principle, site boundaries have been drawn closely around the qualifying habitat types or the habitats of species for which the sites have been selected, taking into account the need to ensure that the site operates as a functional whole for the conservation of the habitat type(s) or species and to maintain sensible management units." McLeod, CR, Yeo, M, Brown, AE, Burn, AJ, Hopkins, JJ, & Way, SF (eds.) (2002) *The Habitats Directive: selection of Special Areas of Conservation in the UK*. 2nd edn. Joint Nature Conservation Committee, Peterborough.

[37] European Commission, 2007. *Interpretation Manual of European Union Habitats*. Eur 27 http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/2007_07_im.pdf

[38] CCW 2009. *Carmarthen Bay and Estuaries European Marine Site: Advice provided by the Countryside Council for Wales in fulfilment of Regulation 35 of the Conservation (Natural Habitats, &c.) Regulations 1994* (February 2009).

also provided in the EC's guidelines for the establishment of the Natura 2000 network in the marine environment. [39]

Habitat features are distributed discontinuously throughout the site; no one occupies the whole site and several overlap in places; indicative distributions of the habitat features are shown in the CCW *Regulation 35 advice* document.

2.4.1 SANDBANKS WHICH ARE SLIGHTLY COVERED BY SEAWATER ALL THE TIME (SUBTIDAL SANDBANKS)

Sandbanks are elevated, elongated, rounded or irregular topographic features, permanently submerged and predominantly surrounded by deeper water. They consist mainly of sandy sediments, but larger grain sizes, including boulders and cobbles, or smaller grain sizes including mud may also be present on a sandbank. Banks where sandy sediments occur in a layer over hard substrata are classed as sandbanks if the associated biota are dependent on the sand rather than on the underlying hard substrata.

Slightly covered by sea water all the time" means that above a sandbank the water depth is seldom more than 20 m below chart datum. Sandbanks can, however, extend beneath 20 m below chart datum. It can, therefore, be appropriate to include in designations such areas where they are part of the feature and host its biological assemblages.

Plants: On many sandbanks macrophytes do not occur.

Animals: North Atlantic including North Sea - Invertebrate and demersal fish communities of sandy sublittoral (e.g. polychaete worms, crustacea, anthozoans, burrowing bivalves and echinoderms, *Ammodytes* spp., *Callionymus* spp., *Pomatoschistus* spp., *Echiichtys vipera*, *Pleuronectes platessa*, *Limanda limanda*).

Sandbanks can be found in association with mudflats and sandflats not covered by seawater at low tide…. Sandbanks may also be a component part of habitat estuaries and habitat large shallow inlets and bays. (EC Interpretation Manual *op cit*).

The sandbank feature in this site comprises the Helwick Bank and associated sediments.

2.4.2 ESTUARIES

Downstream part of a river valley, subject to the tide and extending from the limit of brackish waters. River estuaries are coastal inlets where, unlike 'large shallow inlets and bays' there is generally a substantial freshwater influence. The mixing of freshwater and sea water and the reduced current flows in the shelter of the estuary lead to deposition of fine sediments, often forming extensive intertidal sand and mud flats. Where the tidal currents are faster than flood tides, most sediments deposit to form a delta at the mouth of the estuary.

Plants: Benthic algal communities, Zostera beds e.g. Zostera noltii (Zosteretea) or vegetation of brackish water."

Animals: Invertebrate benthic communities; important feeding areas for many birds.

An estuary forms an ecological unit with the surrounding terrestrial coastal habitat types. In terms of nature conservation, these different habitat types should not be separated, and this

[39] European Commission, 2007. *Guidelines for the establishment of the Natura 2000 network in the marine environment. Application of the Habitats and Birds Directives.* http://ec.europa.eu/environment/nature/natura2000/marine/docs/marine_guidelines.pdf

reality must be taken into account during the selection of sites. (EC Interpretation Manual *op cit*).

… an inclusive approach to the identification of estuarine sites is necessary because of the complex and dynamic nature of this habitat type. The selection process should take into account not only the constituent biotopes but also relevant geomorphological features, dynamic ecological issues and hydrological processes.

… no important part of the habitat complex should be excluded. …. sites … should not be limited to the intertidal areas, but should also integrate the sub-tidal areas. [40]

The estuary feature within this site comprises the Burry Inlet / Lougher Estuary and the Three Rivers system of the Taf, Tywi and Gwendreath.

2.4.3 MUDFLATS AND SANDFLATS NOT COVERED BY SEAWATER AT LOW TIDE

Sands and muds of the coasts of the oceans, their connected seas and associated lagoons, not covered by sea water at low tide, devoid of vascular plants, usually coated by blue algae and diatoms. They are of particular importance as feeding grounds for wildfowl and waders. … diverse intertidal communities of invertebrates and algae …. Note: Eelgrass communities are included in this habitat type. (EC Interpretation Manual *op cit*).

Intertidal mud & sand flats is a habitat type that varies considerably throughout the site, primarily according to local conditions of coastal topography, shore morphology, exposure to water movement, sediment processes and salinity regime. The resultant intertidal mudflats and sandflats characterise a range of different environmental conditions.

Intertidal mud & sand flats are distributed throughout large shallow inlets and bays and estuaries within the site. Sediment flats in open coast bays are both extensive and in some locations restricted to the mid to lower shore by rock features at the base of cliffs. Flats in estuaries are mostly extensive mud flats fringing inlets and estuaries.

2.4.4 LARGE SHALLOW INLETS AND BAYS

Large indentations of the coast where, in contrast to estuaries, the influence of freshwater is generally limited. These shallow 13 indentations are generally sheltered from wave action and contain a great diversity of sediments and substrates with a well developed zonation of benthic communities. These communities have generally a high biodiversity.

National experts consider inappropriate to fix a maximum water depth, since the term 'shallow' may have different ecological interpretations according to the physiographic type considered and geographical location.

Several physiographic types may be included under this category providing the water is shallow over a major part of the area: embayments, fjards, rias and voes.

Plants: *Zostera* spp., *Ruppia maritima*, *Potamogeton* spp. benthic algae.

Animals: Benthic invertebrate communities. (EC Interpretation Manual *op cit*).

[40] EC (undated) *Interpretation note on "Estuaries" (habitat type 1130), with a view to aiding the selection/delimitation and protection/management of sites of community interest hosting this habitat type*. No longer available on europa.eu website but at time of writing available at:http://www.hamburg.de/contentblob/148028/data/aestuar-eu-definition.pdf

The large shallow inlets and bays feature in this site is comprised of Carmarthen Bay.

2.4.5 *SALICORNIA* AND OTHER ANNUALS COLONISING MUD AND SAND

"Formations composed mostly or predominantly of annuals, in particular … *Salicornia* or grasses, colonising periodically inundated muds and sands of marine or interior salt marshes.

Glasswort swards: annual glasswort (*Salicornia* spp), seablite (*Suaeda maritima*), … formations colonising periodically inundated muds of coastal saltmarshes and inland salt-basins." (EC Interpretation Manual *op cit*)

The *Salicornia* and other annuals feature is distributed sporadically in areas of suitable habitat within the estuaries.

2.4.6 ATLANTIC SALT MEADOWS

Salt meadows of Baltic, North Sea, English Channel and Atlantic shores.

Corresponding categories

United Kingdom classification: 'SM10 Transitional low-marsh vegetation', 'SM11 Aster tripolium var. discoides saltmarsh', 'SM12 Rayed Aster tripolium saltmarsh', 'SM13 Puccinellia maritima-Triglochin maritima saltmarsh', 'SM14 Halimione portulacoides saltmarsh', 'SM15 Juncus maritimus-Triglochim maritima saltmarsh', 'SM16 Festuca rubra saltmarsh community', ' SM17 Artemisia maritima community', 'SM18 Juncus maritimus community', 'SM19 Blysmus rufus saltmarsh community' and 'SM20 Eleocharis uniglumis community' (EC Interpretation Manual *op cit*).

The Atlantic salt meadows feature is distributed widely throughout within the estuaries and includes the largest expanse of salt-marsh in Wales in the Burry Inlet.

2.4.7 SHADS (ALLIS AND TWAITE)

Shad are herring-like fish that spend most of their adult lives in the sea but spawn in rivers (or, occasionally, in the upper reaches of estuaries) and usually migrate through estuaries in spring months on their way to the spawning grounds. The simplest way to distinguish between the two species is by their size (allis shad are usually 30-50cm, twaite shad 25-40cm), the number of scales running along the lateral line, and number of gill rakers on the first gill arch.

Twaite shad migrate though the waters of Carmarthen Bay & Estuaries EMS to reach spawning sites in the Afon Tywi. The Taf-Tywi-Gwendraeth (Three Rivers) estuary is an important nursery area for juveniles and it is likely that twaite shad feed in the inshore waters of Carmarthen Bay.

Both species are included in Section 9(4)(a) of the Wildlife and Countryside Act (1981), (amended April 1998), which makes it an offence to intentionally obstruct access to spawning areas or to damage or destroy gravels used for spawning. The twaite shad is also protected under Section 5 of the Wildlife and Countryside Act (1981). Both species are priority species in the UK Biodiversity Action Plan (BAP).

2.4.8 LAMPREYS (SEA AND RIVER)

Lampreys are a primitive type of fish that have a distinctive suckered mouth rather than jaws, quite unlike any other fish in Britain. Eel-like lampreys parasitise other fish; by fastening on to the living fish, lampreys rasp into the flesh and feed on the body fluids. Sea and river lampreys spend their adult lives in the sea or estuaries but spawn and spend the juvenile part of their life cycle in rivers.

2.4.9 EURASIAN OTTER

Distribution of spraint records and reported sightings indicates that otters are frequent in tributaries of the Three Rivers estuaries and Burry Inlet / Lougher Estuary. Otter use of the open coast and estuary foreshores within the site is poorly known.

Otters are a Biodiversity Action Plan species.

2.5 INTRODUCTION TO THE SPA FEATURES

More detailed description of the features is provided in section 3 of CCW's Regulation 35 advice document for the site [41].

2.5.1 BURRY INLET SPA / RAMSAR SITE

The Burry Inlet SPA / Ramsar site supports nationally and internationally important numbers of overwintering wetland birds that feed and roost on the salt-marshes and the intertidal areas. It is the most important wholly Welsh estuary for overwintering waterfowl. The breadth of habitats, the extensive mud and sand-flats and the abundance of marine invertebrates provides an important food resource for both specialist and generalist feeding species.

There are considerable movements of birds in and out of the site according to season, and within the site according to tidal state and, undoubtedly, relative abundance of prey and levels of disturbance.

The habitat of the SPA features comprises the SAC features estuaries, mudflats and sandflats not covered by seawater at low tide, and Atlantic salt-meadows. The range of other noteworthy flora & avian and non-avian fauna cited in the Ramsar information sheet is also encompassed within these SAC features.

Further detail is also included in the *Natura 2000* data sheet and the Ramsar Information Sheet (*op cit* section 2.1).

2.5.2 CARMARTHEN BAY SPA

Carmarthen Bay SPA regularly supports slightly over 1% of the biogeographic population (>16,000) of migratory and overwintering common scoter. It is the most important single site for migratory and overwintering common scoter in the UK. Other, non-qualifying, species of importance regularly present are red throated diver (*Gavia stellata*), velvet scoter (*Melanitta fusca*), eider (*Somateria mollissima*) and Manx shearwater (*Puffinus puffinus*).

[41] CCW 2009. *Carmarthen Bay and Estuaries European Marine Site: Advice provided by the Countryside Council for Wales in fulfilment of Regulation 35 of the Conservation (Natural Habitats, &c.) Regulations 1994* (February 2009).

Peak numbers occur in August/September (lower numbers than main winter peak) as birds return from summer breeding grounds, and mid to late winter (December to January) prior to returning to their northern breeding grounds. Birds may overwinter in the bay or move further south. Consequently there is considerable, almost semi-continuous, movement of the birds into and out of the site.

The habitat of the SPA feature comprises the SAC features large shallow inlets and bays. Scoter use Carmarthen Bay primarily as a 'refuelling' stop, but also for moulting. The timing of arrivals, departures, peak numbers and distribution within the Bay varies from year to year, likely driven by weather conditions and food availability both within the site and elsewhere in their range.

Further detail is also included in the *Natura 2000* data sheet (*op cit* section 2.1).

2.5 CURRENT CONDITION OF INTEREST FEATURES

Assessment of the SAC was undertaken during 2006 for the UK's first full round of reporting to EC in 2007 [42]. It was acknowledged that there were gaps in contemporary information on particular habitats and species and that the assessment of current condition was necessarily in part based upon pre-existing knowledge of the site. The baseline condition for the site was taken to be the best available knowledge at the time of selection of the site and its proposal to the EC and as detailed in CCW's 2005 draft *Regulation 35 advice*.

A summary of the condition assessment is reproduced below as Figure 2.1. Further detail, or reference to that detail will be included herein when available.

[42] JNCC. 2007. *2nd UK Report on Implementation of the Habitats Directive.* Online resource at http://jncc.defra.gov.uk/page-4060

Figure 2.1. Summary of the 2006-07 Carmarthen Bay & Estuaries SAC feature condition assessment

Site Name: Carmarthen Bay and Estuaries/ Bae Caerfyrddin ac Aberoedd

Feature name (formal)	Feature name (informal)	Area in hectares (Habitat features only)	Condition assessment	Status	Comments	Adverse Activity [unprioritised - some have (or are likely to have) a more adverse impact than others.]
Large shallow inlets and bays	Large shallow bay.	43692.217	Favourable: Maintained	Favourable	Assessment inconsistency - may be revised	
Estuaries	Estuaries.	9268.0415	Favourable: Maintained	Unfavourable		Fishing, bait collecting and climate change
Mudflats and sandflats not covered by seawater at low tide	Intertidal mudflats and sandflats.	7282.0311	Favourable: Maintained	Unfavourable		Bait digging and fisheries
Sandbanks which are slightly covered by sea water all the time	Subtidal sandbanks.	19860.093	Unfavourable: Declining			Agregate extraction
Alosa fallax (R)	Twaite shad. (R)	NA	Unfavourable: No-change	Unfavourable	Results based on upsteam monitoring of Afon Tywi SAC	EA / CCW Review of Consents work suggests significant impact from abstractions and in-river obstacles in Tywi (Significant impact on the extent of upstream spawning)
Alosa alosa (R)	Allis shad. (R)	NA	Unfavourable: No-change	Unfavourable	Results based on upsteam monitoring of Afon Tywi SAC	EA / CCW Review of Consents work suggests significant impact from abstractions and in-river obstacles in Tywi (Significant impact on the extent of upstream spawning)
Petromyzon marinus (R)	Sea lamprey. (R)	NA	Unfavourable: Un-classified		Results based on upsteam monitoring of Afon Tywi SAC	Possible WQ issues
Lampetra fluviatilis (R)	River lamprey. (R)	NA	Unfavourable: Un-classified		Results based on upsteam monitoring of Afon Tywi SAC	

The condition of SPA features were not included in the 2007 assessment but recent monitoring reports provide an indication of condition of some features.

Reports on scoter monitoring following the recovery of the population using Carmarthen Bay after the 1996 Sea Empress oil spill, which badly depleted their numbers, until 2011 [43] do not present a clear picture of the status of numbers using Carmarthen Bay. This is in part a reflection of the inherent fluctuation in numbers within and between years, the differences in distribution between years (particularly relevant to ground count estimates) and the limitations of survey techniques, coverage and frequency.

Following a sustained increase during the five winters after the Sea Empress oil spill, to a peak in 2002/03, numbers fell fairly steadily to 2007 (Fig 2.2) after which the trend reversed for short period

[43] Banks *et al* 2007. *Ground and aerial monitoring for Carmarthen Bay SPA 2004-07*. CCW Marine Monitoring Report No: 48; Maclean *et al* 2008. *Marine Monitoring Project: ground and aerial monitoring of in shore Special Protection Areas: Common Scoters in Carmarthen Bay 2007 – 2008*. CCW Marine Monitoring Report No: 64, 29pp; Banks et al 2008. *The Sea Empress oil spill (Wales, UK): Effects on Common Scoter Melanitta nigra in Carmarthen Bay and status ten years later.* Marine Pollution Bulletin 56, 895–902; WWT Consulting 2010. *Ground-based counts of Common Scoter in Carmarthen Bay SPA, winter 2009/10*; McCormack, D. & Banks, A.N. 2011. *Ground monitoring of common scoters in Carmarthen Bay SPA 2010/11*. CCW Marine Monitoring Report No: 91, 14pp.

(Fig 2.3). It is important to note that recent years peaks have been calculated from ground counts only (ie Figs 2.2 and 2.3 are not directly comparable) and the 2010 peak value is strongly influenced by an exceptionally high count at the end of a particularly cold period during winter 2009/10.

