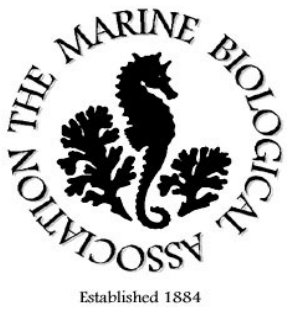


MarLIN

The Marine Life Information Network for Britain & Ireland

The Marine Life Information Network® for Britain and Ireland (MarLIN)

Protecting nationally important marine biodiversity in Wales

Report to Wales Environment Link

Emma Jackson

Olivia Langmead

Jayne Evans

Robert Ellis

&

Harvey Tyler Walters

November 2008

Reference:

Jackson, E.L., Langmead, O., Evans, J., Ellis, R. & Tyler-Walters, H. 2008. Protecting nationally important marine Biodiversity in Wales. *Report to the Wales Environment Link from the Marine Life Information Network (MarLIN)*. Plymouth: Marine Biological Association of the UK.

The Marine Life Information Network® for Britain and Ireland (MarLIN)

Protecting nationally important marine biodiversity in Wales

Contents

List of Tables

List of Figures

List of Appendices

List of Acronyms

BAP	Biodiversity Action Plan
CBD	Convention on Biological Diversity
CCW	Countryside Council for Wales
CPA	Coast Protection Act 1949
CROW	Countryside and Rights of Way Act 2000
Defra	Department of Environment, Food and Rural Affairs
EMS	European marine site
FEPA	Food and Environmental Protection Act 1985
GIS	Geographical information system
HPMR	Highly Protected Marine Reserve
JNCC	Joint Nature Conservation Committee
MCEU	Marine Consents and Environment Unit (integrated into MFA on 1st April 2007)
MCZ	Marine Conservation Zone
MFA	Marine and Fisheries Agency
MHPA	Milford Haven Port Authority
MPA	Marine Protected Area
NE	Natural England
NIF	Nationally important feature (distinct from NIMF in this study)
NIMF	Nationally important marine feature
nm	Nautical miles
OSPAR	Oslo and Paris Conventions
SAC	Special Area of Conservation
SNCA	Statutory Nature Conservation Agency
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
SFC	Sea Fisheries Committee add WSSD
WAG	Welsh Assembly Government
WSSD	World Summit on Sustainable Development

The Marine Life Information Network® for Britain and Ireland (MarLIN)

Protecting nationally important marine biodiversity in Wales

Executive summary

Wales has both national and international commitments to protect its marine environment and biodiversity including commitments to designing a network of marine protected areas (MPAs) (e.g. under the OSPAR Convention and the World Summit on Sustainable Development 2002). At EU level, the Habitats Directive requires that a "coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000". This requirement encompasses both the terrestrial and marine environments.

The Natura 2000 network comprises both Special Areas of Conservation (SACs), created under the Habitats Directive[1] to enable listed habitat types and species' habitats to be maintained or restored at a favourable conservation status, and Special Protection Areas (SPAs) created under the Birds Directive[2], to protect the habitats of rare and threatened birds and regularly occurring migratory species. Marine SACs and SPAs are known as "European Marine Sites" (EMS). Because the EU Directives apply to only a limited list of marine species and habitats, it has been recognised that fulfilling their requirements will not, alone, be sufficient to meet commitments under OSPAR and the WSSD which refer to "ecologically coherent" and "representative" networks of MPAs. The forthcoming UK Marine Bill seeks to address this by creating a new designation, “Marine Conservation Zones” (MCZs), which can be used to protect nationally important biodiversity(including species and habitats not recognised by the EU Directives) (Parliamentary Office of Science and Technology, 2008).

In Wales, EMSs already cover over 30% of the marine area. The Welsh Assembly Government (WAG) has stated that the main use of the new MCZ designation will be to create a few, relatively small "Highly Protected Marine Reserves" (HPMRs), where all potentially damaging activities will be excluded, in order to allow biodiversity to recover and to improve the resilience of the existing MPAs (the EMSs) and the wider marine environment. Wales Environment Link (WEL) welcomes WAG's commitment to HPMRs. However there is some concern that, if only a few, small HPMRs are established, a shortfall may remain in the protection of nationally important biodiversity in Wales unless it gains protection through other mechanisms (such as EMSs). WEL therefore commissioned this study to explore how the proposed MCZ mechanism should be used in Wales to ensure adequate protection of nationally important biodiversity.

In this context, "nationally important" refers to species and habitats that have been identified as being important at the UK level, in particular those that are included in the UK Biodiversity Action Plan (BAP) as revised in 2007[3], or identified as candidate Nationally Important Marine Features (NIMFs) (Hiscock *et al.*, 2006). In addition to these, there is a list of threatened and declining species and habitats in the OSPAR region which should be considered in the development of the MPA network[4] ("OSPAR species and habitats").

This study aimed to explore whether nationally important and OSPAR marine species and habitats within Wales gain protection through the existing network of EMSs, by considering the following questions.

1) Do the current EMSs in Wales include all nationally important and OSPAR species and habitats that occur in Wales?
2) Do nationally important and OSPAR species and habitats gain any protection by virtue of being located within an EMS?

[1] Council *Directive* 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora

[2] Council Directive 79/409/EEC on the conservation of wild birds http://eur-lex.europa.eu/LexUriServ/site/en/consleg/1979/L/01979L0409-20070101-en.pdf

[3] See the UK list of priority species and habitats 2007 (www.ukbap.org.uk)

[4] OSPAR Ref. 2004-6

1) Do the current EMSs in Wales include all nationally important and OSPAR species and habitats that occur in Wales?

In terms of recorded occurrences, over 90% of species and 99% of habitats that are "Important Welsh Features" are represented within Wales' current suite of EMSs. "Important Welsh Features" is the term used in this study for species and habitats that are listed on the Annexes of the Habitats Directive, under OSPAR and of noted importance in the UK (BAP species and habitats and candidate NIMFs) that have been recorded in Wales.

Overall, of the Important Welsh features:

- 7% of species and 16% of habitats are qualifying features for at least one EMS, and a further 4% of both species and habitats are named in the conservation objectives of at least one site;
- 16% of species and 1% of habitats are named in Regulation 33 advice for at least one EMS but not within the conservation objectives;
- 78% of habitats and 69% of species occur in at least one EMS but do not feature at all in Regulation 33 advice; and
- up to 4% of species do not occur within EMS at all.

The conservation objectives for EMSs have to be considered by competent authorities, e.g. when they are considering whether to consent projects that may affect EMSs, therefore features mentioned specifically in the objectives should benefit from the protective mechanisms applied to the site. A large proportion of Important Welsh Features are not mentioned in conservation objectives. It is possible that features that are not covered by conservation objectives could indirectly benefit from the protection given to EMSs, either due to spatial overlap with qualifying features or if management decisions exclude certain impacts from entire sites, in order to safeguard the qualifying features. The extent of this indirect protection has not been assessed as part of this project.

Further work could usefully build upon the findings of this project by looking the following questions.

- Of those Important Welsh Features that do occur within the current EMS network, what proportion occurs within the network? Is it likely to be sufficient for conservation (or potential recovery) of the feature?
- Of those Important Welsh Features that do not occur within the EMS network, which would benefit from site-based protection?
- How well are Important Welsh Features protected by other means - e.g. following Environmental Impact Assessment, are they ever taken into account in determining licenses or license conditions for marine projects?
- For the Important Welsh Features that are not covered by conservation objectives of EMSs, what is the degree of overlap with qualifying features? This would give an indication of which Important Welsh Features would likely benefit from protective mechanisms focused on qualifying features and sub-features named in conservation objectives.

Consideration of these questions would be helpful in supporting thinking as to what further actions will be needed to adequately protect the suite of Important Welsh Features (and other features not considered in this analysis such as seabirds), such as the new domestic designation "Marine Conservation Zones" to be introduced in the Marine Bill.

2) Do nationally important and OSPAR species and habitats gain any protection by virtue of being located within an EMS?

This question was investigated via a short review of four case studies of developments affecting EMSs in Wales. The number of case studies examined in this short study was, by necessity, small. And yet, such a small sample of what must be a much larger number of development applications within EMSs, highlighted some instances of where EMS features (including qualifying features and nationally important features) were not effectively protected.