Figure 2.2. Indices of scoter numbers in Carmarthen Bay 1994 – 2008 (Figures 3.2, 3.3 & 3.6 from Maclean et al 2008; Figure 3.15 from Banks *et al* 2007)

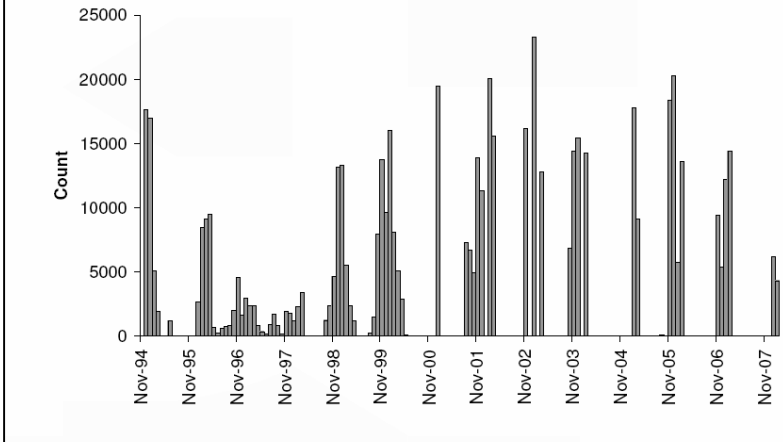


Figure 3.2 Common scoter numbers in Carmarthen Bay from ground-based surveys 1994 – 2008. Where more than one count has been conducted in a single month, counts have been averaged.

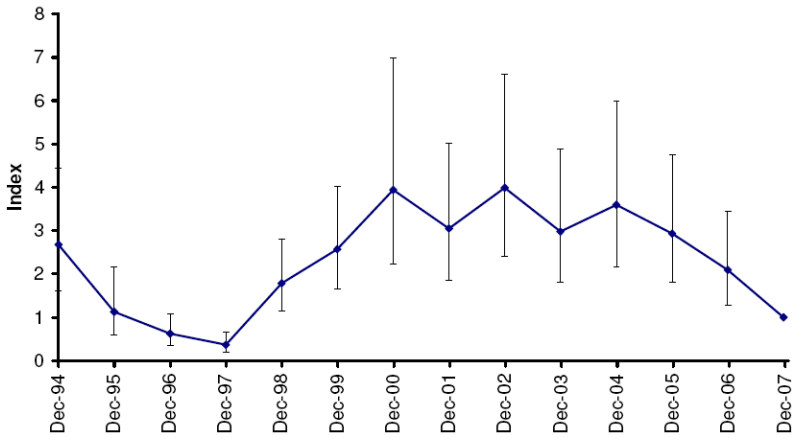
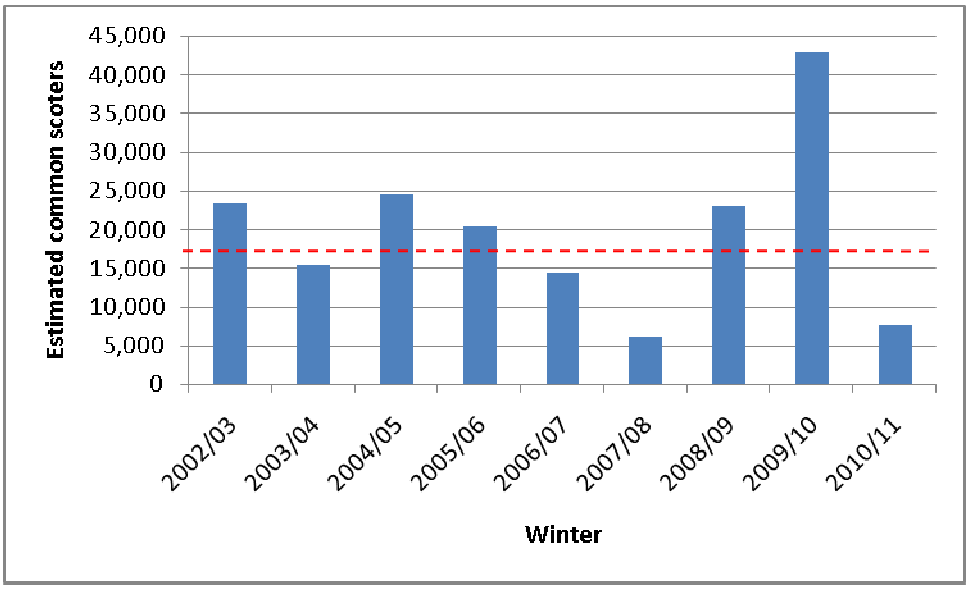


Figure 3.3 Index of common scoter numbers in Carmarthen Bay from ground-based surveys 1994 – 2008. Bars refer to 95% upper and lower confidence intervals.

Figure 2.3. Peak common scoter counts in Carmarthen Bay. Red line shows SPA designation threshold



Distribution of common scoters in Carmarthen Bay showed that despite the presence of some birds in traditionally unusual locations, particularly in 2007-08, average winter distributions showed that the traditional feeding zones to the north and west of the bay, extending off Cefn Sidan and Pembrey, were favoured. The authors speculate that decline or shift in prey abundance may have influenced both distribution and contributed to the decline in numbers.

No recent reports formally assessing the status Burry Inlet SPA features are available. The BTO publication *Waterbirds in the UK 2008/09* [44] is the most contemporary data for most of the site's species features at the time of writing, though data for several feature species in Burry Inlet are not included (wigeon, teal, plover, redshank) as recent counts indicate they fall below the required gthreshold values for designation.

Trends in knot and oystercatcher population are shown in the Stillman 2009 [45] report on prediction of prey availability (see Figure 2.3 below). Whilst there is no obvious trend in the data for knot, which show considerable interannual variation in numbers, there is a clear downward recent trend in oystercatcher population size.

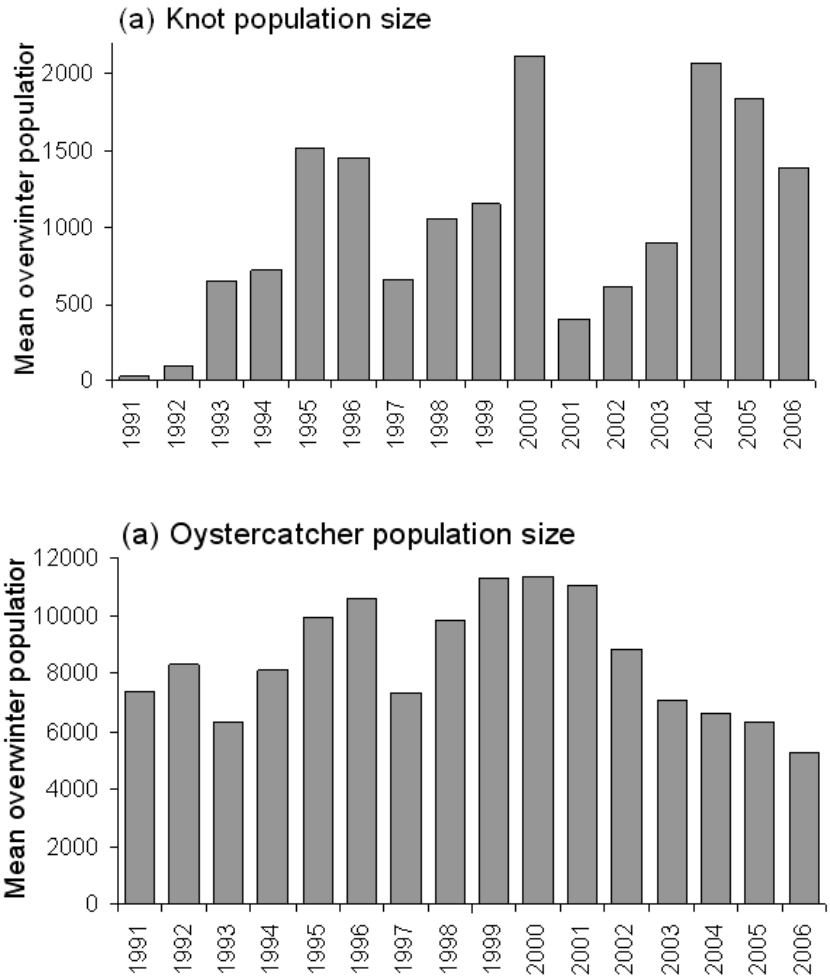
However, it is unclear whether this is a decrease in numbers of birds in the immediate geographical area or more a reflection of movement between the site and adjacent estuaries and open coast [46].

[44] Calbrade *et al* 2010. *Waterbirds in the UK 2008/09: The Wetland Bird Survey.* British Trust for Ornithology / Royal Society for the Protection of Birds / Joint Nature Conservation Committee in association with the Wildfowl & Wetlands Trust, July 2010.

[45] Stillman, RA. 2009. *Predicting the effect of shellfish stocks on the oystercatcher and knot populations of the Burry Inlet and Three Rivers*. Bournemouth University for the Countryside Council for Wales. CCW Marine Monitoring Report No. 65. 45pp

[46] Burton et al 2010. *Monitoring bird distribution and behaviour on the Carmarthen Bay & Estuaries SAC at low tide in winter 2009/10*. CCW Contract Science Report No: 935, 74pp, CCW/BTO.

Figure 2.3. Annual variation in knot (top) and oystercatcher (bottom) population (mean of monthly peak counts) the Burry Inlet. (from Figures 8 & 9 in Stillman 2009)



2.6 HUMAN ACTIVITIES IN AND AROUND THE EMS

2.6.1 INTRODUCTION

Carmarthen Bay and its tributary estuaries are vitally important resources to the local economies of Carmarthenshire, Pembrokeshire and Swansea-Gower. The area has a long history of diverse human activity and use. Management of the EMS to ensure that the conservation objectives of the site are met must also strive to accommodate this wide range of activities with minimal interruption.

The Habitats Directive and Regulations distinguish between *activities*, and developments which require some sort of specific statutory consent, authorisation, licence or permission from a competent authority (who might also be a relevant authority for the site) before they are allowed to proceed; the latter are known as *plans or projects*. Although this distinction is apparently clear cut, in reality there are overlaps where each affects the other, where the environmental effects of one are dependent on the other, and where routine activities are subject to management by virtue of requiring consents or licenses (see section 2.6.3).

Current and foreseeable activities are tabulated in the following section. More detailed information on these activities, their current management, pressures they (potentially) exert, the risks they (potentially) pose to the EMS features and the need (if any) for additional management is provided in Technical Annex 2 (Assessment of pressures and threats), which forms the rationale for the long term management measures identified in Technical Annex 3 (Long term management objectives and actions) and summarised in the Management Scheme document.

Whilst some activities may raise general environmental, aesthetic or other concerns, only those that currently or potentially create pressures or threats for the EMS's features or the integrity of the site are addressed within the management scheme.

CCW Regulation 35(2)b advice (on "operations which may cause deterioration or disturbance to the features" – see Section 3.3.3 and CCW *Regulation 35 advice* document section 6) identifies the operations that may have potential adverse effects on the EMS features and outlines, in very broad terms, the likely actions required to indentify the management measures required to minimise such effects (also see section 4). This advice was used to support establishment of links between activities and features. However, the 2005 draft version of the advice includes greater detail on the link between activities, the relevant environmental factors they may affect and the resultant potential environmental effects and although this document has been superseded the additional information used therein was taken into account where relevant.

2.6.2 ACTIVITIES AND OPERATIONS

Table 2.1 summarises those specific activities, based on current available information, known to be currently occurring within or in the vicinity of the site, or are likely to occur in the future, or may be foreseen as possibly occurring in the future, and that may be considered to be potentially detrimental to the conservation interest of the site. They are grouped by activity type and not listed in any priority order. This list of activities will be regularly reviewed and revised as necessary.

All known and currently foreseeable activities and their likely effect on the sites features are described in more detail and assessed in Technical Annex 2 (Assessment of pressures and threats), and that assessment is summarised in section 4.2.7.

Table 2.1. Current and likely future activities and operations in Carmarthen Bay & Estuaries EMS

Activity / operation	Presence / likelihood in EMS	Confidence of presence / likelihood
EXPLOITATION OF LIVING RESOURCES		
Trawling: beam	Not known; possible	L
Trawling: otter	Occasional – frequent; low effort	L
Dredging: toothed	Not known; possible but unlikely as few target species	L
Dredging: bladed - mussel	Local, minor; occasional	M
Dredging: bladed - mussel seed	Local, minor; very occasional	M
Dredging: bladed - oyster	Not known	L
Dredging: cockle mechanical	Not known (not a "fishing instrument of an approved pattern" under SWSFC byelaw 40)	H
Dredging: deep hydraulic (*eg* water-jet injection)	Possibly; interest exists; potential for legal or illegal development..	H
Dredging: shallow hydraulic (*eg* suction)	Not known	L
Netting: bottom-set gill	Widespread, extensive, regular & frequent, seasonal	M
Netting: bottom-set tangle / trammel	Widespread, extensive, regular & frequent, seasonal	M
Netting: surface set gill	Widespread, extensive, regular & frequent, seasonal	M
Netting: beach seine	Localised; frequent; probably seasonal	M
Netting: beach-set gill	Localised; frequent; probably seasonal	M
Potting: lobster / crab	Localised; frequent; possibly seasonal	L
Potting: prawn	Not known; development interest possible	L
Potting: whelk	Widespread, extensive, regular, seasonal; effort has shifted and continues to shift further offshore into deeper water and westwards	H
Line: long-line	Historically small scale; relatively recent increases; widespread, extensive, regular, seasonal	L
Line: handline	Widespread, extensive, frequent, seasonal	L
Electro-fishing: molluscs	Interest exists; field developmental investigation 2007-08	M

Activity / operation	Presence / likelihood in EMS	Confidence of presence / likelihood
Fisheries: predator control	Unknown, but anecdotal reports	L
Hand gathering: cockles (excluding access issues)	Major commercial fisheries; casual private collection	H
Hand gathering: mussels (excluding access issues)	Major commercial fisheries; casual private collection	H
Hand gathering: mussel seed (excluding access issues)	Major commercial fisheries; possibly casual private collection	H
Hand gathering: razor clam (including salting; excluding access issues)	Localised; regular; frequency and intensity unknown; probably seasonal; possibly increasing.	L
Hand gathering: other bivalves (excluding access issues)	Localised; frequency and intensity unknown; probably seasonal; possibly increasing.	L
Hand gathering: winkles (excluding access issues)	Localised; frequency and intensity unknown	L
Hand gathering: crustacean shellfish	Not known; interest possible	L
Hand gathering: algae & plants for human consumption (eg *Porphyra*, glasswort; excluding access issues)	Very poorly known; localised; frequency and intensity unknown	L
Hand gathering: access and vehicle use	Integral to cockle fisheries and mussel seed collection; widespread, extensive, regular & frequent	M
Hand / mechanical gathering: algae for chemical extraction / biomass	Not known; development interest possible	L
Bait collection: digging	Widespread; locally & occasionally intense; frequency, usual intensity and distribution poorly known.	L
Bait collection: pump	Widespread; frequency, intensity and distribution poorly known	L
Bait collection: salting (razorfish)	Localised; frequency, intensity and detailed distribution poorly known.	M
Bait collection: other sediment shore techniques	Nil info or other techniques identified	L
Bait collection: boulder turning (& collection targeted spp)	Localised; frequency, intensity and detailed distribution poorly known.	L
Collection for aquarium / curio trade	Localised; frequency, intensity and detailed distribution unknown but inferred minimal	L

Activity / operation	Presence / likelihood in EMS	Confidence of presence / likelihood
Grazing: salt-marsh	Widespread within habitat; substantial, long-term, locally intense.	M
See also recreational angling and spearfishing		
CULTIVATION OF LIVING RESOURCES		
Aquaculture: algae	Not known; development interest possible	M
Aquaculture: finfish - sea cages or impoundments	Not known; development interest possible	H
Aquaculture: crustaceans - sea cages or impoundments	Not known; development interest possible	H
Aquaculture: molluscan *ranching* [47]	Several Order applications for mussel bottom culture extant. (Subject to PoPs assessment)	H
Aquaculture: molluscan *farming* [48]	Not known: development interest possible	M
Aquaculture: land based semi-enclosed / recirculation	Ragworm farm (Pendine); other development interest likely	M
Aquaculture: predator control	Historical culling of oystercatchers in Burry Inlet. Otherwise not known	L
Aggregation devices (*eg* crab tiles)	Localised use of tyres; tiles not known; intensity and distribution poorly known	L
EXPLOITATION OF NON-LIVING RESOURCES		
Aggregate extraction	Historically substantial. 150kT per annum consented from Helwick Bank for seven years from Aug 2007 but not implemented (at time or writing)	H
Water abstraction	Abstraction from freshwater inputs site-wide	H
Renewable energy generation: tidal barrage	Historical proposal in Lougher Estuary. Local interest remains	H

[47] Wild stock enhancement*;* deposition of juveniles on seabed, semi-managed ongrowing and subsequent harvesting of commercially sized individuals; *cf farming*