Key recommendations from examining these case studies are:

1. To build on this study a full review of the implementation and effectiveness of EMSs for the protection of interest features, and important marine features of Wales and the UK should be undertaken (see detailed suggestions in the conclusions of this document).
2. The consenting process would benefit from better co-ordination between different competent authorities in coastal and marine areas, particularly where projects span the marine: terrestrial divide, to ensure that appropriate assessments and consents are better integrated.
3. Specific guidance should be provided for competent authorities on dealing with cumulative and in-combination effects in EMSs, reflecting the new provisions of the Marine Bill.
4. Clarification of the sensitivities and vulnerability of the qualifying features and sub-features could be usefully provided within the conservation objectives for EMSs.
5. For Important Welsh Features that are not directly protected by EMS designations, consideration should be given to other protection mechanisms - such as the use of the domestic MCZ designation to be introduced under the Marine Bill.
6. Welsh Assembly Government should provide clear, comprehensive guidance for all competent authorities, backed up by training to ensure a common and consistent understanding of how the Habitats Directive and Habitats Regulations[5] should be interpreted and applied.

[5] The Conservation (Natural Habitats &c.) Regulations 1994 that transpose the Habitats Directive in England, Wales and Scotland."

The Marine Life Information Network® for Britain and Ireland (MarLIN)

Protecting nationally important marine biodiversity in Wales

1. Introduction - policy context

Wales has both national and international commitments to protect its marine environment and biodiversity. Particularly relevant to this study are commitments relating to marine protected areas (MPAs). Under the 1992 OSPAR Convention (the Oslo Paris Convention on the protection of the marine environment of the North East Atlantic)[6], the UK is committed to establish an ecologically coherent network of well-managed Marine Protected Areas by 2010. The UK has also agreed under the Convention on Biological Diversity and the World Summit on Sustainable Development (2002) "*to establish, by 2012, an effectively managed, representative, global system of marine protected areas...comprising both multiple use areas and strictly protected areas*". In addition, the recently adopted EU Marine Strategy Framework Directive requires Member States to develop Programmes of Measures for the achievement of Good Environmental Status, which are to include "*spatial protection measures, contributing to coherent and representative networks of marine protected areas, adequately covering the diversity of the constituent ecosystems*"[7].

At the EU level, the Habitats Directive[8] requires that a "*coherent European ecological network of special areas of conservation shall be set up under the title Natura 2000*" - this requirement encompasses both the terrestrial and marine environments. The Natura 2000 network comprises both Special Areas of Conservation (SACs), created under the Habitats Directive to enable listed habitat types and species' habitats to be maintained or restored at a favourable conservation status, and Special Protection Areas (SPAs) created under the Birds Directive[9], to protect the habitats of rare and threatened birds and regularly occurring migratory species. Marine SACs and SPAs are known as "European Marine Sites" (EMS).

The only existing legal mechanisms at present for the designation of MPAs in the UK come from the Habitats and Birds Directives, and the Wildlife and Countryside Act 1981. The Act allows for the designation of Marine Nature Reserves (MNRs), however, only three MNRs have ever been designated, and it has been recognised that this legislation is not fit for purpose (e.g. Wildlife and Countryside Link 2006[10]).

Because the EU Directives apply to only a limited list of marine species and habitats, it has been recognised that fulfilling their requirements will not, alone, be sufficient to meet the UK's commitments to "*ecologically coherent*" and "*representative*" networks of MPAs as set out above. The forthcoming UK Marine Bill seeks to address this (e.g. Parliamentary Office of Science and Technology, 2008).

---

[6] The 1992 OSPAR Convention is the current instrument guiding international cooperation on the protection of the marine environment of the North-East Atlantic. It combined and up-dated the 1972 Oslo Convention on dumping waste at sea and the 1974 Paris Convention on land-based sources of marine pollution. The work under the convention is managed by the OSPAR Commission, made up of representatives of the Governments of 15 Contracting Parties and the European Commission, representing the European Community. Annex V of the OSPAR Convention is concerned with biological diversity and ecosystems (http://www.ospar.org).

[7] Article 13(4), EU Marine Strategy Framework Directive
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:164:0019:0040:EN:PDF

8 Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora
http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31992L0043:EN:HTML

9 Council Directive 79/409/EEC on the conservation of wild birds
http://eur-lex.europa.eu/LexUriServ/site/en/consleg/1979/L/01979L0409-20070101-en.pdf

10 Wildlife and Countryside Link Marine Bill Bulletin 9 A future for our seas - Marine Nature Reserves: Lessons we must learn. http://www.wcl.org.uk/downloads/2006/Link_Marine_Bill_Bulletin-Issue9.pdf

1.1 The draft Marine Bill

The draft Marine Bill was published, for consultation, on 3 April 2008[11]. It includes provisions for Marine Conservation Zones (MCZs), which can be designated for the full range of marine habitats and species. Along with EMSs, MCZs will contribute to meeting the UK's international commitments to a MPA network. MCZs are proposed as flexible, objective based MPAs ranging from Highly Protected Marine Reserves (HPMRs), where all potentially damaging activities are excluded, to MPAs whose management may limit specific activities (often called "multiple use MPAs").

In Wales, EMSs already cover over 30% of the marine area, and 70% of the coastline. The Welsh Assembly Government (WAG) has stated that the initial focus of the new MCZ tool in Wales will be on creating HPMRs[12], and it is likely that many or most of these will be located within the existing EMSs (Dernie *et al.*, 2006). The Countryside Council for Wales (CCW) is embarking upon a programme of work, involving stakeholders, to establish HPMRs by 2012.

1.2 Rationale for this project

Wales Environment Link (WEL) commissioned this study in order to explore how the proposed MCZ mechanism should be used in Wales to ensure adequate protection of nationally important biodiversity. While WEL welcomes WAG's commitment to HPMRs, there is some concern that because of the onerous management requirements only a few, small sites will be established (and indeed, this view has been supported by statements made by WAG and CCW[13]**).** Unless nationally important biodiversity gains protection through other mechanisms (such as EMSs), WEL is concerned that a shortfall may remain in its protection. In this context, "nationally important" refers to species and habitats that have been identified as being important at the UK level; in particular, those that are included in the UK Biodiversity Action Plan (BAP) as revised in 2007[14], or identified as candidate Nationally Important Marine Features (NIMFs) (Hiscock *et al.*, 2006). In addition to these, there is a list of threatened and declining species and habitats in the OSPAR region which should be considered in the development of the MPA network[15] ("*OSPAR species and habitats*").

This study aimed to explore whether nationally important and OSPAR marine species and habitats within Wales gain protection through the existing network of EMSs, by considering the following questions.

1) Do the current EMSs in Wales include all nationally important and OSPAR species and habitats that occur in Wales?

2) Do nationally important and OSPAR species and habitats gain any protection by virtue of being located within an EMS?

A report focusing on nationally important seabird populations which cannot currently benefit from a marine site protection mechanism because they do not qualify for SPA status (and therefore would benefit from the designation of MCZs) has recently been undertaken by the RSPB (Tanner *et al.*, 2008)**.** The current study focuses on non-bird species and marine SACs. In addition to the sites discussed, Wales has one MNR - Skomer - but this has not been included in the analysis. Skomer MNR is within the boundary of the Pembrokeshire Marine SAC.

[11] http://www.defra.goc.uk/corporate/consult/marinebill/index/htm

[12] CCW, 2008. Highly Protected Marine Reserves: Their role in protecting Welsh seas.

[13] e.g. CCW 2007. Adain y Ddraig, Winter 2007/2008. Highly protected marine sites - involving all the users.

[14] See the UK list of priority species and habitats 2007 (www.ukbap.org.uk)

[15] OSPAR Ref. 2004-6

1.3 Background information - European Marine Sites (EMS)

The Habitats Directive is transposed into UK legislation by the Conservation (Natural Habitats, &c.) Regulations 1994 ("the Habitats Regulations"), which apply in England, Wales and Scotland to the seaward boundary of territorial waters (12 nautical miles). The Offshore Marine Conservation Regulations (2007) transpose the Directive for the offshore area. The Habitats Regulations include special provisions for EMSs, including provisions for the establishment of management schemes (Regulations 34 and 35), and powers for the Statutory Nature Conservation Agencies (SNCAs) to make byelaws to protect EMSs (Regulation 36). Regulation 33 places a duty on the SNCAs to advise all relevant authorities (competent authorities[16])as to the conservation objectives for every EMS, and any operations that may damage the features for which the site has been designated (this is known as the Regulation 33 advice). The conservation objectives within the Regulation 33 advice seek to maintain (or restore) the habitat and species features (Annex I habitats and Annex II species, see Box 1,2 and 3), as a whole, at (or to) favourable conservation status (FCS) within the site (Countryside Council for Wales, 2005). Features mentioned specifically in the objectives should therefore benefit from the protective mechanisms applied to the site. For all Natura 2000 sites (including EMSs), the Regulations set up a process for consideration of plans or projects that might affect site integrity (Regulations 48, 49) and include requirements for compensation if site integrity is adversely affected by a plan or project (Regulation 53). This is one of the key protection mechanisms for these sites, and the main one considered in this study (further information on the requirements of Regulations 48, 49 and 53 is provided in Box 1.).

Box1. Plans and Projects affecting EMSs (Regulations 48, 49 and 53)

Any competent authority that is considering undertaking, or giving any form of consent, licence, permission or authorisation to a plan or project, which might have implications for a EMS(SAC or SPA), must follow the procedures developed under Regulations 48 and 49 of the Habitats Regulations(summarised in Appendix 8). If a project is likely to have a significant effect on a Natura 2000 site in Great Britain, and is not necessary for the management of that site, then the competent authority must carry out an "appropriate assessment" (Regulation 48).

For the purpose of this assessment, the competent authority is required to seek the advice of the appropriate nature conservation body (CCW in Wales) and have regard to this advice. The competent authority is also required to consider the manner in which a proposed project will be carried out, and any conditions or restrictions that may be placed on the consent. Following the appropriate assessment, the competent authority should only agree to the plan or project if it has ascertained that it will not adversely affect the integrity of the site, except under special circumstances set out in Regulation 49: where there is likely to be an adverse effect, consent may still be granted if there are no alternative solutions, and it is deemed that the plan or project must be carried out for imperative reasons of over-riding public interest.

Any competent authority minded to consent a plan or project in spite of an identified adverse effect on site integrity, is required to notify the relevant Minister. If the consent is ultimately granted, the Minister is required to ensure any necessary compensatory measures are taken to ensure that the overall coherence of the Natura 2000 network is protected (Regulation 53).

In addition, the Habitats Directive requires Member States to take appropriate steps to avoid deterioration and disturbance of the habitats and species for which Natura 2000 sites have been designated. This is transposed (though not explicitly) by Regulation 3(4) which requires

[16] Competent authority is defined in Regulation 6 to include any Minister, department, public or statutory undertaker, public body of any description or person holding public office, or any person ecercising any function of a competent authority.

competent authorities, in exercising their functions, to have regard to the requirements of the Habitats Directive.

Many EMSs cover intertidal areas up to high water mark as well as subtidal areas. Most intertidal areas within EMSs in Wales will already be designated as SSSIs, which can be notified down to mean low water mark of ordinary tides[17]. These areas benefit from the protective mechanisms available under SSSI legislation; there is no equivalent "underpinning" for the fully marine aspects of EMS.

The Habitats Directive requires that a Standard Data Form is submitted whenever a SAC is designated. These Data Forms include information on the site's location (including boundary maps), ecological information on the Annex I habitats and Annex II species present (see Box 2 and 3), site characteristics, importance and vulnerability. Crucially, these forms indicate which Annex I habitats and/or Annex II species are the qualifying features for which the site is designated. These are the features that are legally required to be protected within the EMS.

Box 2. Marine Annex II species in UK waters [Source: JNCC]

The following Annex II species are dependent on the marine environment for all or part of their lifecycle:

Annex II Species
Bottlenose dolphin (*Tursiops truncatus*)
Harbour porpoise (*Phocoena phocoena*)
Grey seal (*Halichoerus grypus)*
Common seal (*Phoca vitulina*)
Sea lamprey (*Petromyzon marinus*)
Allis shad (*Alosa alosa*)
Twaite shad (*Alosa fallax*)
Otter (*Lutra lutra*)

There are currently 11 SACs and 9 SPAs with marine components and in Welsh territorial waters (i.e. 0 -12 nm), collectively making up 14 EMSs, as an EMS can encompass more than one SAC or SPA. The current study focuses on non-bird species and marine SACs (i.e. see Figure 1).

[17] Before 2002, and for more recent notifications, the limit of Lowest Astronomical Tides, where the intertidal features extend down to LAT.

Box 3. Marine Annex I Habitats in UK waters [Source: JNCC]

The following Annex I habitats are considered marine as they are covered (continuously or intermittently) by the sea:

Annex I Habitat
Sandbanks which are slightly covered by sea water all the time
Estuaries
Mudflats and sandflats not covered by seawater at low tide
Coastal lagoons [except where landwards of Highest Astronomical Tide and not directly connected to the sea]
Large shallow inlets and bays
Reefs
Submarine structures made by leaking gases
Submerged or partially submerged sea caves
Annual vegetation of drift lines
Salicornia and other annuals colonising mud and sand
Spartina swards (*Spartinion maritimae*)
Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) [except where landwards of Highest Astronomical Tide]
Mediterranean and thermo-Atlantic halophilous scrubs (*Sarcocornetea fruticosi*) [except where landwards of Highest Astronomical Tide]

1.4 Summary of approach taken

Within EMSs, specific protection is only afforded to those species and habitats that are listed as qualifying features. As mentioned these are listed in the Natura 2000 standard data form for each site, as well as the Regulation 33 advice documentation. Regulation 33 advice provides a detailed description of the site and sets out conservation objectives for the qualifying interests. Species and habitats that are not specifically qualifying interests may be referred to as occurring within or being associated with them - either within the conservation objectives or elsewhere in the advice. Non-qualifying species and habitats are more likely to be protected if they are included in conservation objectives than elsewhere in Regulation 33 documents. It is further assumed that species and habitats that occur in EMSs but are not mentioned at all in Regulation 33 documents are the least well protected (although it is possible that they gain some indirect protection just by occurring within the boundaries of an EMS).

To answer the questions set out in section 2 above, the following approach was taken.

1. Marine species and habitats of documented importance at national, OSPAR and European (EU) level that are recorded in Wales were identified (hereafter known as **"Important Welsh Features")**.