[48] Molluscan culture using trestles, ropes, cages or other structures; *cf ranching*

Activity / operation	Presence / likelihood in EMS	Confidence of presence / likelihood
Renewable energy generation: tidal impoundment	Development interest feasible	H
Renewable energy generation: tidal current turbine	Low possibility of development interest; site low suitability	H
Renewable energy generation: wave energy	Low possibility of development interest; site low suitability	H
Renewable energy generation: offshore wind	Development interest feasible; major windfarm development c 13km from site boundary approved 2010	H
CIVIL ENGINEERING		
Construction on coast / foreshore	Localised development pressures and interest	M
Land claim	Development interest feasible; extent and distribution of unofficial and unconsented land claim unknown	L
Coast protection: hard defence (sea walls/breakwaters)	Locally extensive; future development subject to SMP2 process	H
Coast protection: soft defence	As above	H
Coast protection: groynes	Localised; traditional timber& rock; future development subject to SMP2 process	H
Coast protection: beach replenishment	Localised; used as means of disposal of harbour dredgings; future additional interest possible	M
Coast protection: foreshore deposit of rock, rubble etc	Localised; infrequent; future additional interest possible	L
Barrage: amenity	Development interest feasible	H
Artificial reef	Development interest feasible	H
Hard-engineered freshwater watercourses	Widespread but localised and mostly minor	M
Pipelines	Gas pipeline beneath Lougher estuary	M
Power/ communication cables	Development interest feasible (Overhead cables at Lougher)	H
Unregulated foreshore deposit of rock, rubble etc	Occasional; localised	L

Activity / operation	Presence / likelihood in EMS	Confidence of presence / likelihood
WASTE DISPOSAL		
Effluent disposal: continuous treated waste water	Widespread; point sources; constant	H
Effluent disposal: intermittent (partly) treated waste water (incl CSO)	Widespread; point sources; intermittent	H
Effluent disposal: industrial	Localised; point sources; constant	H
Effluent disposal: thermal	Not known; development interest possible	L (M?)
Effluent disposal: unregulated	Unknown; likely	M
Dredge spoil disposal	Localised; small scale relocation used for beach replenishment at small Pembrokeshire harbours. Disposal from Burry Port harbour in near vicinity	H
Urban / industrial run-off	Localised, intermittent; intensity unknown	L
Agricultural run-off (direct & via catchment)	Widespread, very substantial (in particular via catchment)	H
Unregulated inorganic wastes & debris	Widespread, substantial; unquantified	L
DOCKS, MARINAS & SHIPPING		
Dock, harbour & marina structures: construction	Development interest feasible	M
Dock, harbour & marina structures: maintenance	Probable, intermittent; details unknown	H
Dredging: capital (cf aggregate extraction; also see dredge spoil disposal)	Development interest feasible	L
Dredging: maintenance (*cf* aggregate extraction; also see dredge spoil disposal)	Localised; small scale (small Pembrokeshire harbours; Burry Port harbour)	H
Shipping: ballast water discharge	Possible in vicinity of rather than within site	L
Shipping: refuse & sewage disposal	Possible in vicinity of rather than within site	L
Shipping: operational discharges	Possible in vicinity of rather than within site	L
Shipping: accidents	Possible in vicinity of rather than within site; none since 1996 (Sea Empress)	lL

Activity / operation	Presence / likelihood in EMS	Confidence of presence / likelihood
RECREATION	Information on most recreational activities to be informed by West Wales Coastal Recreation Audit being undertaken at time of writing	
Angling	Widespread, substantial; local pressure 'hotspots'; detail of frequency and intensity unknown	M
Recreational boating: high speed power craft (including PWC)	Widespread but localised; occasional – frequent; possibly increasing	H
Recreational boating: low speed power craft	Localised, fairly small scale; mostly locally launched / moored boats	H
Recreational boating: sail	Localised, fairly small scale; mostly locally launched / moored boats	H
Recreational boating: canoeing	Infrequent, minimal.	H
Recreational boating: other non-mechanically powered craft (kite-surfing, board-sailing etc)	Localised, fairly small scale; low impact	H
Recreational boating: anchoring	Localised anchoring of recreational angling vessels mainly NE Bay, lower estuaries; detailed frequency intensity and distribution unknown	M
Recreational boating: moorings	Localised, mainly restricted to vicinity of main towns / access points	M
Recreational vessel maintenance (including antifouling)	Localised; restricted to harbours, slipways and other launch / access points; inputs of contaminants unknown	M
Surfing	Localised, small scale	H
Scuba diving & snorkelling	Localised, small scale	H
Spearfishing	No information	L
Coastal access for recreation	Substantial; seasonally biased; spatially variable. Detailed numbers and spatial distribution unknown	H
Wildfowling	Localised, mainly restricted to leased areas; frequency and intensity unknown	H
Marine wildlife watching/eco-tourism	Localised; small scale; focussed on islands / rocky coastline; seasonal; unquantified	M

Activity / operation	Presence / likelihood in EMS	Confidence of presence / likelihood
Vehicles on foreshore	Widespread where access possible; generally low intensity (*cf* access for fishing)	M
Light aircraft	Occasional	H
MILITARY		
Military activity: ordnance ranges	Regular; frequent; year-round	H
Military activity: ordnance disposal	Occasional, within designated danger zones.	H
Military activity: aircraft	Regular; frequent; year-round	H
POLLUTION RESPONSE		
Oil spill response: all activities	Reactive only. No recent activity (since 1996-97 Sea Empress oil spill)	M
MISCELLANEOUS		
Archaeology & salvage	Highly localised; minimal / nil archaeological activity	M
Education	Localised; occasional – regular; seasonal; details of distribution, frequency and intensity unknown	M
Fitness & professional training	Localised; mainly emergency services; details of distribution, frequency and intensity unknown	L
Scientific research	Widespread; highly variable distribution, frequency and intensity; occasionally intense, mostly low intensity	M
Animal welfare operations & sanctuaries	Localised; a small number of bird 'hospitals'; detailed activity unknown	L

2.6.3 PLANS AND PROJECTS

Whilst this management scheme is primarily concerned with management of ongoing current and likely future activity taking place within or adjacent to the EMS, the authorisation of plans and projects is, in many instances, directly relevant and / or related to the distribution, frequency and intensity of current or future operations and activities and their management. Many of the activities or operations listed in Table 2.1 may require one or more formal permissions or consents at some stage in their life-cycle, for example construction phases, and therefore meet the plans and projects criterion,

albeit the pursuit of the activity itself or activities that a permitted development enables, may not require any specific permission to pursue. Although the processes for assessment and authorisation of plans and projects differ from the more routine management addresses in this management scheme, in many cases the two are inextricably linked and interdependent.

Therefore within this management scheme, all activities, whether or not they are linked to the requirement for a permission or consent, and all operations, developments, plans or projects requiring a permission or consent that may enable or be related to activity which could affect the features of the site, should take into account the management requirements and measures documented herein.

Further detail on the scope of plans and projects and their assessment is provided in section 4.4.

3 CONSERVATION OBJECTIVES AND ADVICE ON POTENTIALLY DAMAGING OPERATIONS

This section introduces the formal conservation objectives for the EMS – the SAC and both SPAs - and the statutory advice on potentially damaging operations detailed in the 'Regulation 35 advice' document. It does not attempt to reproduce this advice which is available from the CCW website [49].

3.1 INTRODUCTION

Regulation 35(2) of the Habitats Regulations (see Section 1.2.2) requires statutory nature conservation bodies (the Countryside Council for Wales (CCW) in Wales) to advise other relevant authorities for European Marine Sites as to "(a) the conservation objectives for that site, and (b) any operations which may cause deterioration of natural habitats or the habitats of species, or disturbance of species, for which the site has been designated."

The advice for this site is provided in CCW's *Regulation 35 advice* document *Carmarthen Bay and Estuaries European Marine Site: Advice provided by the Countryside Council for Wales in fulfilment of Regulation 35 of the Conservation (Natural Habitats, &c.) Regulations 1994*. Because of the dynamic nature of the marine environment and the continuously developing knowledge of the site and its features, this advice will always be subject to review and revision in order to remain valid and contemporary.

3.2 CONSERVATION OBJECTIVES

The Directive requires that measures be designed to maintain or restore habitats and species of European Community importance at "favourable conservation status" (FCS; see Box 3.1). Conservation objectives are a site-specific expression of FCS for the features of the site.

The conservation objectives set the standards which must be met if the habitats and species features are to be at FCS. They form the basis for:

- proactive determination of the management needs of the site in order to conserve the features;
- consideration of proposed developments, or "plans or projects", which are likely to significantly affect the features of the site (section 2.6.3);
- the standard against which the conservation status of the features are reported to the UK government. The government, in turn, uses this information to contribute to their reporting to the EC on the implementation and effectiveness of the Habitats Directive;
- the standard against which the appropriateness of management can be judged in retrospect.

In order to meet the requirements of the Habitats Directive and ensure the site makes its appropriate contribution to conservation of biodiversity, the conservation objectives seek, *inter alia*, to safeguard

[49] http://www.ccw.gov.uk/landscape--wildlife/managing-land-and-sea/marine-policies/policy--legislation--guidance/regulation-35-advice.aspx OR directly from: http://www.ccw.gov.uk/idoc.ashx?docid=d3cc773f-53f7-48c6-a46f-aa1cb3eb1459&version=-1

features and natural processes from those impacts of human activity that cause damage to the features through the degradation [50] of their range, extent, structure, function or typical species.

The conservation objectives are very brief and are generic for all habitats and all species in all Welsh EMS. Users of the Regulation 35 advice are consequently recommended to liaise closely for site and case specific interpretation of the advice.

BOX 3.1: HABITATS DIRECTIVE DEFINTIONS OF FAVOURABLE CONSERVATION STATUS

Article 1(e):

"Conservation status of a natural habitat means the sum of the influences acting on a natural habitat and its typical species that may affect its long term natural distribution, structure and functions as well as the long term survival of its typical species within the territory referred to in Article 2.

The conservative [sic] status of a natural habitat will be taken as 'favourable' when:

- its natural range and the areas it covers within that range are stable or increasing, and

- the specific structure and functions which are necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future, and

- conservation status of typical species is favourable as defined in [Article] 1(i)."

Article 1(i):

"Conservation status of a species means the sum of the influences acting on the species concerned that may affect the long-term natural distribution and abundance of its populations within the territory referred to in Article 2;

The conservation status will be taken as 'favourable' when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long term basis as a viable component of its natural habitats, and

- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and

- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long term basis

[50] *qv* footnote 1 and Appendix 2 glossary. In this document, degrade / degradation are used to encompass damage or impairment resulting only from such human action as has a detrimental outcome for the features. The significance of any degradation is dependent on the type of human action, its nature, location, timing, duration and intensity, the longevity and scale of the impact and the conservation value of the receptor and its intolerance and recoverability.

3.3 ADVICE ON OPERATIONS WHICH MAY CAUSE DETERIORATION OR DISTURBANCE

Advice on operations that are potentially damaging must be considered in the context of the Habitats Directive, which requires that, for *Natura 2000* sites:

- the necessary conservation measures are established which correspond to the ecological requirements of the habitats and species on the site (Article 6.1);
- appropriate steps are taken to avoid deterioration of habitats and significant disturbance of species (Article 6.2);
- any plan or project which is likely to have a significant effect on a site is subject to an appropriate assessment in view of the site's conservation objectives (Article 6.3).

Brief management measures advice for all currently known and foreseeable activities and operations in the site is provided in the current CCW *Regulation 35 advice* document. The advice, in combination with the conservation objectives, is intended to assist relevant authorities and other decision-makers in complying with these provisions. The term "operations" as used in the Habitats Regulations is taken to cover all types of human activity, which manifest themselves directly or indirectly through one or more influences or processes.

The advice notes that many anthropogenic activities have the potential to affect the structural and functional characteristics of the EMS. It includes a list of operations which CCW considers may cause damage, deterioration or, disturbance (degradation) to the features of the site. It therefore contributes to identification of:

- management measures necessary to secure features at FCS;
- plans or projects that would be likely to have a significant effect and should be subject to appropriate assessment.

The advice is <u>not</u> a list of prohibited operations, or operations necessarily requiring consultation with CCW, or CCW's consent.

CCW should be contacted in the event that more up to date, more detailed or case-specific advice be required (see Appendix 3 for contact details).

Activities specifically identified as actual or potential threats, and either requiring better management or further investigation include (not in any particular order):

- aggregate extraction
- levels of exploitation of ecologically important shellfish species (*eg* cockles, mussels and mussel seed, whelks)
- molluscan shellfish culture ('ranching')
- creation & maintenance of hard engineered coastal defence works
- land claim
- over-grazing
- bait collection, particularly digging
- high speed power craft (including PWCs)
- disposal of wastes and debris
- military activity

In addition to activities that directly exert pressure or pose threats to wildlife and / or their habitats, a variety of other potential threats, both global and local, indirectly caused or influenced by human activity are identified as relevant to the sustainability of marine habitats and wildlife; these include:

- sea level rise
- coastal 'squeeze'
- inadequate fisheries management capability
- mass mollusc (cockle) mortality events
- water quality and nutrient enrichment
- urban water run-off
- waste and debris
- modifications to sediment transport
- short term planning policies and unsustainable development
- poor public awareness, understanding or interest

The advice document also notes that more information is needed on the distribution, timing and intensity of all activities, but in particular on:

- all forms of commercial fishing
- angling
- bait collection of all kinds
- recreational high speed boating and water-sports
- off-road motor sports in intertidal areas
- unregulated wildfowling
- unregulated rubbish disposal (fly-tipping)
- unregulated foreshore development
- unregulated coastal protection and land claim
- vessel maintenance (including cleaning and painting antifouling)
- marine wildlife watching / 'eco-tourism'
- scientific research
- marine wildlife welfare

3.4 WATER QUALITY ENVIRONMENTAL OUTCOME

Further to, and as a context for action to meet the conservation objectives, a Water Quality Environmental Outcome was agreed by CCW and the Environment Agency Wales following the EAW's formal Review of Consents process:

> To ensure that the Carmarthen Bay & Estuaries EMS is not at risk of eutrophication through elevated nutrient levels to achieve the long-term objective that the Carmarthen Bay & Estuaries EMS will be in mesotrophic status in line with the sites conservation objectives

It is important to note that this outcome does not require simply avoiding eutrophication, but *ensuring the absence of risk* of eutrophication.

Lobster (*Homarus gammarus*) in pot

4 SITE MANAGEMENT PLANNING

4.1 INTRODUCTION

This section describes the management planning process, ie the process by which management needs and solutions have been identified. This process has been informed by information supplied by the relevant and competent authorities, other stakeholders and the Countryside Council for Wales' Regulation 35 advice.

Whilst over-arching issues such as the absence of legislatively founded management powers within the marine environment and resource shortfalls (*eg* staffing and funding for management implementation) are fundamental impediments to the overall management success of the site, these impediments did not prevent genuine management requirements being identified within this scheme despite them being difficult (or impossible at this time) to deliver; the scheme and its resulting actions are necessarily ambitious.

During the preparation of this scheme, the 2009 Marine and Coastal Access Act came into force See section 1.2.4.3). Whilst this Act significantly enhances the management powers of several key relevant and competent authorities, at the time of writing these new powers have yet to be fully implemented or tested. Neverthless, it is anticipated that they should make a substantial contribution to the capacity for achieving EMS at FCS.

4.2 IDENTIFYING MANAGEMENT REQUIREMENTS (MANAGEMENT RATIONALE)

4.2.1 INTRODUCTION

The Carmarthen Bay and Estuaries EMS RAG's agreed strategy for the development of the site's management scheme is founded on the principles of, *inter alia*, sustainability, precaution and appropriate and fit-for-purpose management (*qv* section 1.4). In it, the relevant authorities committed themselves to:

1) identifying processes for decision-making (*eg* on conservation issues; development of management solutions);
2) objective assessment of pressures on and threats to features, identified as far as possible using the best available scientific survey, monitoring, surveillance and causal relationship information;
3) basing management action on a full inventory of the necessary management requirements to secure and maintain favourable conservation status.

The relevant authorities recognise that marine ecosystems are constantly changing naturally and dynamically and that it is not possible to manage those ecosystem but only to manage human activities that impact upon them. It is also acknowledged that management concerns risk and consequences: how to reduce risks and how to mitigate consequences.

4.2.2 PRESSURES AND THREATS

Main generic pressures (factors affecting species, previously and currently) and threats (factors considered likely to become pressures) were extracted from the list *of Impacts and Activities Influencing the Conservation Status of the Site* identified by the European Commission (EC) in

Appendix E of the Habitats Directive. This standard list of pressures is used for completion of the standard data form for a *Natura 2000* site and the basis for reporting to the EC [51]. These generic pressures and threats were modified and amplified as necessary to reflect site specific requirements.