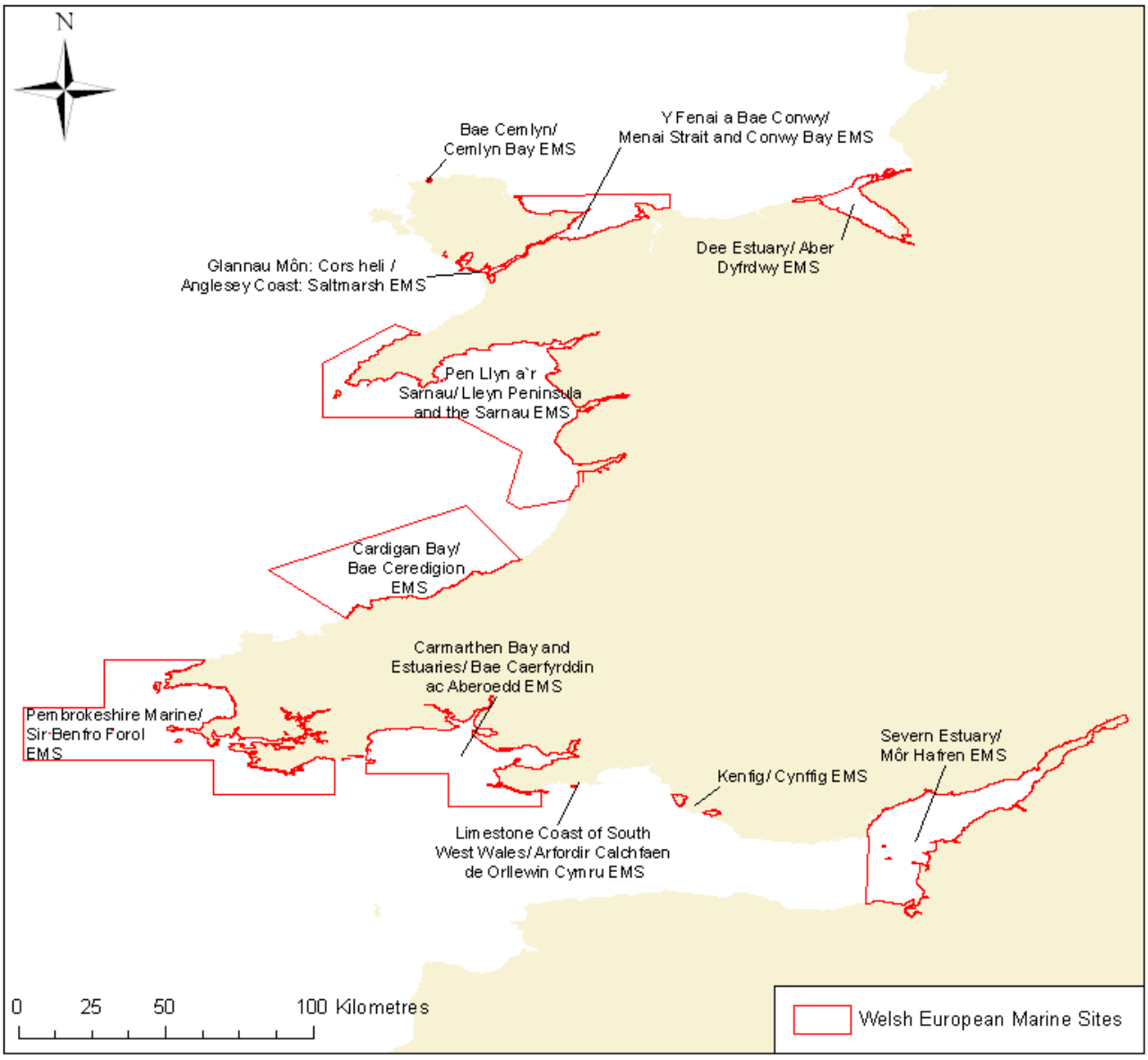


Figure 1. Location of Welsh European Marine Sites.

2. We examined whether Important Welsh Features:

i. are mentioned specifically within the conservation objectives (in Regulation 33 advice) for any EMS;

ii. are mentioned within Regulation 33 advice but not within the conservation objectives;

iii. are not mentioned at all in the Regulation 33 advice.

3. For those Important Welsh Features that are not mentioned at all in EMS documentation (i.e. category iii above), we assessed which occur within the boundaries of the current network of EMSs, based on the most recent national records for those species and habitats.

4. Finally, using a case study approach, we examined what level of protection - if any - had been afforded to nationally important features within EMSs and whether or not the protection was effective. This part of the study was undertaken independently of 1-3 above; therefore the concept of "Important Welsh Features" was not introduced. In this part the term "nationally important feature" (NIF) is used as a generic term to encompass any nationally important or OSPAR feature (that is not a qualifying Annex I or II feature for the site in question).

2. Methods

2.1 Data collation

Data on the recorded occurrences of species and habitats were collated from three data sources:

- a snapshot from the Countryside Council for Wales (CCW) Marine Recorder database (14.05.2008);
- a snapshot from the Joint Nature Conservation Committee (JNCC) Marine Recorder database (10.12.2007); and
- the Coastal Surveillance Unit database (surveys from 1974 to 1983).

Lists of candidate NIMFs (Hiscock & Harris, 2007), BAP (JNCC, 2007), OSPAR (OSPAR, 2003), Habitats Directive Annex I habitats and Habitats Directive Annex II species (Jackson & McLeod, 2000) were compared against species and habitats recorded for Wales to identify a list of nationally important, OSPAR and Habitats Directive marine features (species and habitats) occurring in Wales (Appendix 1 and Appendix 2 respectively) - hereafter known as "Important Welsh Features". The occurrence records for these species and habitats were then imported into GIS.

Information on named features within the Regulation 33 documentation, Natura 2000 data forms and SSSI citations including interest features for which the EMSs were designated, feature types (Annex I habitats and Annex II species), feature sub-types and communities present were collected along with the information on species present within each interest feature.

The primary source of information was the Regulation 33 documentation. However, at the time of writing this report, Regulation 33 documents were in the process of revision. CCW were contacted for latest drafts of the documents and, where available, these were used and cited. When Regulation 33 documentation was not available (for example SACs monitored under SSSI management guidelines have no Regulation 33), Natura 2000 data forms were cited. Table 1 summarises the sources of information used for each site.

Table 1. Sources of species and habitat information from site documentation for each of the components of the Welsh European Marine Sites

European Marine Site Component	Feature Information	Conservation objectives	Appendices
SAC			
Lleyn Peninsula and the Sarnau/ Pen Llŷn a`r Sarnau (SAC)	New Reg 33 *	Original Reg 33	Original Reg 33
Menai Strait and Conwy Bay/ Y Fenai a Bae Conwy (SAC)	New Reg 33	Original Reg 33	**
Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Original Reg 33	Original Reg 33	Original Reg 33
Cardigan Bay / Bae Ceredigion (SAC)	Original Reg 33	Original Reg 33	Original Reg 33
Pembrokeshire Marine / Sir Benfro Forol (SAC)	Original Reg 33	Original Reg 33	Original Reg 33
Dee Estuary / Aber Dyfrdwy(SAC)	Original Reg 33	Original Reg 33	Original Reg 33
Severn Estuary / Môr Hafren (SAC)	Natura 2000 data form	Natura 2000 data form	N/A
Cemlyn bay / Bae Cemlyn (SAC)	Natura 2000 data form	Natura 2000 data form	N/A
Anglesey Coast: Saltmarsh/ Glannau Môn: Cors heli (SAC)	Natura 2000 data form	Natura 2000 data form	N/A
Kenfig / Cynffig (SAC)	Natura 2000 data form	Natura 2000 data form	N/A
Limestone Coast of South West Wales / Arfordir Calchfaen de Orllewin Cymru (SAC)	Natura 2000 data form	Natura 2000 data form	N/A

European Marine Site Component	Feature Information	Conservation objectives	Appendices
Other			
Dee Estuary/ Aber Dyfrdwy Ramsar site	Original Reg 33***	Original Reg 33***	Original Reg 33***

* For Lleyn Peninsula and the Sarnau the new Regulation 33 advice includes feature information but conservation objectives (COs) are yet to be updated, therefore conservation objectives were obtained from the original Regulation 33 documentation.

** Unattainable

*** same as the SAC reg 33.

Each document was reviewed and it was noted if species, habitats or biotopes were:

- named to be present;
- included specifically as a qualifying feature; or
- included specifically within a conservation objective.

A qualifying feature is any Annex I habitat or Annex II species for which the site supports a significant presence or is considered to one of the best examples in the UK.

2.2 Comparison of species and habitats within EMS documentation with the identified Important Welsh Features

A comparison was made with the EMS features collated in section 2.1 and the list of Important Welsh Features. The comparison examined specifically which Annex I species and Annex II habitats were actually named as qualifying features within Welsh EMSs. Where Important Welsh Features were not named qualifying features, we examined whether they were:

i. mentioned specifically within the conservation objectives;

ii. mentioned within EMS documentation (Table 1[18]) but not within the conservation objectives section; or

iii. not mentioned at all in the Regulation 33 advice.

Habitats named in Annex I and the other lists showed significant overlap but were not always directly translatable. For example, the candidate NIMF list identifies habitats down to the level of biotope but these are encompassed by coarser classifications used within the Habitats Directive Annex I and OSPAR lists. All features, irrespective of the level of classification, were compared so that it could be clearly identified which features were represented for each list. However, using the JNCC translation tables[19] all habitats and biotopes were categorised into their respective Annex I habitat where appropriate, to prevent under representation of these habitats due to a finer scale of habitat recording.

2.3 Stock take of habitats and species distributions within current EMS network boundaries

The recorded occurrences of Important Welsh Features were entered into GIS along with polygons of the boundaries of Welsh EMSs. GIS queries were run to identify which of the Important Welsh Features that were not mentioned at all within EMS documentation (i.e. category iii above):

- occurred within EMS boundaries; and

[18] At the time of writing this report, Regulation 33 documents were under revision. The CCW were contacted supplied for latest drafts of the regulations and, where available, were used. Table 1 identifies which version of the Regulation 33 documentation was used for each EMS.

[19] Available from http://www.jncc.gov.uk/pdf/EUNIS_200706_correlationtable.pdf

- did not occur within any Welsh EMS despite being present within Welsh territorial waters (0 - 12 nautical miles).

2.4 Examination of whether nationally important or OSPAR features (NIFs) currently gain any protection by virtue of being located within an EMS

CCW were contacted for examples of case studies that exemplified both effective and less effective protection for nationally important features within EMSs. Other competent authorities were asked for comment as detailed below. Based on the responses received and mindful of the time constraints of this short study, there were four examples that had sufficient information to produce a case study, and this report is focused on these.

Although the sample size was small, these four cases give an indication of the effectiveness of protection for NIFs within EMSs in Wales:

1) South Hook - construction of a new liquefied natural gas terminal within Pembrokeshire Marine SAC, Milford Haven Waterway SSSI.
2) SemLogistics refurbishment (petrochemical tank storage depot) within Pembrokeshire Marine SAC, Milford Haven Waterway SSSI.
3) Hand raking cockles in Angle Bay within Pembrokeshire Marine SAC, Milford Haven Waterway SSSI.
4) Scallop dredging within Lleyn Peninsula and the Sarnau SAC

In the four case studies provided, casework affecting Welsh EMSs was examined to identify whether appropriate assessments took place, and if so, whether they took account of nationally important biodiversity within site boundaries.

For each case study, the relevant competent authorities were contacted with the following questions:

1) Were nationally important features considered at any stage in the process, or were only Annex I and II features addressed?
2) If an appropriate assessment was conducted were nationally important features addressed?
3) Were qualifying features (Annex I and Annex II features listed in answer to question 1) protected as a result of the presence of the EMS?
    a. if yes - at what stage were the features considered?
    b. if yes - was conservation agency (CCW) advice heeded?
    c. if yes - in your opinion what contributed to the success of the process (e.g. early consultation with CCW, close adherence to EU procedures, careful appropriate assessments)?
    d. if no - in your opinion, what prevented successful protection (e.g. inappropriate screening, failure to consult, ignoring CCW advice, inappropriate or ineffective conditions)?
    e. if no - was an appropriate assessment carried out well, but permission granted for reasons of overriding public interest(Regulation 49)?
4) Were nationally important features (those that were listed in answer to question 1 but which were not qualifying Annex I and Annex II features) protected as a result of the EMS?
    a. if yes - at what stage were the features considered?
    b. if yes - was conservation agency (CCW) advice heeded?
    c. if yes - in your opinion what contributed to the success of the process (e.g. early consultation with CCW, close adherence to EU procedures, careful appropriate assessments)?
    d. if no - in your opinion, what prevented successful protection (e.g. inappropriate screening, failure to consult, ignoring CCW advice, inappropriate or ineffective conditions)?

e. if no - was an appropriate assessment carried out well, but permission granted for reasons of overriding public interest (Regulation 49)?

5) Any other comments relevant to the process, including pitfalls and recommendations for improvements?

3. Results

3.1 Important Welsh Features

The data analysis (set out in 2.1) identified 118 species and 69 habitats as Important Welsh Features. Appendices 1 and 2, respectively, set out these species and habitats, and indicate whether they are listed on Annex II or I (respectively), as candidate NIMFs, BAP species or habitats or OSPAR species or habitats.

Of the 118 species identified as Important Welsh Features, 108 were identified as candidate NIMF, 38 as BAP, ten as OSPAR and nine as Annex II species (see Appendix 1). Of the 69 habitats identified as Important Welsh Features, 36 were identified as candidate NIMF, 14 as BAP, seven as OSPAR and 11 as Annex I habitats (see Appendix 2).

3.2 Annex II species that are qualifying features within Welsh EMSs

All but one of the nine Annex II marine species found within Wales are represented as qualifying features in at least one EMS. The exception is the harbour porpoise (*Phocoena phocoena*), although it is recorded as present (but not as a qualifying feature) in three SACs (Cardigan Bay SAC, Pembrokeshire Marine SAC, and Lleyn Peninsula and the Sarnau SAC).

In addition to the eight Annex II species that are qualifying features, there are 20 species that are Important Welsh Features (including harbour porpoise) that are named as sub features within conservation objectives or within other parts of the management documentation.

3.3 Important species not listed as EMS qualifying features

Of the 110 species that were identified as Important Welsh Features but which are not qualifying features for any EMS, five (4%, Figure 2) are named within conservation objectives in Regulation 33 documents. Three of these species are BAP species (herring *Clupea harengus;* whiting *Merlangius merlangius* and plaice *Pleuronectes platessa*). Furthermore, salmon (*Salmo salar*) is listed under Annex II (although not as a marine feature) and OSPAR and all of the above five species are listed as candidate NIMFs.

Table 2. Species of national importance mentioned specifically within the conservation objectives of the Welsh EMS Regulation 33 documentation

Species name	EMS conservation objective mentioned in	Importance
European eel *(Anguilla anguilla)*	Lleyn Peninsula and the Sarnau (SAC), Carmarthen Bay & Estuaries (SAC).	candidate NIMF
Herring *(Clupea harengus)*	Dee Estuary (SAC)	candidate NIMF, BAP Species
Whiting (*Merlangius merlangus)*	Dee Estuary (SAC)	candidate NIMF, BAP Species
Plaice (*Pleuronectes platessa)*	Carmarthen Bay & Estuaries (SAC)	candidate NIMF, BAP Species
Salmon (*Salmo salar)*	Lleyn Peninsula and the Sarnau (SAC), Carmarthen Bay & Estuaries (SAC).	candidate NIMF Species, Annex II Species, OSPAR Species

Nineteen species (16%, Figure 2) are mentioned in EMS Regulation 33 documentation but are not named specifically within the conservation objectives (Table 3). These include two OSPAR

species (the dog whelk *Nucella lapillus* and the harbour porpoise *Phocoena phocoena*), five BAP species (the red algae *Cruoria cruoriaeformis* and *Dermocorynus montagnei*; *Edwardsia timida*, a burrowing anemone; harbour porpoise *Phocoena phocoena* and maerl, *Phymatolithon calcareum*) and the remainder are candidate NIMFs.

Table 3. Species mentioned within the Regulation 33 documentation but not specifically within the conservation objectives.

Species name	Importance	EMS Regulation 33 mentioned in	Interest feature related to
Trumpet anemone *(Aiptasia mutabilis)*	candidate NIMF Species	Lleyn Peninsula and the Sarnau (SAC)	Reefs
Tentacled lagoon worm *(Alkmaria romijni)*	candidate NIMF	Pembrokeshire Marine (SAC)	Coastal lagoons
Bearded red seaweed *(Anotrichium barbatum)*	candidate NIMF, BAP Species	Lleyn Peninsula and the Sarnau (SAC)	Large shallow inlets and bays
Axinella damicornis (a sponge)	candidate NIMF	Lleyn Peninsula and the Sarnau (SAC)	Reefs
Southern cup coral *(Caryophyllia inornata)*	candidate NIMF Species	Lleyn Peninsula and the Sarnau (SAC)	Reefs, Submerged or partially submerged sea caves
Cruoria cruoriaeformis (a red alga)	candidate NIMF, BAP Species	Lleyn Peninsula and the Sarnau (SAC)	Reefs, Large shallow inlets and bays
Dermocorynus montagnei (a red alga)	candidate NIMF, BAP Species	Lleyn Peninsula and the Sarnau (SAC)	Reefs, Large shallow inlets and bays
Edwardsia timida (a burrowing anemone)	candidate NIMF Species & BAP species	Menai Strait and Conwy Bay (SAC)	Reefs
Gammarus chevreuxi (a sand shrimp)	candidate NIMF	Pembrokeshire Marine (SAC)	Coastal lagoons
Horse mussel *(Modiolus modiolus)*	candidate NIMF	Lleyn Peninsula and the Sarnau (SAC), Cardigan Bay (SAC)	Reefs, Sandbanks which are slightly covered by seawater all the time
Dog whelk *(Nucella lapillus)*	OSPAR Species	Menai Strait and Conwy Bay (SAC)	Reefs
Otina ovata (a gastropod mollusc)	candidate NIMF Species	Lleyn Peninsula and the Sarnau (SAC)	Submerged or partially submerged sea caves
Harbour porpoise *(Phocoena phocoena)*	candidate NIMF Species, Annex II Species, BAP Species & OSPAR Species	Lleyn Peninsula and the Sarnau (SAC), Cardigan Bay (SAC), Pembrokeshire Marine (SAC)	
Maerl *(Phymatolithon calcareum)*	BAP Species	Lleyn Peninsula and the Sarnau (SAC)	Large shallow inlets and bays
Polysyncraton lacazei (a colonial ascidian)	candidate NIMF	Lleyn Peninsula and the Sarnau (SAC)	Reefs, Submerged or partially submerged sea caves