Pressure on the site's features leading to either the threat of or actual degradation (damage to, or deterioration or disturbance) of conservation status may arise, alone or in combination, from one or more of four broad causes:

1) activities and operations in or adjacent to the site which have a direct or indirect influence on one or more components of a feature, or its requirements;
2) direct, indirect or consequential effects of broad-scale, possibly global, anthropogenic influences;
3) developments and plans that may potentially influence features;
4) management initiatives unrelated to EMS requirements, by relevant and other authorities;

Action to reduce, remove or mitigate pressures or threats may be limited subject to the capability of relevant authorities to introduce or deliver the management necessary for securing and maintaining the features at favourable conservation status.

In addition, long-term ecosystem or habitat changes resulting from rebound following previous (historical) anthropogenic influences or impacts may also, in some circumstances, exert pressures on current populations and features. These are not regarded as anthropogenic pressures or threats *per se*, but as natural ecosystem responses or realignment following the removal of anthropogenic influences or impacts. Of course there is no way of knowing how natural a state the resulting realignment is, or will be, or how like its state prior to being changed by human activity. Nevertheless, such changes and dynamism must be taken into account when identifying current pressures and threats.

The outcomes of human actions may be beneficial (a change resulting from a decrease in anthropogenic influence; *eg* an improvement in water quality), benign (no outcome) or detrimental (a change resulting from an increase in anthropogenic influence, *ie* a new anthropogenic impact or an increase in an existing anthropogenic impact; *eg* a deterioration in water quality).

The significance of any degradation is dependent on the longevity and scale of the impact and the conservation value of the receptor. This is influenced by the type of human action, its nature, location, timing, duration and intensity; and the receptor, and its intolerance and recoverability.

Protection is provided by management, and management should be based on levels of risk. The various components of the features or aspects of FCS are differently sensitive and vulnerable to degradation by different human actions, and the feature components are of different degrees of conservation importance. The degree of management and hence protection must, therefore, vary both in space and time, and between features and their components as appropriate. The identification of management measures, and their prioritisation and implementation each require a risk-based approach.

[51] JNCC. 2007. 2nd UK Report on Implementation of the Habitats Directive. Online resource at http://jncc.defra.gov.uk/page-4060

Damage, deterioration, disturbance and degradation

Operations and activities may degrade [52] (damage, disturb or cause deterioration) one or more conservation features through one or more effect mechanisms. Outcomes arising from human action likely to be considered detrimental include such effects as, for example:

- permanent change of distribution or reduction in extent of a feature or feature component, or temporary modification or reduction sufficiently significant to negatively impact on biota or ecological processes;
- reduction in ecological function caused by loss, reduction or modification of habitat structural integrity;
- interference in or restriction of the range, variety or dynamism of structural, functional or ecological processes, *eg*: alteration of habitat structure, obstruction of tidal streams, chronic or acute thermal, salinity or suspended sediment elevations or reductions;
- hypertrophication or eutrophication;
- contamination by biologically deleterious substances;
- reduction in structure, function and abundance of species populations;
- change in reproductive capacity, success or recruitment of species populations;
- reduction in feeding opportunities of species populations
- reduction of health to a sub-optimal level, or injury, rendering the population less fit for, *inter alia,* breeding, foraging, social behaviour, or more susceptible to disease;
- increase in abundance and range of opportunist species through the unnatural generation of preferential conditions (*eg* organic enrichment), at the expense of existing species and communities.

4.2.3 NATURAL ENVIRONMENTAL PROCESSES

This management scheme addresses human activities taking place within the Carmarthen Bay & Estuaries EMS. However it is acknowledged that the EMS features are also subject to broadscale and local natural influences such as climate and weather variation, natural succession, erosion, sediment transport, competition amongst and between species, and chance random (stochastic) events. The significance of these 'natural' effects and how they interrelate with human activities in the EMS is highly complex and mostly poorly understood. Natural influences, particularly climatic factors, clearly fall outside EMS management control.

4.2.4 INEVITABLE ('LOCKED-IN') AND GLOBAL INFLUENCES

All human activities, natural variations and management are subject to global influences, whether natural or human induced. The most critical and all-pervasive human induced global influence on the site is climate change. Global climatic change may be manifested by increased storminess, changed sea level and increased seawater acidity, as well as changes in temperature. Clearly such influences must be acknowledged and accommodated within the management scheme, not least in striving to

[52] *qv* footnote 1 and Appendix 2 glossary

maximise the contribution of the biodiversity within the site to mitigating the impacts of climate change. Although control of adverse global influences caused by human action is far beyond the scope of local management schemes, attention is drawn to the importance of local contributions in addressing global problems and the need for management to undertake to make such appropriate contributions.

4.2.5 WIDER ENVIRONMENTAL ISSUES

A number of environmental issues were identified during stakeholder liaison which, whilst being entirely legitimate environmental concerns, were outside the scope and purpose of this management scheme, in that they could not be considered to represent a specific potential significant threat to the EMS features. Where possible, the stakeholders were redirected to the most appropriate authority (assuming that an appropriate management body or management mechanism existed).

Notwithstanding the foregoing, whilst the focus of delivering the requirements of the Habitats Directive is certainly not the delivery of Integrated Coastal Zone Management (ICZM), commitment to the principles of ICZM would benefit the management of the Carmarthen Bay and Estuaries EMS as well as its neighbouring marine protected areas.

4.2.6 OTHER PLANS AND STRATEGIES

A wide range of other management plans, strategies and schemes may or should contribute to, or at least not compromise, achievement of FCS for the EMS features and thus securing the delivery of the Habitats Directive requirements. Some of these are complementary environmental initiatives such as Biodiversity Action Plans and River Basin Management Plans; others include a diverse variety of land-use and sectoral, statutory and non-statutory plans designed for different purposes altogether, such as local development, shoreline management, fisheries and wildfowling management plans and strategies, but which must variously take account of or contribute to achieving the conservation objectives for the EMS.

Key plans include:

- Wales and local (county) Biodiversity Action Plans
- Other designated sites (eg SSSI) management plans
- Local Authority Local Development Plans (or Unitary Development Plans where still extant)
- Pembrokeshire Coast National Park Management Plan
- Gower AONB Plan
- Shoreline Management Plans
- Catchment Abstraction Management Strategies (CAMS)
- River Basin Management Plans
- Welsh Fisheries Strategy
- Wales Spatial Plan (and regional sub-plans)

Other relevant plans and strategies are referenced as appropriate in Technical Annexes 2 (Assessment of pressures and threats) and 3 (Long term management objectives and actions).

4.2.7 ASSESSMENT OF ACTIVITIES AND IDENTIFICATION OF CONSERVATION ISSUES

This section provides a brief outline of the approach taken to assess the effects & impacts of activities on EMS features & habitats of features. It is not a systematic impact assessment of each activity; systematic, objective, but brief, assessments of known, likely and potential effects and impacts of activities on features and feature habitats are detailed in Technical Annex 2 (Assessment of pressures and threats). These 'risk assessments' also identify where management action is likely be required, but do not specify that action. Proposed management action is identified in Technical Annex 3 (Long term management objectives and actions).

The list of activities and operations considered was not necessarily exhaustive nor definitive; some may have been overlooked and others may well arise in the future and need to be considered.

Management action necessary to secure the site's features at FCS has been identified following assessment of the directly known or inferred effects of current and likely imminent future activity on the site's features. Information availability - or unavailability - was a critical constraint on these assessments. In undertaking these assessments and in determining management requirements, it was necessary to collate and synthesise relevant information and draw inferences from appropriate research findings to inform the process.

Information on activities currently occurring or likely to occur within the site in the future was identified as far as possible: where, when and how much they occur; how they are currently managed. However, detailed activity information proved difficult to obtain for many. The is a wide variety of activities which take place within the EMS, many of which occur largely out of sight either of any observer or of the agency responsible for its management (where one exists). The detail and reliability of information on human activities within the site is therefore hugely variable; much activity is not recorded at all, or information is not available in any formal manner. In most instances was incomplete; for some activities there was no information available at all. Ongoing gathering of activity information will likely remain an important long-term action in the EMS management process.

Assessment of the potential for activities to cause deterioration or significant disturbance to the EMS features was informed by a variety of sources; *inter alia* the advice on operations included in CCW's *Regulation 35 advice*, the UK Marine SACs LIFE II report series (http://www.ukmpas.org/sacs.php), the *MarLIN* database (http://www.marlin.ac.uk) and other relevant sources including limited circulation reports and publications in the scientific literature.

Assessment of the potential of an activity to cause deterioration or disturbance to EMS features necessitates an understanding of the causal relationships, sensitivity and likely exposure of those features and their components to the different activities. Effects and impacts of activities are manifested through one or more physical, chemical or biological *factors* [53]. Unrelated and dissimilar activities that influence the same factors may therefore, sometimes counter-intuitively, have synergistic or cumulative effects or impacts. Whilst factor-based mechanisms were taken into account during the systematic and sequential assessment of activities, the paucity of spatial and temporal activity information precluded taking account of in-combination effects. Information on causal relationships between human activity and wildlife, habitats and ecology is, nevertheless, incomplete, highly variable in detail and much remains dispersed widely in the published scientific literature.

[53] Factors are processes or influences through which any activity or natural process affect species or their habitats; for further information see, for example: www.marlin.ac.uk/sah/baskitemplate.php?benchmarks

The marine environment is complex and modern survey and experimental techniques have only relatively recently begun to gradually provide the essential biological and ecological information on which to base informed management decisions. A considerable amount of information is available about the features, though it is spread amongst many documents which differ in style, detail, accessibility and age. Assessments were made based on best available knowledge only. It may be that in the light of further information, certain activities in certain locations may be assessed differently.

Assessment of likelihood of impact was made taking the foregoing into account. Unsurprisingly, for the reasons cited above, a reliable overall assessment of many activities, including many potentially degrading activities, was difficult or impossible to achieve.

Although a risk-based, systematic, prioritisation has been undertaken as far as possible, comprehensive risk assessment following a strict protocol procedure is a significant task and requires a sufficiently comprehensive information base and, therefore, the ideal objective approach has had to be supported by interim intuitive prioritisation where necessary.

4.2.8 CATEGORISING AND PRIORITISING MANAGEMENT REQUIREMENTS

To help identify the kinds of actions needed to manage activities which may adversely affect EMS features, the series of broad management responses compiled by several other UK marine SAC management schemes and modified by the Wales Group of European Marine Site officers [54] was adopted (Table 4.1).

Table 4.1 Broad management response options

'F LIST' DEFINITIONS (modified (*italics*) from definitions adopted by GEMS)

Code	Judgment	Management
F1	The activity constitutes a plan or project as defined in the Habitats Directive.	Apply Habitats Regulations 48-53 ("Habitats Regulations Assessment") *Develop RAG view on significance as a relevant conservation issue*
F2	There is no known mechanism for the activity to affect the feature, no known causal relationship, and no evidence that it is having a significant adverse effect.	Not considered further at present
F3	There is no known mechanism for the activity to affect the feature, but there is evidence that there may be a causal relationship and/or it is having a significant adverse effect.	• Research • Activity surveillance • Experimental or trial management • Identify and implement operational limits

[54] The Wales Group of European Marine Site (GEMS) officers was convened in 2006 to facilitate sharing of best practice and experience across EMS in Wales.

F4	There is a known mechanism for the activity to have an effect, but there is insufficient evidence at present to determine whether or not it is having a significant adverse effect.	• Activity surveillance • Precautionary management including use of operational limits • Research to determine whether there is an effect or not and inform operational limit setting • *Maintain current management* • *Monitor compliance of current management implementation* • *Monitor compliance with current management measures*
F5	There is a known mechanism for the activity to have an effect, but evidence shows that it is not having a significant adverse effect at present.	***F5a*** *(absence of adverse effect is a product of current management)* • *Maintain current management* • *Monitor compliance of current management implementation* • *Monitor compliance with current management measures* ***F5b*** *(absence of adverse effect is / appears independent of current management)* • Activity surveillance • Identify and implement operational limits
F6	There is evidence to suggest that an activity is having a significant effect on the feature, but it is outside management control (*e.g.* it is an indirect effect from large scale human activity such as climate change), or there is no current mechanism for management.	• Activity/factor surveillance • If necessary, seek appropriate management mechanism, then implement appropriate management
F7	There is evidence to suggest that an activity is having a significant adverse effect and the mechanism is known.	• Identify and implement management measures • Identify and implement operational limits • *Monitor compliance of management implementation* • *Monitor compliance with management measures*

Table 2.1 listed all the activities, based on current available information, known to be currently occurring within or in the vicinity of the site, or considered likely to occur in the future, or may be foreseen as possibly occurring in the future. The likely effect of these activities on the site's features are described and assessed in Technical Annex 2 .

Based on best immediately available information and using the decision key below, each activity has been assigned a generic management option by the Relevant Authorities Group. The rationale underlying each generic management option is provided in Technical Annex 2.

GENERIC MANAGEMENT OPTION DECISION KEY

1. Is the activity a plan or a project?

   Yes (exclusively)….**F1**

   Yes but … also an RA management responsibility … **score F1 and *go to 2***

   No….***go to 2***

2. Is the activity within actual or possible management control?

   Yes….***go to 3***

   No….**F6**

3. Is there sufficient evidence to suggest that the activity is adversely affecting the feature(s)?

   Yes and the mechanism is known….**F7**

   Yes but the mechanism is unknown….**F3**

   No but (a) mechanism(s) known to exist….***go to 4***

   No….**F2**

4. Is more evidence/information required in order to determine effects?

   Yes….**F4**

   No….**F5** — Is evidence for absence of adverse effect a result of current management?

   Yes (or probably) … **F5a**

   No … **F5b**

This categorisation of management helped identify where management action is necessary, the type of management action; management action includes acquiring further information to make better informed judgments. The activities identified in Technical Annex 2 as currently causing having the potential to cause deterioration or significant disturbance to EMS features and the generic management options are summarised below (Table 4.2) as *potential conservation issues,* and are addressed in the Technical Annex 3 (Long term management objectives and actions).

The list of activities and assessment of their potential effects on the SAC features will be regularly reviewed to reflect current use of the EMS and new information as it becomes available. The list of activities considered to be potentially detrimental is therefore subject to change.

Table 4.2. Activity list, issue identification and management measure categorisation

Entries in bold are assessed as priority pressures and requiring priority action.

Management codes shown in brackets indicate the codes that would be assigned in the event that the activity takes place despite the lack of evidence that it is currently occurring, or in the event that it were to take place in the future.

Activities marked with an asterisk (*) require or may in part a permission of some kind making them subject to Habitats Regulations Assessment provisions

Activities marked with a hash (#) may not directly exert pressures on the sites features but they are likely to facilitate consequential activities or outcomes that may exert pressure or cause threats.

Activities greyed out are not known to occur in the site.

Activity / operation	Current status in EMS	Info on distribution / intensity	Future likelihood	Potential conservation issue	*Confidence*	Management measure (F) code
EXPLOITATION OF LIVING RESOURCES						
Trawling: beam *	N?	poor	possible	Y if introduced	H	**1 / 5 (4 / 7)**
Trawling: otter *	Y	poor	continuing	possible	H	**1 / 4**
Dredging: toothed *	not known in site	nil	possible	possible	H	**1 / 2 / 5a (4 / 7)**
Dredging: bladed - mussel *	Y	mod	continuing	possible	M	**1 / 4**
Dredging: bladed - mussel seed *	**Y**	**mod**	**continuing**	**possible**	**M**	**1 / 4**
Dredging: bladed – oyster *	N	-	unlikely	unlikely	H	**1 / 2 (4 / 7)**
Dredging: cockle mechanical *	N [55]	-	unlikely	Y if developed	H	**1 / 5a (4 / 7)**
Dredging: deep hydraulic (eg WJID) *	Y	-	possible	Y	M	**1 / 4**
Dredging: shallow hydraulic (eg suction)	N	-	possible	Y if introduced	M	**1 / 5a (4)**
Netting: bottom-set gill *	Y	poor	continuing	probable	M	1 / 4
Netting: bottom-set tangle /	Y	poor	continuing	probable	M	1 / 4

[55] Not a "fishing instrument of an approved pattern" under SWSFC byelaw 40

Activity / operation	Current status in EMS	Info on distribution / intensity	Future likelihood	Potential conservation issue	*Confidence*	Management measure (F) code
trammel *						
Netting: surface set gill *	Y	poor	continuing	probable	L	**1 / 4**
Netting: beach seine	Y	mod	continuing	possible	L	**2 / 5b**
Netting: demersal seine *	not known in site	-	possible	if introduced		**1 / 2 (4)**
Netting: beach-set gill	Y	good	continuing	possible	L	**4**
Netting: other	not known in site	-	possible	possible		**(4)**
Potting: lobster / crab *	Y	mod	continuing	unlikely	L	**1 / 4**
Potting: prawn *	not known in site	-	possible	possible	L	**1 / (4)**
Potting: whelk *	**Y**	**mod**	**continuing**	**probable**	**L**	**1 / 4**
Line: long-line *	Y	mod	continuing	possible	L	**1 / 4**
Line: hand-line *	Y	poor	continuing	unlikely	L	**1 / 4**
Electro-fishing: molluscs *	Y	(good)	possible	possible	L	**1 / 4**
Fisheries: predator control *	Y	poor	likely	possible	L	**1 / 4**
Hand gathering: cockles * (excluding access issues)	**Y**	**good**	**continuing**	**probable**	**M**	**Locally 1 / 4**
Hand gathering: mussels (excluding access issues)	**Y**	**good**	**continuing**	**Y**	**M**	**1 / 4 locally 7?**
Hand gathering: mussel seed * (excluding access issues)	**Y**	**good**	**continuing**	**Y**	**M**	**1 / 4**
Hand gathering: razor clam (including salting; excluding access issues)	Y	mod	continuing	possible	L	**4**
Hand gathering: other bivalves (excluding access issues)	Y	mod	continuing	possible	L	**4**

Activity / operation	Current status in EMS	Info on distribution / intensity	Future likelihood	Potential conservation issue	*Confidence*	Management measure (F) code
Hand gathering: winkles (excluding access issues)	Y	mod	continuing	possible	L	**4**
Hand gathering: crustacean shellfish	nil info	-	likely	unlikely	L	**2**
Hand gathering: algae & plants for human consumption (eg *Porphyra*, glasswort; excluding access issues)	Y	poor	likely	possible	L	**1 / 4**
Hand gathering: access and vehicle use	**Y**	**mod**		**possible**	**M**	**4 / locally 7**
Hand / mechanical gathering: algae for chemical extraction / biomass (excluding access issues)	nil info	-	possible	possible / likely if developed	L	1? (4)
Bait collection: digging *	**Y**	**mod**		**probable**	**H**	**1** [56]**/ 4**
Bait collection: pump	Y	mod		possible	L	**4**
Bait collection: salting (razorfish)	Y	M		possible	M	**4**
Bait collection: other sediment shore techniques	nil info	-				
Bait collection: boulder turning (& collection targeted spp)	Y	poor		possible	L	**4**
Bait collection: other	nil info	-				
Bait collection: aggregation devices *	Y	almost nil		likely	L	**1 / 4**
Collection for aquarium / curio trade *	nil info	-		unlikely	L	**1 / 4**
Grazing: salt-marsh	**Y**	**mod - good**		**probable**	**H**	**4 / locally 7**

[56] Commercial bait collection

Activity / operation	Current status in EMS	Info on distribution / intensity	Future likelihood	Potential conservation issue	*Confidence*	Management measure (F) code
See also recreational angling and spearfishing						
CULTIVATION OF LIVING RESOURCES						
Aquaculture: molluscan 'ranching' ./ extensive [57]* (Several Order)	**Y**	**good**		**probable**	**H**	**1[58] / 4**
Aquaculture: algae *	not known in site	n/a		possible if introduced	H	**(4)**
Aquaculture: finfish - sea cages or impoundments *	not known in site	n/a		possible if introduced	H	**(4)**
Aquaculture: crustaceans - sea cages or impoundments *	not known in site	n/a		possible if introduced	H	**(4)**
Aquaculture: molluscan 'farming' **structures** [59]*	Y	mod		possible	M	**F1 / 4**
Aquaculture: land based semi-enclosed / recirculation *	Y	good		unlikely	M	**4**
Aquaculture: predator control *	not known in site	nil	possible	likely if introduced	L	**(4)**
EXPLOITATION OF NON-LIVING RESOURCES						
Water abstraction *	Y	good		unlikely	M	**1 / 5b**
Aggregate extraction *	Y	good	possible	Y	M	**1 / (7)**

[57] Wild stock enhancement*;* deposition of juveniles on seabed, semi-managed ongrowing and subsequent harvesting of commercially sized individuals; *cf* "farming"

[58] Several Orders

[59] Molluscan culture using trestles, ropes, cages or other structures; *cf* "ranching"

Activity / operation	Current status in EMS	Info on distribution / intensity	Future likelihood	Potential conservation issue	*Confidence*	Management measure (F) code
Oil & gas exploration *#	N	n/a	unlikely	Y if developed	H	**(1)**
Renewable energy generation: tidal barrage *#	N	n/a	possible	Y if developed	H	**(1)**
Renewable energy generation: tidal impoundment *#	N	n/a	possible	Y if developed	H	**(1)**
Renewable energy generation: tidal current turbine*#	N	n/a	unlikely	Y if developed	H	**(1)**
Renewable energy generation: wave energy*#	N	n/a	unlikely	Y if developed	H	**(1)**
Renewable energy generation: offshore wind *#	N	n/a	possible	Y if developed	H	**(1)**
CIVIL ENGINEERING						
Coastal development / construction *#	**Y**	**mod**	**probable**	**possible**	**M**	**1 / 4**
Marine development / construction *#	Y	mod	probable	possible	M	**1 / 4**
Maintenance & management of civil engineered coastal, foreshore and marine structures *#	**Y**	**mod**	**continuing**	**possible**	**M**	**1 / 4**
Land claim (consented or unconsented) *****	**Y**	**poor**	**likely**	**probable**	**H**	**1 / 7**
Coast protection: hard defence (sea walls/breakwaters)*#	**Y**	**good**	**continuing**	**possible**	**H**	**1 / 4 / 7**
Coast protection: soft defence *#	Y	good	continuing	possible	M	**1 / 4**
Coast protection: beach replenishment *#	Y	good	continuing	possible	L	**1 / 4**

Activity / operation	Current status in EMS	Info on distribution / intensity	Future likelihood	Potential conservation issue	*Confidence*	Management measure (F) code
Coast protection: surge/tidal barrage *#	N	n/a	possible	Y if developed		**(1)**
Foreshore deposit of rock, rubble etc (consented or unconsented)	Y	poor	likely	possible	M	**1 / 4 / locally 7?**
Barrage: amenity *#	N	n/a	possible	Y if developed		**(1)**
Artificial reef *#	N	n/a	possible	Y if developed		**(1)**
Hard-engineered freshwater watercourses [60]*#	Y	good	continuing	possible	L	**1 / 4**
Pipelines *#	Y	mod	possible	possible	M	**1 / 4**
Power/ communication cables *#	N	good	possible	possible		**(1)**
WASTE DISPOSAL & POLLUTION						
Disposal						
Effluent disposal: continuous treated waste water	**Y**	**good**	**continuing**	**Y**	**H**	**1 / 4**
Effluent disposal: intermittent (partly) treated waste water (incl. CSO) *	**Y**	**good**	**continuing**	**Y**	**H**	**1 / 4 / 7?**
Effluent disposal: industrial *	Y	good	continuing	probable	H	**1 / 4**
Effluent disposal: thermal *	N	n/a	unlikely	Y if developed		**(F1)**
Effluent disposal: unregulated	Y	poor	likely	possible	L	**4**
Dredge spoil disposal *	Y	mod	probable	possible	M	**1 / 4**

[60] Freshwater watercourses draining into estuaries and bays that are hard engineered to reduce erosion, maintain course or otherwise constrain or manage the watercourse.

Activity / operation	Current status in EMS	Info on distribution / intensity	Future likelihood	Potential conservation issue	*Confidence*	Management measure (F) code
Diffuse urban / industrial pollution	Y	poor	continuing	possible	L	**4**
Diffuse agricultural pollution	**Y**	**mod**	**continuing**	**probable**	**M**	**4 / 7**
General wastes & debris	Y	poor	continuing	possible	L	**4**
Beach cleaning	Y	mod	Y	possible	M	**4**
DOCKS, MARINAS & SHIPPING						
Dock, harbour & marina structures: construction / development *#	Y	good		possible	M	**1 / 4**
Dock, harbour & marina structures: maintenance *	Y	L		unlikely	L	**1 / 4**
Dredging: capital * (*cf* aggregate extraction; also see dredge spoil disposal)	not known in site	-		possible	H	**1 (4)**
Dredging: maintenance (*cf* aggregate extraction; also see dredge spoil disposal)	Y	good	likely	possible	H	**1 / 4**
Shipping: moorings	N	-	unlikely	not known in site		**n/a**
Shipping: anchoring	N	-	unlikely	not known in site		**n/a**
Shipping: vessel maintenance (incl. antifouling)	N	-	unlikely	not known in site		**n/a**
Shipping: navigation & vessel movement, including refuse & sewage disposal, ballast water discharge operational discharges	no data - likely in vicinity of site	nil	possible	not known in site	M	**4**
Shipping: accidents	N	historical	possible	probable	H	**4**

Activity / operation	Current status in EMS	Info on distribution / intensity	Future likelihood	Potential conservation issue	*Confidence*	Management measure (F) code
RECREATION [61]						
Recreational sea angling	Y	mod - good	continuing	possible / unlikely	L	**4**
Recreational boating: high speed power craft (incl PWC)	**Y**	**mod**		**possible / probable**	**M**	**4**
Recreational boating: low speed power craft	Y	mod		possible	L	**4**
Recreational boating: sail	Y	mod		unlikely	M	**4**
Recreational boating: canoeing	Y	poor		unlikely	M	**4**
Recreational boating: other non-mechanically powered craft (kite-surfing, board-sailing etc)	Y	mod		unlikely	M	**4**
Recreational boating: anchoring	Y	mod		unlikely	L	**4**
Recreational boating: moorings *	Y	good		unlikely	M	**4**
Recreational vessel maintenance (including antifouling)	Y	mod		possible / probable	M	**4**
Beach recreation / swimming / surfing etc	Y	good		unlikely	H	**2**
Scuba diving, snorkelling	Y	mod		unlikely	M	**4 (2 snorkeling)**

[61] PCNPA: trends in water based recreation are toward more motorised, more extreme, more active, more space-hungry; lack of ability to regulate recreational (particularly motorised) craft and activities in general on inshore waters are of concern. PCC: water-based activities increasing – motorised and non-motorised.

Activity / operation	Current status in EMS	Info on distribution / intensity	Future likelihood	Potential conservation issue	*Confidence*	Management measure (F) code
Spearfishing	no data	-		not known in site	M	**4**
Coastal access for recreation	Y	mod		possible		**4**
Wildfowling	***Y***	***good***		***possible***	***M***	**4**
Marine wildlife watching/eco-tourism	Y	mod		unlikely		**4**
Vehicles on foreshore	***Y***	***mod - good***		***locally likely***	***L***	**4**
Recreational aircraft	Y	poor		unlikely	M	**4**
MILITARY						
Military activity: ordnance ranges	Y	good		possible	L	**1 (some) / 4**
Military activity: ordnance disposal	Y	poor		possible	L	**4**
Military activity: aircraft	Y	mod		possible	L	**4**
POLLUTION RESPONSE						
Oil spill response: all activities	N	-	possible	probable	H	**7 (on occurrence)**
MISCELLANEOUS						
Archaeology & salvage	N?	mod		unlikely	M	**4**
Education	Y	mod		unlikely	M	**4**
Science research	Y	good		unlikely	M	**4**
Animal welfare operations & sanctuaries	Y (in vicinity of	mod		none known in site	M	**4**

Activity / operation	Current status in EMS	Info on distribution / intensity	Future likelihood	Potential conservation issue	*Confidence*	Management measure (F) code
	site)					

4.3 MANAGEMENT OBJECTIVES

In order to address the foregoing assessments and management code assignments, a series of long-term, activity-related, management objectives have been developed. These describe, in broad terms, the outcome or goal considered necessary to contribute to meeting the conservation objectives for the site, and thereby securing the features of the site at FCS. Management objectives are not prescriptive but should be delivered through a series of specified actions by individual relevant authorities.

The management objectives and agreed actions to meet them are documented in Technical Annex 3 (Long term management objectives and actions).

4.4 ASSESSMENT OF PLANS AND PROJECTS

This section provides brief additional detail on the scope of plans and projects, the assessment requirements prior to authorisation, and the need for integration with the management scheme. It does <u>not</u> provide detailed methodological guidance which is a available elsewhere.

As noted in section 2.6.3 above, the task and processes for authorisation of plans and projects differ from management of ongoing current and likely future activity within or adjacent to the EMS. Nevertheless, the authorisation of plans and projects is, in many instances, directly relevant and / or related to the distribution, frequency and intensity of current or future operations and activities and their management. The theoretically clear distinction between 'RAG functions' (roughly as encompassed in Habitats Directive Article 6.2) and plan and project assessment and consenting (roughly as encompassed in Habitats Directive Article 6.3) breaks down rapidly in the real world and the two processes are frequently inextricably interlinked. The interconnections have become more apparent with developing understanding of the scope of the concept of plans and projects and relevant case-law; consideration of the assessment of plans and projects within this document is therefore both justified and necessary. In assessing projects and in planning, account must be taken of both existing activities and activities that will arise as a consequence of permitting a project of implementing a plan. The management required to meet the requirements of the Habitats Directive specifically requires an adequate degree of integration between land use plans and management schemes.

The Habitats Directive requires that any "plan or project" judged "likely to have a significant effect" upon the conservation features of the site, either individually or in combination with other plans or projects, is subject to appropriate assessment of its implications for the conservation features of the site, in addition to any other environmental impact assessment (see box below).

Activities which require some form of consent or permission from a competent authority before they can proceed or continue are addressed by Regulations 59 to 83 of the UK Habitats Regulations (see

box below). The Regulations require that where plans or projects have the potential to significantly affect the interest features of the site, full consideration must be given to the requirements of the Habitats Directive in general and that they not be permitted or consented unless they can be demonstrated, *via* an appropriate assessment, as not having an adverse effect on site integrity (the entire process being known as Habitats Regulations Assessment (HRA)).

Box 1

Article 6 (3) of the Habitats Directive

"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public."

Habitats Regulations

61.—(1) A competent authority, before deciding to undertake, or give any consent, permission or other authorisation for, a plan or project which—
(a) is likely to have a significant effect on a European site …. (either alone or in combination with other plans or projects), and
(b) is not directly connected with or necessary to the management of that site,
must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.
(3) The competent authority must for the purposes of the assessment consult the appropriate nature conservation body and have regard to any representations made by that body within such reasonable time as the authority specify.
(5) In the light of the conclusions of the assessment, and subject to regulation 62 (considerations of overriding public interest), the competent authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site …
(6) In considering whether a plan or project will adversely affect the integrity of the site, the authority must have regard to the manner in which it is proposed to be carried out or to any conditions or restrictions subject to which they propose that the consent, permission or other authorisation should be given.

European Union guidance [62] and UK government guidance [63] provide clear interpretation and direction of the requirements of Article 6(3). UK government commitment to these requirements has been

[62] Managing Natura 2000 sites: the provisions of Article 6 of the 'Habitats' Directive *ibid*

[63] DETR / Welsh Office, 1998. *op cit* (footnote 4)

reconfirmed, *inter alia*, in April 2004 by the Secretary of State for Transport's decision on development at Dibden Bay, Southampton and in other cases [64].

Comprehensive methodological guidance on appropriate assessment to meet the requirements of the Directive is provided the Regulations by the European Commission, UK and Wales governments and CCW [65].

The scope of the application of Article 6.3 and Regulation 48 has been clarified in government guidance and both European and UK caselaw, particularly in confirming the Directive's application to fisheries, not least through the 'Waddensea ruling' [66] (see Box 4.3). The Waddensea ruling also provided important legal clarification of several other key aspects of the interpretation of the Habitats Directive including the precautionary principle and scientific uncertainty (see below).

Defra provided the UK government's position on the application of Article 6.3 to fisheries in a 2004 letter to the Association of Sea Fisheries Commitees [67]**.** Although the position was specifically identified as applicable in England, in the absence of a comparable Welsh position statement but in light of both European and UK government positions, the same legal status is assumed to be valid in Wales.