Species name	Importance	EMS Regulation 33 mentioned in	Interest feature related to
Sand goby *(Pomatoschistus minutes)*	candidate NIMF	Menai Strait and Conwy Bay (SAC)	Large shallow inlets and bays
Honeycomb worm *(Sabellaria alveolata)*	candidate NIMF	Lleyn Peninsula and the Sarnau (SAC), Cardigan Bay (SAC), Dee Estuary (SAC)	Reefs, Large shallow inlets and bays, Estuaries, Submerged or partially submerged sea caves
Ross worm *(Sabellaria spinulosa)*	candidate NIMF	Lleyn Peninsula and the Sarnau (SAC), Cardigan Bay (SAC)	Reefs, Sandbanks which are slightly covered by seawater all the time
Schmitzia hiscockiana (a red alga)	candidate NIMF	Lleyn Peninsula and the Sarnau (SAC)	Reefs, Large shallow inlets and bays, Submerged or partially submerged sea caves

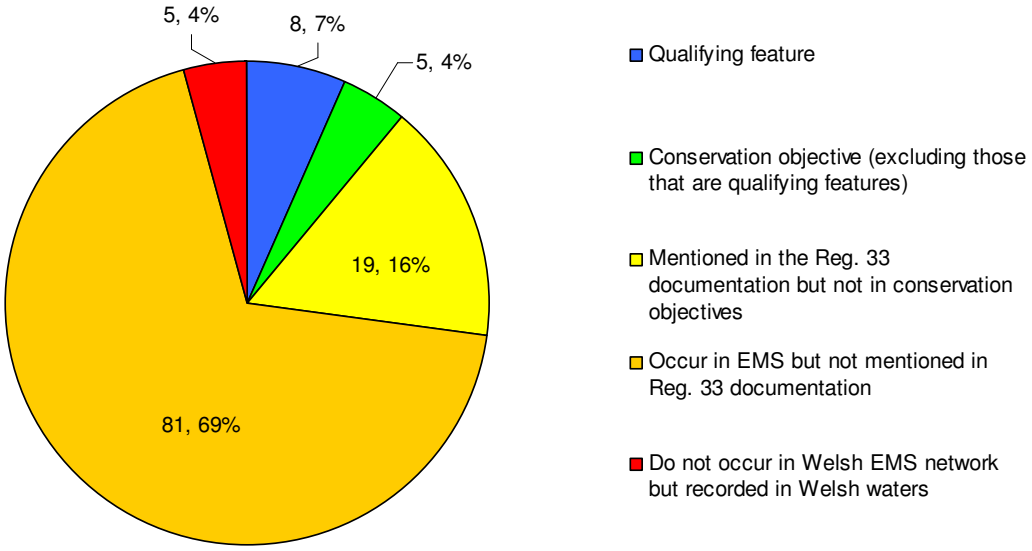


Figure 2. Species that are Important Welsh Features, broken down by their inclusion in site documentation for EMSs.

Eighty-one species that are Important Welsh Features (69%, Figure 2) occurred within EMS boundaries but were not mentioned specifically in the Regulation 33 documentation (see Appendix 3). This includes 24 BAP species (such as the fan mussel *Atrina fragilis*, the pink sea fan *Eunicella verrucosa*, the spiny dogfish *Squalus acanthias* and the Atlantic horse mussel *Trachurus trachurus*) and seven OSPAR species (such as the Icelandic cyprine *Arctica islandica*, basking shark *Cetorhinus maximus*, native oyster *Ostrea edulis* and spotted ray *Raja montagui*).

These species may gain some protection where a conservation objective encompasses all nationally important features contained within the relevant Annex I habitat features depending on the specific requirements of the conservation objective. For example the conservation objective statement for Annex I feature "mudflats and sandflats" in Pembrokeshire Marine SAC regulation 33 advice includes the sentence:

> *"…..maintain at favourable conservation status its natural range and area covered, the structures and functions necessary for its long-term maintenance, and the conservation status* ***of its typical species*** *on a long- term basis."*

But these typical species will only gain protection if the specific requirements of the conservation objective for management of the mud and sandflats will also specifically benefit those species.

Finally, 5 important species (4%, Figure 2) occur in Wales but outside of all EMSs (see maps in Appendix 4). These are the BAP species:

- *Amphianthus dohrnii* (sea fan anemone); and
- *Raja undulate* (undulate ray);

and the following candidate NIMF species:

- *Paraphellia expansa* (an anemone);
- *Polyplumaria flabellate* (a hydroid); and
- *Truncatella subcylindrica* (looping snail).

It should be noted that *P. flabellate*, *T. subcylindrica* and *R. undulate* records occur on or within 10 m of the boundary of an EMS and therefore their occurrence outside the boundary could be due to recording inaccuracy. In fact, *R. undulate* occurs within the Menai Straits but outside the EMS boundary and it is therefore reasonable to assume that this is due to position accuracy during recording. Therefore, it is possible that these three species do in fact occur within EMSs, leaving nine which do not.

3.4 Annex I habitats that are qualifying features within Welsh EMSs

Eleven of the Annex I marine habitats (Box 2) are qualifying features in at least one Welsh EMS (Table 4) and therefore have specific conservation objectives. The Annex I habitats are broad habitat types, and encompass other habitats, biotopes and species (see Appendix 5).

Table 4. Annex I habitats that are qualifying features within Welsh EMSs

Annex I habitat	EMS where Annex I habitat is a qualifying feature
Coastal lagoons	Lleyn Peninsula and the Sarnau (SAC), Pembrokeshire Marine (SAC), Cemlyn bay (SAC)
Estuaries	Lleyn Peninsula and the Sarnau (SAC), Carmarthen Bay & Estuaries (SAC), Pembrokeshire Marine (SAC), Dee Estuary (SAC), Severn Estuary / (SAC), Anglesey Coast: Saltmarsh (SAC), Menai Strait and Conwy Bay (SAC)
Large shallow inlets and bays	Lleyn Peninsula and the Sarnau (SAC), Carmarthen Bay & Estuaries (SAC), Pembrokeshire Marine (SAC), Menai Strait and Conwy Bay (SAC)
Mudflats and sandflats not covered by seawater at low tide (intertidal mudflats and sandflats)	Lleyn Peninsula and the Sarnau (SAC), Carmarthen Bay & Estuaries (SAC), Pembrokeshire Marine (SAC), Dee Estuary (SAC), Severn Estuary (SAC), Anglesey Coast: Saltmarsh (SAC), Kenfig (SAC), Limestone Coast of South West Wales (SAC), Menai Strait and Conwy Bay (SAC)
Reefs	Lleyn Peninsula and the Sarnau (SAC), Cardigan Bay (SAC), Pembrokeshire Marine (SAC), Severn Estuary (SAC), Menai Strait and Conwy Bay (SAC)
Sandbanks which are slightly covered by sea water all the time	Lleyn Peninsula and the Sarnau (SAC), Carmarthen Bay & Estuaries (SAC), Cardigan Bay (SAC), Pembrokeshire Marine (SAC), Severn Estuary (SAC), Menai Strait and Conwy Bay (SAC)
Submerged or partially submerged sea caves	Lleyn Peninsula and the Sarnau (SAC), Cardigan Bay (SAC), Pembrokeshire Marine (SAC), Limestone Coast of South West Wales (SAC), Menai Strait and Conwy Bay (SAC)
Annual vegetation of drift lines	Dee Estuary (SAC)
Salicornia and other annuals colonising mud and sand	Lleyn Peninsula and the Sarnau (SAC), Carmarthen Bay & Estuaries (SAC), Dee Estuary (SAC), Severn Estuary (SAC), Anglesey Coast: Saltmarsh (SAC)

Annex I habitat	EMS where Annex I habitat is a qualifying feature
Spartina swards (*Spartinion maritimae*)	Severn Estuary (SAC), Anglesey Coast: Saltmarsh (SAC), Kenfig (SAC)
Atlantic saltmeadows (*Glauco-Puccinellietalia maritimae*)	Lleyn Peninsula and the Sarnau (SAC), Carmarthen Bay & Estuaries (SAC), Dee Estuary (SAC), Anglesey Coast: Saltmarsh (SAC) Kenfig (SAC), Pembrokeshire Marine (SAC) Severn Estuary (SAC), Menai Strait and Conwy Bay (SAC)

3.5 Important habitats not listed as EMS qualifying features

Excluding the 11 Annex I habitats which are qualifying features for the Welsh EMSs, there are 58 other habitats that are Important Welsh Features (BAP, OSPAR and candidate NIMF), however only three of these are named specifically within the conservation objectives of Welsh EMSs (Figure 3). These are horse mussel reef (*Modiolus modiolus*, an OSPAR and BAP habitat), *Mytilus edulis* and piddocks on eulittoral firm clay (a candidate NIMF habitat), and *Sabellaria alveolata* reefs on sand-abraded eulittoral rock (a BAP habitat) (see Table 5).

For three of the SAC Regulation 33 documents (Carmarthen Bay & Estuaries SAC, Dee Estuary SAC, Lleyn Peninsula and the Sarnau SAC) more specific mention is made of biotopes that are representative of the Annex I habitats. These include some important habitats that are not otherwise listed (i.e. as qualifying features or sub features) in the Regulation 33 documentation (see Appendix 6) such as corraline crust-dominated shallow eulittoral rockpools; fucoids and kelp in deep eulittoral rockpools; *Fucus serratus* with sponges, ascidians and red seaweeds on tideswept lower eulittoral mixed substrata; intertidal chalk; littoral caves and overhangs; littoral chalk communities; peat and clay exposures; and, sublittoral chalk and tide-swept channels. Biotopes included in Regulation 33 documentation (conservation objectives) were correlated, where possible, to habitats that were Important Welsh Features.

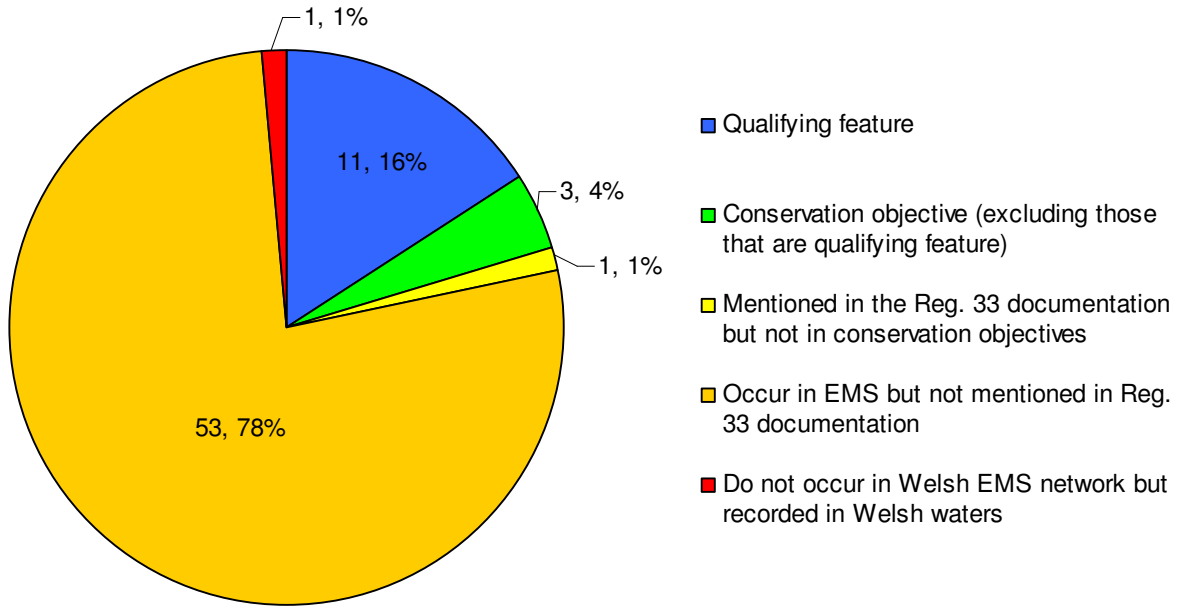


Figure 3. Habitats that are "Important Welsh Features", broken down by their occurrence within EMS documentation.

One important habitat, the OSPAR and BAP listed *Zostera* (seagrass) beds, is mentioned in Regulation 33 documentation but are not named specifically within any of the conservation objectives for an EMS in Wales.

Table 5. Important habitats mentioned within EMS conservation objectives

Habitat	EMS where habitat mentioned in the conservation objectives	Importance
Horse mussel (*Modiolus modiolus*) reef	Lleyn Peninsula and the Sarnau (SAC)	OSPAR Habitats, BAP Habitats
Mytilus edulis and piddocks on eulittoral firm clay.	Dee Estuary (SAC)	candidate NIMF Habitats
Sabellaria alveolata reefs on sand-abraded eulittoral rock.	Dee Estuary (SAC)	BAP Habitats

All but one of the remaining 54 important habitats identified for Welsh territorial waters occur within the boundaries of an EMS (Figure 3). These 53 habitats are not mentioned specifically anywhere within the management documentation for EMSs in Wales (Appendix 7). However, the above habitats include biogenically mediated habitats such as maerl, which may also be listed as a species in site documentation.