Defra confirmed that fisheries "authorisations should be subject to an appropriate assessment if they are not directly connected with, or necessary to the management of a European site, and are likely to have a significant effect on that site." and that if a fisheries manager (specifically an SFC, but since the 2009 Marine & Coastal Access Act an IFCA in England or the Welsh Government in Wales) "decides to close or restrict that fishery for stock conservation reasons, that decision should be regarded as a plan or project. If that decision is likely to have a significant effect on a European site and is not connected with or necessary for site management, an appropriate assessment would be necessary. The

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[64] Secretary of State, Department for Transport decision and Inspector's Report refusing consent for the Port of Southampton (Dibden Terminal) Harbour Revision Order under the Harbours Act 1964 (www.dft.gov.uk)

Hoskin, R and Tyldesley, D. 2006. *How the scale of effects on internationally designated nature conservation sites in Britain has been considered in decision making: A review of authoritative decisions.* English Nature Research Reports, No 704

[65] Specific guidance documents: European Commission, 2001. *Assessment of plans and projects significantly affecting Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.* http://ec.europa.eu/environment/nature/natura2000/management/docs/art6/natura_2000_assess_en.pdf;

Welsh Government, 2009. *Technical Advice Note 5, Nature Conservation And Planning (2009),* http://wales.gov.uk/docs/desh/policy/100730tan5en.pdf;

Tyldesley, D. and Hoskin, R. (2008) *Assessing projects under the Habitats Directive: guidance for competent authorities.* Report to the Countryside Council for Wales, Bangor

[66] The "Waddensea Judgement" - summarised in: European Commission, 2006. *Nature and biodiversity cases ruling of the European Court of Justice*. ISBN 9279025619 http://ec.europa.eu/environment/nature/info/pubs/docs/others/ecj_rulings_en.pdf; See also Hoskin, R and Tyldesley, D. 2006. *How the scale of effects on internationally designated nature conservation sites in Britain has been considered in decision making: A review of authoritative decisions.* English Nature Research Reports, No 704 http://www.persona.uk.com/humberhead/PROOFS/THMCF/EN%20Research%20Report%20704.pdf

[67] Defra, 2004 Plans and Projects - Article 6(3) of the Habitats Directive Letter John Clorley to Peter Winterbottom, Association of Sea Fisheries Commitees

same procedure would apply to any decision a SFC may take to reopen a fishery or remove any fishery restriction if the decision is likely to have a significant effect on a European site, whether on its own or in combination with other plans or projects. Any doubt that annual licensing of an established fishery could amount to a plan or project was removed by the recent ECJ case C-127/02 {*the Waddensea case*} concerning Dutch cockle fisheries."

Box 2 'Waddensea Ruling'

In a judgement of September 2004, the European Court of Justice (ECJ) provided important legal interpretation on the issue of 'plans and projects' and 'appropriate assessment' in relation to fishing activities in the Waddensea – known as the "Waddensea Ruling" (European Commission, 2004)

The Court ruled that an activity, such as mechanical cockle fishing, can fulfil the concept of a project. It also ruled that the fact that an activity has been carried out periodically for several years on a given site does not preclude it being considered as a distinct plan or project within the meaning of the Habitats Directive. ECJ rulings are binding, with consequences for all Member States.

The ECJ's ruling also clarified what constituted a significant effect, and reinforced the view that the decision whether an appropriate assessment is required should be made on a precautionary basis.

The ruling's implications for the fishing sector have not been disputed and reach considerably further than the Dutch Waddensea. Following the ruling, DEFRA stated that any doubt that annual licensing of an established fishery could amount to a plan or project was removed by the ECJ ruling, and that "it is the view of the Department that the term 'plan or project' in terms of Article 6(3) of the Directive generally covers any activity involving an intervention in the natural environment that is undertaken, authorised or permitted by a competent authority" and concluded that if such "an activity is not directly connected to, or necessary for the management of a European site, and is likely to have a significant effect upon that site, then an appropriate assessment is required" (Defra, 2004).

The Defra letter went on to address issues not subject to Article 6.3 which, although specifically considering fisheries, applies equally to any other relevant activity and management authority: "Where an activity is not subject to any consenting or authorising mechanism, this should not be regarded as a plan or project. However if these activities affect European Sites, Article 6(2) of the Directive applies. Article 6(2) states that 'Member States shall take appropriate steps to avoid, in the special areas of conservation, the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive.' SFCs have a duty under regulation 3(3) of the 1994 Regulations (*Regulation 5 of the 2010 Regulations*) to exercise their functions so as to secure compliance with the Habitats Directive. If a fishing activity causes the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which a European site has been designated, in so far as such disturbance could be significant in relation to the objectives of this Directive, then where a SFC has the powers to take appropriate steps to regulate those activities it is obliged to do so under regulation 3(3) in order to secure compliance with Article 6(2) of the Habitats Directive." Such steps could include addressing the issues through a site management scheme.

As result of infraction proceedings by the European Commission for failure to adequately transpose the Directive into UK law in regard to the assessment of land use and similar plans, amendments to the 1994 Habitats Regulations made specific provision for appropriate assessments of land use plans for

England and Wales [68]. These provisions have considerable relevance to EMS management schemes in that the planning must take account of existing activities and the management they require to meet the requirements of the Habitats Directive, and an adequate degree of integration is needed between land use plans and management schemes.

Since the areas of SACs and SPAs lying on the foreshore and hinterland are also designated as Sites of Special Scientific Interest, most SAC/SPA consenting and permitting will also affect SSSI interests, and the procedures for SSSIs under section 28 of the Wildlife & Countryside Act 1981 [69] will also need to be applied by CCW and competent authorities ('section 28G authorities' under the Wildlife and Countryside Act).

HRA of plans and projects, particularly in the marine environment, whilst superficially straightforward is, in reality, a complicated process.. This is particularly so when projects require multiple consents from different authorities and / or need to be assessed in combination with other plans or projects. The difficulties are well summarized in the Solent Forum's guide to marine consenting [70]:

> "It is at the boundary of different environments, issues, ownership and responsibilities where, if there are different interests to be promoted or protected, a complex system of management and regulation develops. Nowhere is this more apparent than in the transition from land to sea and the resulting minefield of consents required for those seeking to use or develop the maritime environment. Terrestrial legislation, land and development management extends the control and responsibilities of local authorities to low water, thereby including the inter-tidal area. The rights of navigation and responsibility and controls where there are harbour authorities extend in tidal waters up to high water and, therefore, also includes the inter-tidal area. Below Mean High Water Springs (MHWS), consents for works such as dredging and construction are required from central government. Additionally, land ownership in the marine environment is complex, for example, the Crown Estate, local authorities, private individuals and companies can all be owners with the land sometimes held in trust or leased.
>
> Smaller estuaries, including the sub tidal areas, are usually included within the boundaries of local authorities and are classified as land, which for development purposes, includes land covered by water. Such estuaries may also be classified as main rivers by the Environment Agency who will influence any development in the river or along its banks and who licence any land drainage to the estuary. Much of the inter-tidal and estuarine locations around the Solent are designated or classified as sites of European and National nature conservation value, which brings additional responsibilities and requirements to the decision making process.

[68] The Conservation (Natural Habitats, &c.) (Amendment) Regulations 2007. SI 2007 No. 1843. Schedule 1

[69] *Wildlife and Countryside Act 1981*, sections 28 to 28R, as substituted by the *Countryside and Rights of Way Act 2000*, section 75(1) and schedule 9, http://www.legislation.hmso.gov.uk/acts/acts2000/20000037.htm

[70] Solent Forum, 2007 Marine Consents Guide.
http://www.solentforum.hants.org.uk/publications/marinecons.html

> The wide range of interests and number of organisations with responsibilities and vested interests, adds to the difficulty in meeting all the statutory requirements and the consultation required to ensure all material issues are taken into consideration when decisions about the future use or development of an area are taken."

The initial determination of the requirement for appropriate assessment of a plan or project is whether it can be clearly identified as not likely to have a significant effect on any of the features of a site. In the event that it cannot be clearly determined that it will not have such an effect (the meaning of the double negative in this context is critically important), appropriate assessment is required. Where it is unclear whether or not a plan or project will have significant effect, it self-evidently cannot have been determined as having no likely significant effect, and must therefore be subject to appropriate assessment.

The meaning of "likely significant effect" in this context is any effect that may reasonably be predicted as a consequence of a plan or project that may affect the conservation objectives of the features for which the site was designated. It may be paraphrased as 'any possible risk that cannot be objectively and confidently discounted as negligible and with no possible potential to undermine the sites conservation objectives'.

In order for a plan or project to proceed, it must be ascertained that it will not adversely affect the integrity of a site.

Appropriate assessment of a plan or project should encompass the plan or project in its entirety, either alone or, in the event that the proposed plan or project is found to not likely to have an adverse effect on the integrity of the site alone, in combination with any other relevant plans and projects, and should include everything relevant contained in their application(s) for consent, permission or other authorisation.

In addition to proposed plans or projects within the site, any plan or project adjacent to or near the site that may have an adverse effect within the site is subject to the same requirements for assessment prior to authorisation.

In determining adverse effect, short-term impacts must be considered in terms of the long-term integrity of the site. Proposed mitigation measures intended to reduce or remove adverse impacts should be taken into account, but compensatory measures may not [71].

The concept and meaning of "adverse effect on the integrity of the site" has been clarified and defined in government guidance as "the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat; complex of habitats and/or the levels of populations of the species for which it was classified (designated)". This was further refined in the Secretary of State's decision on the Dibden Bay public inquiry: " The destruction of protected habitat on a significant scale necessarily implies that the site's ecological structure will be damaged and rendered less coherent.

[71] *Managing Natura 2000* draws a clear distinction between mitigation and compensation (para 5.4.1: mitigation aims to "minimise or even cancel the negative impacts on the site". High Court judgement on admissibility of mitigation in appropriate assessment: Hart DC *v* SOS CLG, Luckmore Ltd, Barratt Homes (Southern Counties) Ltd, Natural England *et al*. 1 May 2008.

Manifestly, it will no longer sustain, across the whole of its area, the habitat for which it was classified." [72]

CCW's Regulation 35 Advice (February 2009) specifically links adverse integrity with conservation objectives: "Unless it is ascertained, following an appropriate assessment, that a plan or project will not undermine the achievement of the conservation objectives, the plan/project should be considered as having an adverse affect on the integrity of the site."

The advice includes a reminder that decisions must be made following the precautionary principle: "Uncertainty should not result in a conclusion of no adverse affect on site integrity." (as above, the meaning of the double negative in this context is critical). This view is underpinned by European case law (*Waddensea ruling*) which notes that judgements of no adverse effect on site integrity are only justified "where no reasonable scientific doubt remains as to the absence of such effects."

The Habitats Directive makes provision, where an appropriate assessment has concluded adverse effect on the integrity of the site, for a plan or project to proceed "for imperative reasons of overriding public interest" (Article 6.4; transposed by Habitats Regulations Regulation 62). Decisions on overriding public interest are the responsibility of the appropriate Secretary of State. Projects allowed to proceed on this basis are required to take all compensatory measures necessary to ensure the coherence of the *Natura 2000* network is maintained.

4.5 WIDER CONSERVATION MANAGEMENT CONTEXT

The conservation management of the EMS features is both underpinned by other conservation designations and management, principally Sites of Special Scientific Interest (SSSI), and contributes to the delivery of other nature conservation objectives, or objectives of related conservation plans & schemes. For example, all UK EMS are also OSPAR Marine Protected Areas as part of the UK measures toward the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR). However, of possibly more direct local relevance, there is a considerable degree of commonality and overlap between EMS and Biodiversity Action Plan features and EMS management is considered one of the key means for delivering BAP objectives.

[72] DoT, 2004 . *Dibden Bay Inquiry. Report to the First Secretary of State and the Secretary of State for Transport.*

5 MANAGEMENT, MONITORING, REVIEW AND REPORTING

5.1 MANAGEMENT

Management of the EMS is a dynamic, long-term, task that is the several responsibility of the relevant authorities which comprise the RAG, and a range of other competent authorities with contributory roles. Each authority is responsible for the identification of the specific measures required to deliver the actions identified in Technical Annex 3 (Long term management objectives and actions) that fall within their jurisdiction. Some necessary measures may require partnership working or delivery through indirect mechanisms such as providing support for voluntary, non-governmental organisations. Reporting on implementation is an integral part of the monitoring process described below.

Management is not an end in itself. Its purpose is to deliver the requirement of the Habitats Directive; specifically, to meet the conservation objectives for the site. The efficacy and efficiency of management measures will be improved by an adaptive approach – learning from success and failure and adjusting management accordingly. Essential prerequisites for adaptive management are the monitoring of performance or management measures and the condition of the conservation features, and the collection and collation of relevant information and its critical review.

5.2 MONITORING

5.2.1 SCOPE OF MONITORING

Effective and informative monitoring or surveillance will be required for:

- The condition of the features and the distribution and intensity of pressure-causing activities; regular monitoring will be essential to determine the effectiveness of management measures.
- Human activity.
- Management action; constant monitoring will be essential to ensure management measures are being implemented and complied with.
- This scheme and its associated management measures; all will require monitoring and periodic review and revision as conditions change, as management measures are implemented, and as new information from management action and feature condition surveillance, monitoring and research becomes available.

5.2.2 EMS FEATURE MONITORING

Biological and habitat monitoring is used to assess the EMS features against the conservation objectives for the site, to contribute to determining if they are at favourable conservation status. This monitoring measures the 'health' or 'quality' status of the EMS features; *eg* whether they are maintaining themselves, or showing signs of increase or improvement, or of damage, disturbance or deterioration. Monitoring indicative attributes of these features should contribute to an overview of the condition of the features and whether or not there need to be changes made to the ways in which the site is managed.

Whilst the condition of features alone *may* be considered sufficient for reporting the 'health' or 'quality' of features, information on the *causes* of degradation or threat are also required to inform management.

The Countryside Council for Wales are responsible for undertaking and co-ordinating feature monitoring for the EMS. The scope of the monitoring must be sufficient to cover all necessary components of the conservation features; however, since the scope of the features is so broad, their distribution so widespread and because resources will inevitably always be limiting, the limits on this ideal are recognised. It is acknowledged that it will never be possible to monitor more than a small proportion of the most indicative components, and information and data to inform EMS features monitoring is also likely to use existing monitoring and data collection carried out for other purposes (*eg* Water Framework Directive) in order to reduce costs and fill information gaps. The results of the monitoring programme will need to be presented to the RAG as they become available, rather than only at six yearly European reporting intervals. This input will help identify the need for new measures to maintain or restore the site's features at favourable condition status.

5.2.3 ACTIVITY MONITORING

In addition to plugging identified gaps in baseline knowledge of human activities within the site, the extent, location, intensity and, where applicable, seasonality of activities will require monitoring or being kept under surveillance in order to maintain a sufficiently adequate overview to inform management decision making. Information on new activities provided by relevant authorities will be used to inform the condition monitoring programme to refocus on features likely to be affected by these activities.

5.2.4 COMPLIANCE MONITORING

Compliance monitoring determines whether the agreed management measures are in place, being implemented, being complied with, working as planned and are being effective.

Monitoring the implementation and efficacy of management measures is the duty of the relevant authority with responsibility for that management. Where activities or measures fall outside the remit of the relevant authorities for this site, it will be necessary to agree who will take responsibility for monitoring. The EMS Officer, on behalf of the Relevant Authorities Group, will collate the information relating to compliance monitoring of the scheme from each of the lead bodies identified and include this information in regular progress reports.

5.3 REVIEW AND REVISION

Management will need to be periodically reviewed and revised as conditions change, management measures are implemented, and new information from surveillance, monitoring and research becomes available. Consequently, the management scheme document and its Technical Annexes will require regular review and periodic amendment to accommodate such changes.

The relevant authorities, as the bodies with the statutory responsibility for preparing and implementing the scheme, share the responsibility for review and revision. As with the preparation of the scheme,

all significant reviews will take place in consultation with all interested stakeholders and competent authorities with management responsibilities within the site.

The long term management measures and actions will be reviewed annually. This review will focus on the implementation of the scheme's management actions and on what actions are currently required or need to be reprioritised. The review of management actions required will be informed by determination of how well the conservation objectives are being achieved, and from other sources of information which suggest that the prescribed management actions should be changed. The EMS Officer will have a major role in ongoing management implementation.

The management scheme will be fully reviewed every six years, in line with the European Union's six year *Natura 2000* reporting cycle. The full review will require all those involved in site management to assess the overall effectiveness of the scheme in adequately addressing the issues and activities which impact on the conservation status of the SAC features. This review will accommodate changes to:

- CCW *Regulation 35 advice* to take into account information on changes in activities and patterns of usage of the site, and also improvements in scientific knowledge on the sensitivity of interest features,
- The extent, location and nature of activities taking place across the site and their effects, if any, on the SAC features,
- Legal obligations by relevant authorities and any changes in legislative powers.

Revised editions of the Scheme and its Technical Annexes will be important so as to ensure that they provide managers with an appropriate resource for guidance and the development of further, or further revised management measures.

5.4 REPORTING

To ensure compliance with the requirements of the Habitats Directive, regular reporting on progress will be required. An annual report will be produced by the RAG for presentation to parent authorities, competent authorities, stakeholders and local communities.

Reports will document:

- introduction and implementation of additional and relevant existing management measures;
- information on monitoring of the condition of the EMS features and surveillance of activities;
- timetables for new issues to be addressed.

Public meetings or surgeries coupled with the production of the report will be held to enable stakeholders to ask questions and / or discuss any issues of concern.

Under the Habitats Directive, the UK is required to report to the European Commission every six years on the measures taken under the Directive and on the conservation status of the EMS features. This statutory requirement for reporting serves several important functions:

- It provides a means of evaluating the effectiveness of EMSs in contributing to the aims of the Habitats Directive, namely the achievement of favourable conservation status of habitats and species of European importance;

- It enables the European Union to monitor progress on the implementation of the Directive across all member states, including through EMSs and other measures;
- It provides a means for the relevant authorities for each UK marine EMS to be held accountable for their actions, against the requirements of the legislation and, most importantly, against the condition of the habitats and species for which the sites are selected. It should be noted that the Welsh Government has powers to intervene in management schemes;
- Where factors are outside the control of the relevant authorities, it enables them to report that to Government, where responsibility to the European Union for the implementation of the Habitats Directive in the UK ultimately lies.

CCW provide information to the Welsh Assembly Government, who report to UK Government. A UK report is then compiled and sent to the European Union. The first full round of reporting to the EC was completed in 2007 [73].

[73] JNCC, 2007. http://jncc.defra.gov.uk/page-4060

APPENDICES

APPENDIX 1 ABBREVIATIONS AND ACRONYMS

AONB	Area of Outstanding Natural Beauty
BAP	Biodiversity Action Plan
BASC	British Association for Shooting and Conservation
CA	Competent Authority
CCC	Carmarthenshire County Council
CCoS	City & County of Swansea
CCW	Countryside Council for Wales
CE	Crown Estate
CRoW Act	Countryside and Rights of Way Act 2000
DCWW	Dŵr Cymru Welsh Water
DECC	Department of Energy and Climate Change
DEFRA	Department for Environment, Food and Rural Affairs
DfT	Department for Transport
EAW	Environment Agency Wales
EC	European Commission
EMS	European Marine Site
EU	European Union
FCS	Favourable Conservation Status
HRA	Habitats Regulations Assessment
ICZM	Integrated Coastal Zone Management
INNS	Invasive Non-native Species
IPC	Integrated Pollution Control
JNCC	Joint Nature Conservation Committee
LA	Local Authority
LBAP	Local Biodiversity Action Plan
MCA	Marine & Coastguard Agency
MoD	Ministry of Defence
NAW	National Assembly for Wales
NERC Act	Natural Environment and Rural Communities Act 2006
NGO	Non-governmental organisation

PCC	Pembrokeshire County Council
PCF	Pembrokeshire Coastal Forum
PCNPA	Pembrokeshire Coast National Park Authority
PWC	Personal Water Craft
RA	Relevant Authority
RAG	Relevant Authorities Group
RSPB	Royal Society for the Protection of Birds
RSPCA	Royal Society for the Prevention of Cruelty to Animals
SAC	Special Area of Conservation
SAP	Species Action Plan (Biodiversity)
SPA	Special Protection Area
Spp	Species
SSSI	Site of Special Scientific Interest
SWSFC	South Wales Sea Fisheries Committee (disbanded 31 March 2010)
WAG	Welsh Assembly Government
WG	Welsh Government
WWE&PHG	West Wales Environment & Public Health Group

APPENDIX 2 GLOSSARY

Agricultural run-off	A mixture consisting of the water runoff from agricultural sites. Runoff from cropland may carry sediments, pesticides and nutrients.
Annex I habitats	A natural habitat(s) listed in Annex I of the Habitats Directive for which Special Areas of Conservation can be selected.
Annex II species	A species listed in Annex II of the Habitats Directive for which Special Areas of Conservation can be selected.
Anthropogenic	Relating to or resulting from the influence humans have on the natural world.
Antifouling	Toxic paint used on the submerged part of a vessel or other submerged surface to prevent organisms from growing on the ship's bottom/surface.
Assemblage	A collection of, in this case, plants and/or animals characteristically associated with a particular environment.
Attribute	Characteristic of an interest feature/sub-feature which provides an indication of the condition of the feature or sub-feature to which it applies.
Ballast water	Water taken up or released by a ship to stabilize it, or to raise/lower it in the water column.
Benign	Neutral or harmless in its effect or influence.
Benthos	Animals living attached to, on, in or near the sea bed, including that part which is exposed by the tide.
Bioaccumulation	The concentration of fat-soluble chemical substances in the tissues of animals. These can concentrate through the food-web, reaching particularly high levels in top predators.
Biodiversity	The total variety of life on earth. This includes diversity within species, between species and of ecosystems.
Biogeographical	The study of the geographic distribution of organisms.
Biota	All of the organisms, including animals, plants, fungi, and micro-organisms, found in a given area.
Biotope	The physical habitat and its biological community; a term which refers to the combination of the physical environment and its distinctive collection of species.
Bivalve	Class of molluscs, so called because the body is enclosed in a pair of shells or “valves”. Examples of species are the common mussel and cockle.
Characteristic	Special to or especially abundant in a particular situation or biotope. Characteristic species should be immediately conspicuous and easily identified.
Common Law	The system of laws originated and developed in England and based on court

	decisions, on the doctrines implicit in those decisions, and on customs and usages rather than on codified written laws.
Community	A group of organisms occurring in a particular environment, presumably interacting with each other and with the environment, and identifiable by means of ecological survey from other groups.
Competent authority	Any Minister, government department, public or statutory undertaker, public body or person holding a public office that exercises legislative powers.
Compliance monitoring	Monitoring undertaken against accepted standards to ensure that agreed or required measures are being followed.
Condition monitoring	Monitoring undertaken against the conservation objectives to ensure that the site's interest features are attaining favourable condition. For those interest features of which there is little or no knowledge, it involves monitoring to establish a baseline against which future change in the condition of the features can be assessed.
Conservation objective	A statement of the nature conservation aims for a site, expressed in terms of the favourable condition that we wish to see the species and/or habitats for which the site has been selected to attain. Conservation objectives for European marine sites relate to the aims of the Habitats Directive.
Degrade / degradation	"to lower in rank or grade, to lower in character, value or position or in complexity"; degraded: "declined in quality or standard". In this document, the meaning of degrade(d) applies to damage or impairment resulting from such human action as have detrimental outcome for features. The significance of any degradation is dependent on the type of human action, its nature, location, timing, duration and intensity, the longevity and scale of the impact and the conservation value of the receptor and its intolerance and recoverability.
Diadromous	Adjective describing organisms that migrate between fresh and salt water, such as eels and carp.
Disturbance	Any as any relatively discrete event in time that disrupts ecosystems, communities or populations, where disruption refers to a change in behaviour, physiology numbers or survival. (Cayford, 1993)
Dynamism	Energizing or dynamic action or power. The theory that phenomena are due to the action of forces.
Ecosystem	Dynamic assemblages of native plant and/or animal communities that 1) occur together on the landscape or in the water; and 2) are tied together by similar ecological processes (eg, fire, hydrology), underlying environmental features (eg, soils, geology) or environmental gradients (eg, elevation).
Ecosystem-based approach (to management)	A strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way. The overarching principles aim to ensure that, despite variability,

	uncertainty and likely natural changes in the ecosystem, the capacity of the aquatic ecosystems to produce essential ecosystem services and food and to support livelihoods, is maintained indefinitely for the benefit of the present and future generations, catering both for human and ecosystem well-being. This necessitates conservation of ecosystem structures, processes and interactions through sustainable use and requires consideration of a range of frequently conflicting objectives. Ecosystem-based management is not about managing or manipulating ecosystem processes, something that is clearly beyond human abilities, but is concerned with ensuring that management decisions do not adversely affect the ecosystem function and productivity, and that economic uses are sustainable in the long-term. See http://jncc.defra.gov.uk/page-2518
Epifauna	Animals living on the surface of the seabed.
European marine site	A European site (SAC or SPA) which consists of, or in so far as it consists of, marine areas (Habitats Regulations (3)).
Eutrophication	The process by which a body of water becomes rich in dissolved nutrients, thereby encouraging the growth and decomposition of oxygen-depleting plant life and resulting in harm to other organisms.
Exposure	Exposure is defined as a measure of the extent, seasonality and intensity of an activity across the whole site.
Factor	A circumstance, fact, influence or element that: • contributes to composition of a habitat, its structure, function or biology; • contributes to a result or to bringing about a result; • affects the course of events. Many factors are *processes* (*qv*)
Favourable Conservation Status	A range of conditions for a natural habitat or species at which the sum of the influences acting upon that habitat or species are not adversely affecting its distribution, abundance, structure or function throughout the EU in the long term. The condition in which the habitat or species is capable of sustaining itself on a long-term basis.
Favourable condition	This is attained when the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site is met.
Flood defence	Measures to help prevent flooding from the sea and inland (fluvial) watercourses including 'main river' and 'ordinary' watercourses. The Environment Agency has responsibility for main rivers although its powers to do works are often permissive not mandatory. Internal drainage boards, local authorities and riparian owners have responsibility for other watercourses.
Foreshore	The area of a shore that lies between the average high tide mark and the average low tide mark.

Geomorphology	The study of the evolution and configuration of landforms.
Habitat	The place in which a plant or animal lives.
Habitats Directive	The abbreviated term for Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora.
Holistic	Emphasizing the importance of the whole and the interdependence of its parts.
Hydrocarbons	Substances containing only hydrogen and carbon. Fossil fuels are made up of hydrocarbons. Some hydrocarbon compounds are major air pollutants.
Hydrographic regime	Relating to the characteristic features of bodies of water, such as depth and flow.
Hydroids	Colonial animals forming tuft-like growths on seaweeds etc. Also known as sea firs and includes species such as sea beard and whiteweed.
Indigenous	Originating and living or occurring naturally in an area or environment
Infauna	Benthic animals which live within the seabed.
Inorganic	Pertaining to material such as sand, salt, iron, calcium salts, and other mineral materials. Inorganic substances are of mineral origin, whereas organic substances are usually of animal or plant origin and contain carbon.
Inshore fisheries	Local, small-scale community based fisheries characterised by smaller vessels, shorter voyages and shorter distances covered. Some inshore fishermen might travel between locations but most are based at the same port full time.
Integrated Coastal Zone Management	A dynamic, multi-disciplinary and iterative framework for the promotion of sustainable use and management of the coastal zone, wherein stakeholders can participate and gain consensus on the decision-making process.
Interest feature	A natural or semi-natural feature for which a European marine site has been selected. This includes any Habitats Directive Annex I habitat, or any Annex II species for which a SAC has been designated under the Habitats Directive.
Intertidal	The zone between high and low tide.
Invasive Non-native Species (INNS)	Animals and plants that have become established in the wild after accidental or deliberate introduction by human activity and that have the ability to spread or outcompete native animals or plants and cause damage to the environment and possibly also socio-economic interests.
Littoral	Of or pertaining to the shore, especially of the sea; coastal.
Maintain condition	The action required for an interest feature when it is considered to be in favourable condition.
Natura 2000	The European network of protected sites established under the Birds Directive and the Habitats Directive
Natural change	Changes to the condition of interest features from natural causes. All

	habitats are dynamic, some more than others, so some change in the components of a habitat may be expected over time. Sea level rise is outside the control of relevant authorities and is considered to be 'natural change'. However, sea level rise may affect the site where it is artificially constrained by sea walls which are the responsibility of some relevant authorities.
Operations which may cause deterioration or disturbance	Any activity or operation taking place within, adjacent to, or remote from a European marine site that has the potential to cause deterioration to the natural habitats for which the site was designated or disturbance to the species and its habitats for which the site was designated. The Habitats Directive requires only consideration of activities that could lead to the deterioration of the natural habitats and habitats of species or significant disturbance of the species in terms of meeting the site's objectives. Habitats Regulations Regulation 35(2)(b); Habitats Directive Aticle 6(2)
Organochlorines	Organic compounds, which contain at least one chlorine atom. Organochlorines are both man-made and natural. More than 2,000 have been found in nature.
Organometals	Any metal-containing organic compound, especially one in which the metal atom is linked directly to one of more carbon atoms.
Plan or project	Any proposed development that is within a relevant authority's function to control, or over which a competent authority has a statutory function to decide on applications for consents, authorisations, licenses or permissions. Habitats Directive Article 6(3); Habitats Regulations regulation 48
Precautionary principle	Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle (= do-no-harm principle) is a proactive method of dealing with the environment that places the burden of proof on those whose activities could harm the environment. (Opposite: wait-and-see principle) - if the costs of current activities are uncertain, but are potentially both high and irreversible, the precautionary principle holds that society should take action before the uncertainty is resolved. Source: http://biodiversity-chm.eea.europa.eu/nyglossary_terms/P/precautionary_principle
Process	A series of actions, events or changes that vary in space and over time. In this context processes include physical, chemical and biological environmental changes which are inherently natural but which may be modified by human activity (*eg* wave action, nutrient fluxes). All processes are factors
Relevant authority	The specific public authority which has powers or functions which have, or could have, an impact on the marine environment, within or adjacent to, a European marine site.

Restore	The action required for an interest feature when it is not considered to be in a favourable condition.
Sea defences	Measures to help prevent flooding from the sea.
Sensitivity	The tolerance of a habitat, community or individual species to damage from an external force.
Sites of Special Scientific Interest	SSSIs are notified under the Wildlife and Countryside Act 1981 as areas of land or water which are of special interest by reason of their biological, geological or physiographical interest.
Stakeholders	All groups, organizations and individuals having an interest or stake in the site (*inter alia,* regulators, shareholders, customers, suppliers, special interest groups, residents, competitors, investors, bankers, media, lawyers, geologists, insurance companies, trade groups, unions, ecosystems and cultural heritage).
Sublittoral	Below low-tide level, marine.
Sustainability	The ability to provide for the needs of the world's current population without damaging the ability of future generations to provide for themselves. When a process is sustainable, it can be carried out over and over without negative environmental effects or impossibly high costs to anyone involved. Unless specified, use of this term within this document should be taken to mean environmental sustainability (with respect to the EMS features).
Terrestrial	Tellurian: of or relating to or inhabiting the land as opposed to the sea or air.
Vulnerability	The exposure of a habitat, community or individual of a species to an external factor to which it is sensitive.

APPENDIX 3 RELEVANT & COMPETENT AUTHORITIES

A3.1 RELEVANT AUTHORITY GROUP

A3.1.1 RELEVANT AUTHORITY GROUP MEMBERS AND CONTACT INFORMATION

Carmarthenshire County Council

County Hall, Carmarthen, Carmarthenshire SA31 1JP

www.carmarthenshire.gov.uk

Contacts:

Eifion Bowen, Head of Planning Services;

Lindsey Rendle, Planning Ecologist;

Simeon Jones, Reserve Warden

Additional contact: Isabel Macho, Ecologist

City & County of Swansea

Civic Centre, Oystermouth Road, Swansea SA1

www.swansea.gov.uk

Contact: Deb Hill, Nature Conservation Team Leader

Countryside Council for Wales

Llanion House, Llanion Park, Pembroke Dock, Pembrokeshire, SA72 6DY

Llys Tawe, King's Road, Swansea SA1 8PG

http://www.ccw.gov.uk/

Contacts:

Alex Harding, Water Resources Environmental Impacts Advisor (Swansea);

Anne Bunker, Marine Conservation Officer West Region (Pembroke)

Additional contacts:

Ziggy Otto, Marine Conservation Officer West Region

Huw Williams, Carmarthenshire District Team Leader

Andrea Winterton, Pembrokeshire District Team Leader

Rebecca Wright, Swansea-Neath-Port Talbot Team Leader

Environment Agency Wales

Llys Afon, Hawthorn Rise, Haverfordwest, Pembrokeshire SA72 6DY

http://www.environment-agency.gov.uk/regions/wales/?region=wales&lang=_e

Contacts:

John Hogg, Environmental Manager (South West Wales)

Kate Collins, Biodiversity Officer

Ged Davies, Pembrokeshire Environment Management Team Leader / Acting Environmental Manager (South West Wales)

Dŵr Cymru Welsh Water

Dwr Cymru Welsh Water, Vista, St David's Park, Ewloe, Flintshire CH5 3DT

http://www.dwrcymru.com/

Contact: Fergus O'Brien, Coastal Waters Manager

Pembrokeshire Coast National Park Authority

Llanion Park, Pembroke Dock, Pembrokeshire SA72 6DY

http://www.pcnpa.org.uk/

Contact: Jane Hodges, Ecologist

Pembrokeshire County Council

County Hall, Haverfordwest, Pembrokeshire SA61 1TP

http://www.pembrokeshire.gov.uk/

Contact: Trevor Theobald, Ecologist

Trinity House Lighthouse Service

Trinity Square, Tower Hill, London EC3N 4DH

http://www.trinityhouse.co.uk/

Contact: Antony Porter, Legal & Insurance Support Officer

A3.1.2 RELEVANT AUTHORITY GROUP PURPOSE AND TERMS OF REFERENCE

The Carmarthen Bay & Estuaries EMS Relevant Authorities Group will:

- develop and implement a management scheme to achieve the conservation objectives for the SAC, which has the widest possible public understanding, agreement and ownership; and

- whilst recognising that decision making remains the responsibility of the individual relevant authorities, provide a means to assist those authorities in making decisions appropriate to the conservation requirements of the site.

Terms of reference

1 The Relevant Authorities Group is established in accordance with Government guidance [74].

2 The membership of the Group will comprise all of the Relevant Authorities, as defined in the Habitats Regulations [75], for the Pembrokeshire Marine Special Area of Conservation [76.]

3 The Group will establish a Management Scheme for the Pembrokeshire Marine European Marine Site as provided for in Regulation 34 of the Habitats Regulations and as outlined in DETR/Welsh Office guidance. The Group will publish and disseminate a Management Scheme document.

4 No Relevant Authority will have authority over any of the others. The roles of Chair and Secretariat of the group will be undertaken by agreement to assist the activities of the Group.

5 The Group will have no authority over any of the functions, duties or responsibilities of the member Relevant Authorities. Each of the Relevant Authorities is jointly and equally empowered to establish a Management Scheme in partnership with the others.

6. The Relevant Authorities will exercise their functions so as to secure compliance with the requirements of the Habitats Directive [77].

7 The Group will ensure that there is wide participation in developing and ownership of the management scheme by:

- enabling and encouraging the creation of an advisory / liaison forum and establishing links with existing relevant groups and fora;
- consultation with competent authorities who are not also relevant authorities;
- publication of appropriate information on the development and establishment of the scheme.

8 The Group may:

- establish such groups as will contribute to the wide participation in the development of the management scheme; and/or
- undertake such projects as are considered conducive to the development of the management scheme.

9 The Group will keep these Terms of Reference under review.

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[74] European Marine Sites in England & Wales. A Guide to the Conservation (Natural Habitats &c) Regulations 1994 and to the Preparation and Application of Management Schemes. DETR/Welsh Office. ISBN 1 85112 087 4

[75] The Conservation (Natural Habitats &c) Regulations 1994 (SI No 2716)

[76] The meaning of 'Relevant Authority' is as defined in Regulation 5 of the Habitats Regulations. For the Pembrokeshire Marine site these comprise: Countryside Council for Wales, Dŵr Cymru Welsh Water, Environment Agency, Milford Haven Port Authority, Pembrokeshire Coast National Park, Pembrokeshire County Council, Trinity House, South Wales Sea Fisheries Committee.

[77] Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora

A3.1.3 RELEVANT AUTHORITY ROLES AND RESPONSIBILITIES

Carmarthenshire County Council (CCC), **City and County of Swansea** (CCoS) **and Pembrokeshire County Council** (PCC)

General role & responsibilities: CCC, CCoS and PCC are multi-purpose authorities with responsibilities covering the environment, transport, education, social services, housing and economic development. Duties and activities include town and country planning, coastal defence, economic development and tourism, coastal management, beach management, emergency planning, public health and water quality monitoring.

Responsibilities specific to the SAC: the County Councils, together with PCNPA (see below) are the planning authorities for the intertidal and coastal area adjacent to the site.

Planning jurisdiction normally only applies as far as Mean Low Water Mark (MLWM), but under certain circumstances can extend beyond in relation to structures above and below water that have a land origin.

The **Countryside Council for Wales** (CCW) is the Government's statutory advisor on sustaining natural beauty, wildlife and the opportunity for outdoor enjoyment in Wales and its inshore waters.

General role and responsibilities: CCW is the agent for the Government's fulfilment of international obligations and advises the UK Government on these matters through the Joint Nature Conservation Committee. CCW is required to keep the countryside of Wales under constant review and to offer its independent advice to Government and others as necessary about the protection of its natural beauty and amenity and their enjoyment by the people of Wales and its visitors. CCW promotes that enjoyment in a way which encourages understanding of the environment, and sustains public support for the conservation of natural resources.

Responsibilities specific to the SAC:

- participation in management groups;
- advising other Relevant Authorities as to the conservation objectives for the SAC, and as to any operations or activities which may cause deterioration or disturbance to SAC features;
- consultation with Competent Authorities over the implications of plans and projects;
- the making of byelaws (with the consent of the Secretary of State) for the regulation of activities not covered by other Relevant Authorities;
- monitoring and reporting on the condition of SAC features.

Jurisdiction: within 12mile territorial sea limit.

Dŵr Cymru/Welsh Water. Dŵr Cymru Cyfyngedig which trades as Dŵr Cymru/Welsh Water (DCWW) is appointed by the Secretary of State for Wales to be the Water and Sewerage Undertaker for Wales under the Water Industry Act 1991.

General role & responsibilities: DCWW provides, operates, develops and maintains a system of water supply and also abstracts, treats and distributes a supply of water to domestic and commercial customers. DCWW also provides and maintains a system of public sewers and treatment works in

order to remove, treat, and dispose of waste sewage sludge and other effluent both from domestic and commercial customers.

Responsibilities specific to the SAC: Whilst the Company has no water supply interest within the boundaries of the site it does have a number of sewage outfalls which dispose of effluent, directly or indirectly to the marine boundary of the site. DCWW is committed to undertaking all its work in such a way as to take account of the environment and the need for conservation, and with respect to sewage disposal is pledged to the eventual provision of full treatment and disinfection at all of its works which discharge to sea or estuary, including those to be found within the Carmarthen Bay & Estuaries EMS.

Jurisdiction: case dependant

The **Environment Agency** (EA) was established by the1995 Environment Act, amalgamating the National Rivers Authority (NRA), Her Majesty's Inspectorate of Pollution (HMIP), 83 Waste Regulation Authorities (WRA), and parts of the Department of the Environment (DoE).

Following Welsh devolution in 1998 the Environment Agency in Wales held a special position, being both an Assembly Government Sponsored Body (AGSB), while also being part of the corporate Environment Agency for England and Wales.

General role & responsibilities: the Environment Agency Wales (EAW) has wide responsibilities for managing the environment:

- Acting as a champion for the environment
- Reducing pollution and enforcing pollution legislation
- Overseeing the management of waste, water resources and freshwater fisheries
- Reducing the harm caused by flooding
- Influencing others to achieve positive environmental outcomes by changing attitudes and behaviour .

The Agency provides environmental protection and improvement through an emphasis on prevention and education, licensing relevant consentable activities (eg water abstraction and effluent discharges) and enforcement where necessary. Flood defence includes responsibility for construction and maintenance of sea defences but not for coastal protection. EAW also has fisheries management, conservation, navigation and recreation responsibilities.

Responsibilities specific to the EMS:

Contribution to the development of a management scheme for the SAC.

The issues of consents and authorisations and the undertaking of operational work which could potentially impact on the EMS.

Management of relevant fisheries (mainly migratory fish, but also cockle Regulating Order) via primary legislation, licensing and the creation of bylaws in order to optimise social and economic benefits from their sustainable exploitation.

The EAW has a duty to further, wherever possible, the conservation of EMS features when carrying out water management activities, to have regard for conservation as part Integrated Pollution Prevention and Control (IPPC) activities, and generally to promote the conservation of natural beauty and amenity and the wildlife dependent on the aquatic environment.

The EAW does not have any specific powers in respect of its recreation duty nor own any property relevant to the SAC.

Jurisdiction: Pollution control and fisheries responsibilities extend to 3 and 6 nautical miles from the coast respectively.

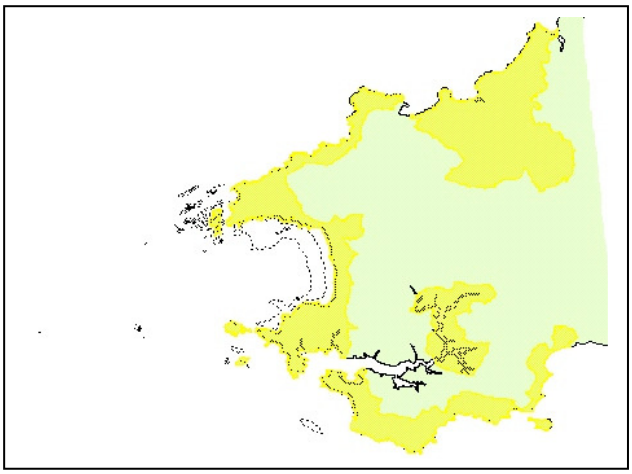
Pembrokeshire Coast National Park Authority (PCNPA) is a special purpose authority set up in 1996, as part of local government re-organisation in Wales.

General role & responsibilities: The Environment Act 1995 sets out two purposes for National Parks in England and Wales: "to conserve and enhance the natural beauty, wildlife and cultural heritage of National Parks", and "to promote opportunities for the understanding and enjoyment of the special qualities (of the Parks) by the public". The National Park Authority (NPA) also has a duty to foster the social and economic well being of communities within the National Park.

The PCNPA is the local planning authority for the area within its boundaries (jurisdiction as local planning authority extends to Low Water Mark, ordinary tides only).

Responsibilities specific to the SAC: National Park byelaws for behaviour on access land apply to any and all land that is owned or otherwise legally occupied by the NPA. This includes land occupied by the NPA outside the National Park boundary. However, the PCNPA does not lease the foreshore within the EMS (it is mostly leased by PCC).

Jurisdiction: see map.



Pembrokeshire Coast National Park Authority area of jurisdiction (shaded). Outside the Daugleddau Estuary the National Park boundary follows Low Water Mark, ordinary tides.

Saundersfoot Harbour Commissioners (SHC)

Trinity House Lighthouse Service (THLS)

General role & responsibilities: THLS has a duty to deliver modern, reliable and economic aids to navigation service, to assist the safety of all classes of mariners in general navigation. Its principal activities include buoy laying, superintendence of and consent to local lights, wreck marking and/or dispersal, helicopter and lighthouse operations, and the provision of differential GPS.

A3.1.4 EMS OFFICER JOB DESCRIPTION

Overall job purpose, objectives and key responsibilities: to provide support for the Relevant Authorities Group to prepare, develop and implement a Management Scheme for Carmarthen Bay and Estuaries European Marine Site designated under the EU Habitats Directive and Birds Directive.

Main duties/key tasks:

1. Provide general, specialist or technical information, expertise, advice and support to the European Marine Site (EMS) Relevant Authorities Group as part of the preparation, development, production and implementation of a Management Scheme
2. Raise awareness of the conservation value of and management issues affecting the EMS through the provision of interpretation, publicity and events.
3. Co-ordinate and facilitate the established liaison structure. This will include managing the ongoing involvement of a wide range of organisations, stakeholder groups and the public in the development and implementation of the Management Scheme for the EMS.
4. Develop and maintain a scientific and administrative database of local coastal and marine issues and maintain links with key users of the area.
5. Keeping the records and papers, including proceedings of meetings of the Relevant Authorities Group and any stakeholder groups it establishes, and ensure the proper conduct of the Group's affairs.
6. Contribute to the production of the management scheme document for the EMS, including co-ordination of inputs, and collation and preparation of the document as required.
7. Support the implementation of the Management Scheme once adopted
8. The carrying out of other duties as may from time to time be requested by the Group such as, but not limited to, the organisation of Group events, publicising the work of the Group, raising funds for the Group, provision of services to the membership and the performance of other tasks relevant to the fulfilment of the aims and objectives of the Group.

A3.2 COMPETENT AUTHORITIES (ROLES AND RESPONSIBILITIES)

The **Welsh Government** (WG; Welsh Assembly Government prior to May 2011) is the devolved government for Wales. It is responsible for all devolved matters, those specifically relevant to the marine environment and EMS including:

- Marine Spatial Planning;
- Integrated Coastal Zone Management;
- Marine conservation and biodiversity inshore;
- Marine Licensing - development and delivery of policies and administration of a marine licensing system which protects and promotes the sustainable use of the marine environment
- Implementing the Marine & Coastal Access Act 2009;
- Implementing the European Marine Strategy Framework Directive;
- Management of fisheries within the Welsh Zone.

Key environment aims are set out in the Environment Strategy for Wales.

Licensing of the fishing industry is governed primarily by European Union legislation and is administered by the Department for Environment Food and Rural Affairs. The WG introduces secondary legislation, normally via Statutory Instruments, as necessary to enforce such directives in Wales.

The Wales Fisheries Strategy aims to support the development of viable and sustainable fisheries in Wales while safeguarding the environment, with fisheries developed and managed in a sustainable way contributing positively to environmental policies of Wales.

The EAW is the grantee of the Burry Inlet Cockle Fishery Regulating Order from the WG and is responsible for the day to day management of the fishery.

The **Ministry of Defence** (MoD) provide the defence capabilities needed to ensure the security and defence of the United Kingdom and its Overseas Territories. Three MoD training establishments are located adjacent to the site with two extensive Sea Danger Zones covering a large area of the site. The military estate is managed by the Defence Infrastructure Organisation (prior to 1 April, Defence Estates). MOD policy is to ensure that natural environment issues are fully integrated with operational and training requirements and safety issues. MOD's strategic objectives and targets for biodiversity are set out in the MOD Sustainable Development Action Plan and the Biodiversity Strategic Statement for the MOD Estate.

The MOD owns, leases or uses all or part of nearly 170 SSSIs, over 130 of which also have international and European designations. These sites underpin most of the international designations (SPA, SAC and Ramsar sites) found on the military estate.

A Declaration of Intent between the MOD and CCW further affirms the MOD's commitment to compliance the integration of environmental considerations into all policy areas and adoption of environmental management practices.

The **Maritime and Coastguard Agency** (MCA) is the government agency (sponsored by the Department for Transport) with responsibility for maritime safety, responding to maritime emergencies and minimising the risk and impacts of pollution from ships to the marine environment and UK interests.

The MCA provides a 24 hour response service to major oil spills and pollution incidents at sea. It also has a role in coordinating the environmental aspects of a major marine incident and licensing the use of oil dispersants.

The **Marine Management Organisation** (MMO) is the licensing authority for the use of oil dispersants.

The **National Trust** is the largest conservation organisation in Britain independent of government and is also the largest private landowner in England and Wales. The NT is committed to preserving for the nation the finest countryside, coastline, historic buildings, landscape parks and gardens. It owns and manages over 230 kilometres of coastline, one sixth of the coast, of Wales including significant land holdings within and adjacent to the EMS, mainly within the Burry Inlet. It is a registered charity founded in 1895. The Trust has published its policy on sea-level rise and living with a changing coastline [78] and is a committed advocate for working with, rather than against, natural change, accepting managed shoreline retreat wherever possible.

The **Crown Estate** was established in its present form by the Crown Estate Act 1961. Under this Act, the Estate is managed by a Board of Commissioners who have a duty to 'maintain and enhance the value of the estate and the return obtained from it, but with due regard to the requirements of good management.' The Crown Estate grants licenses/leases for activities to take place on its land (it does not licence activities). The Crown Estate is an estate in land which includes 55% of the foreshore and all the seabed out to the 12 mile limit.

[78] http://www.nationaltrust.org.uk/main/shifting_shores_brochure_final-2.pdf

APPENDIX 4 LIAISON FORUM PURPOSE AND TERMS OF REFERENCE

Purpose

Special Areas of Conservation are designated to promote the maintenance of biodiversity as required by the Habitats and Species Directive. The Directive requires that management of SACs to meet this aim should take account of the economic, cultural, social and recreational needs of local people. To ensure that these needs are taken into account there must be an effective means of communication between local stakeholders and the Relevant Authorities (who are developing the management scheme for the site). The purpose of the Liaison Group is act as a focus for this communication. The Liaison Group will provide a formal means of dialogue between the Interest Groups (run by the stakeholders) and the Relevant Authorities.

Terms of reference

1. The Carmarthen Bay and Estuaries cSAC Liaison Group is established to assist with the development, implementation, monitoring and review of a management scheme for the cSAC.
2. Membership of the Liaison Group will comprise members of the Relevant Authorities Group, one or two representatives from each Interest Group 79 and representatives of any Competent Authorities who wish to attend.
3. The Relevant Authorities Group will exchange information and advice on:
   - The Features of the site and their environment;
   - Issues relevant to the conservation of the SAC features;
   - The use of the site by sectoral interests, local communities and the public
   - The potential interaction between public use of the site and the features, whether positive or negative;
   - Implications of management of the site for nature conservation of the features for sectoral interests, local communities and the public;
   - Proposals associated with the development and implementation of a management scheme for maintenance of SAC features in favourable condition.
4. Interest Group representatives will:
   - Ensure representation of their interest at meetings of the Liaison Group
   - Equitably collate, represent and accurately convey the views of those they represent to the Liaison Group
   - Effectively transmit information and feedback to those interests they represent;
   - Provide an informed sectoral and community response to proposals associated with the development and implementation of a management scheme for the cSAC.
5. Whilst acknowledging the range of legitimate issues and information which the Liaison Group will address will be wide, to ensure a clarity of purpose the Group will only consider issues which are clearly relevant to the purposes of the Group, RAG or cSAC.

[79] Community, Commerce & business, Fisheries, Nature Conservation / Environment , Tourism & Recreation, Education

6. Whilst the Group will provide the main means of communication between public interests and the RAG, members of sectoral interest groups, local communities or the public may additionally make their views known to the Relevant Authorities Group at public meetings, through their elected local community representatives or directly, in writing, to the appropriate Relevant Authority.

APPENDIX 5 NATURA 2000 / RAMSAR DATA FORMS AND SITE MAPS

See separate document