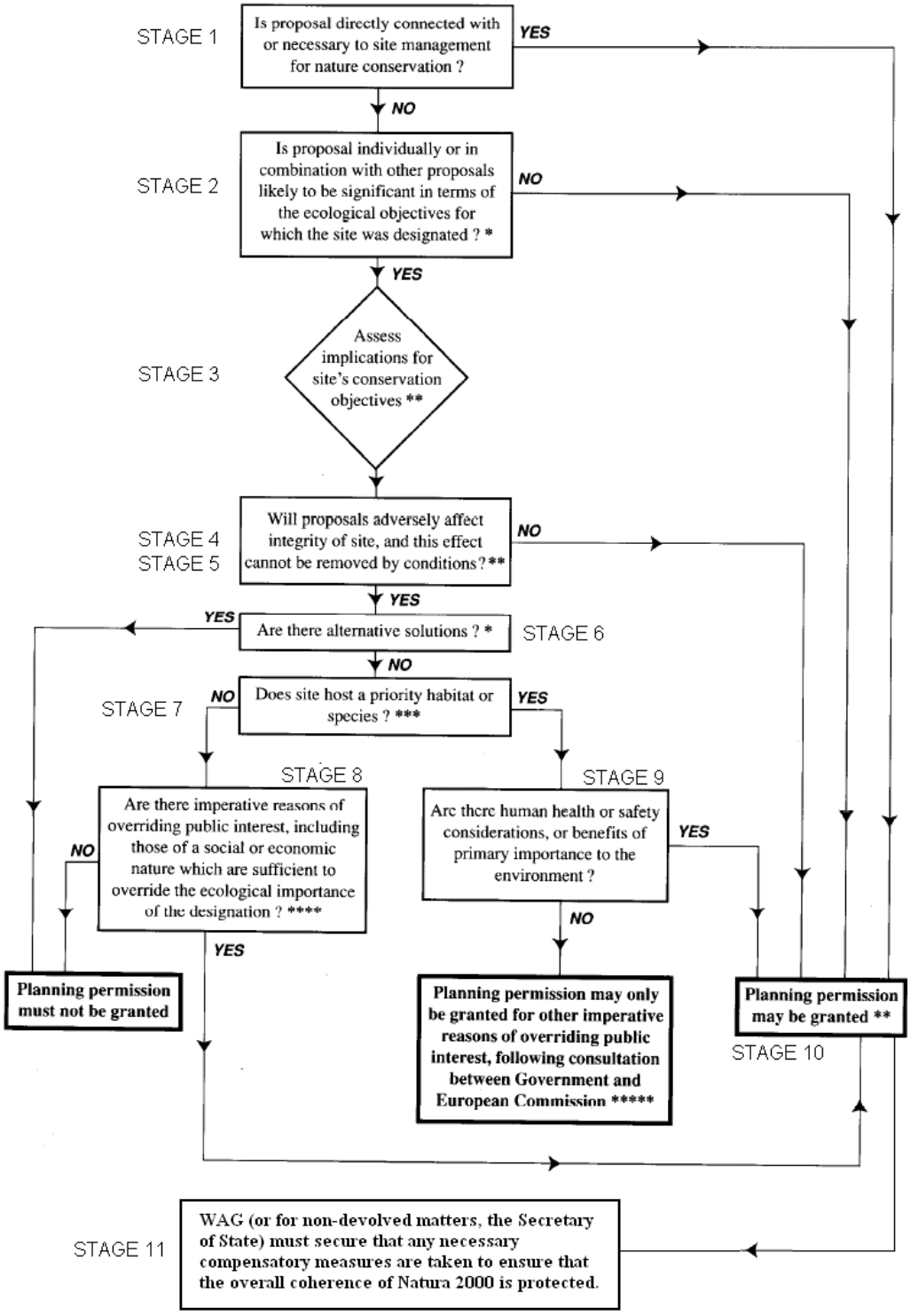
The candidate NIMF habitat '*Ceramium* sp. and piddocks on eulittoral fossilised peat' is found within Welsh Territorial waters but is recorded just outside the boundary for the 'Lleyn Peninsula and the Sarnau' SAC and therefore it is reasonable to assume that this could be a result of position inaccuracy during recording (see map in Appendix 4). If this is the case this analysis has not found any habitats that are Important Welsh Features that are not included in the EMS network.

4. Case studies: Do nationally important and OSPAR listed features (NIFs) gain protection in EMSs?

Only the qualifying features of EMSs are legally protected under the Habitats Regulations. But as highlighted in earlier sections, Annex I habitats do encompass other habitats and species, which may therefore also be protected depending on how conservation objectives are worded. For instance, a conservation objective might specifically refer to sub-features of the qualifying features, or be more generically worded, e.g. the objective "*the natural habitat structures necessary for the long-term maintenance of intertidal mud and sand-flat habitat and its typical species are no more degraded as a consequence of human action than at the time the site was classified as a candidate SAC*" in Pembrokeshire Marine SAC regulation 33 advice could encompass a number of features that are not specifically qualifying features.

The abbreviation "NIF" is used in this section to refer to nationally important or OSPAR features that are not Annex I or II habitats or species.

Four case studies were examined to investigate whether, in those cases, the NIFs benefited from the protective mechanisms applied to EMSs. Table 6 summarises the four case studies examined. It shows the name of the EMS concerned and any underpinning SSSIs; whether any NIFs were considered; the damaging activity; and the information obtained (including whether an appropriate assessment and environmental statement were produced and if so whether they were available to us). The table also shows the competent authorities involved and their responsibility in terms of assessing the impact and consenting aspects of the development. Where applicable, the table also shows which stage in the process under Regulations 48, 49 and 53 (summarised in Figure 4, and Appendix 8) was reached for each authority before the decision on whether to give consent or take other action was made. Finally, the table gives an assessment of whether the outcome of the case studies was effective protection of NIFs.



* *taking account of advice from CCW*

** *taking account of advice from CCW, its site citation and, for projects where Environmental Assessment is required, information assembled for the purposes of EA.*

*** *priority habitats and species are indicated by an asterisk in Annexes I & II of the Habitats Directive. The citation saying why the site was designated will show whether it hosts a priority habitat or species.*

**** *Regulation 52(4) of the Habitats Regulations requires a "competent authority", other than the Secretary of State, in determining whether to agree on the grounds of overriding public interest, to seek and have regard to the views of any other competent authorities involved.*

***** *permissionwill be subject to any necessary compensatory measures being undertaken under regulation 53 of Habitats Regulations to ensure coherence of Natura 2000*

Figure 4. Stages of consideration of development proposals affecting SPAs and SACs (with adaptations from Cole-King, 2005, stages refer to guidance document reproduced in Appendix 8, Source: Welsh Office, 1996)

Table 6. Summary of the case studies

Case study	Protected Sites	Features Covered	Development/ Activity (Date)	Competent Authorities (CAs)	Jurisdiction	Contact made	Stage reached	NIFs protected*
1	Pembrokeshire Marine SAC, Milford Haven Waterway SSSI	Annex I & II features only. Conservation Objectives for the site worded generically to encompass all the NIF's contained within the relevant Annex I & II features (for SSSI, only considered NIFs within the boundary of SSSI)	Construction of a new liquefied natural gas terminal. Included development of storage, regassification and pipeline components on land. Required substantial refurbishment of existing jetty, capital dredging (2003 - 2008)	Pembrokeshire Coast National Park Authority	Planning above low water mark	Yes and questions answered	2	No
				DEFRA – MCEU† (on behalf of the Welsh Assembly Government)	Deposits on seabed, navigation (FEPA††, CPA†††)	Yes sent through Environmental Statement (EIA)	2	
				Milford Haven Port Authority	"River Works License", capital dredging	Yes and questions answered	2	
				Environment Agency Wales	Discharges from site during construction, and then operation (PPC††††)	Yes but did not answer questions within the time frame	2	
				Countryside Council for Wales	SSSI consents/ assents	Yes and questions answered	10	
2	Pembrokeshire Marine SAC, Milford Haven Waterway SSSI	Annex I & II features only. Conservation Objectives for the site worded generically to encompass all the NIF's contained within the relevant Annex I & II features (for SSSI, only considered NIFs within the boundary of SSSI)	SemLogistics refurbishment and upgrade to petrochemical tank storage depot, including increased vessel capacity at the jetty. Required jetty extension, capital dredging of berth and approach (2007)	Pembrokeshire County Council	Planning above low water mark	Yes but did not answer questions as said impacts beyond their jurisdiction	2	No
				DEFRA - MCEU (on behalf of the Welsh Assembly Government)	Deposits on seabed, navigation (FEPA, CPA)	Yes but did not answer questions within the time frame	-	
				Milford Haven Port Authority	"River Works License", capital dredging	Yes, questions answered and sent through appropriate assessment †††††	10	
				Environment Agency Wales	Discharges from site	Yes but did not answer questions within the time frame	-	

Case study	Protected Sites	Features Covered	Development/ Activity (Date)	Competent Authorities (CAs)	Jurisdiction	Contact made	Stage reached	NIFs protected*
				Countryside Council for Wales	SSSI consents/ assents	Yes and questions answered	10	
3	Pembrokeshire Marine SAC, Milford Haven Waterway SSSI	Yes, discussion of presence of NIFs and potential to be impacted by the activity	Cockling (2006 –)	Countryside Council for Wales	SSSI consents/ assents	Yes	N/A	No
				South Wales Sea Fisheries Committee	Fisheries management measures	Yes, did not have time to complete questionnaire but sent relevant correspondence	N/A	
				Welsh Assembly Government	Fisheries management measures	No, although a CA their powers of closure were not sought	N/A	
4	Lleyn Peninsula and the SarnauSAC		Scallop dredging (1990)	North Western & North Wales Sea Fisheries Committee	Fisheries management measures	Yes and questions answered	N/A	Yes

*In this field we have identified whether all the features that should have been protected were, in terms of the conservation objectives
† Defra (Department for Environment, Food and Rural Affairs) – MCEU (Marine Consents and Environment Unit).
†† FEPA (Food and Environmental Protection Act 1985)†††; CPA (Coast Protection Act 1949); †††† PPC(Pollution Prevention and Control licences)
N/A = Not Applicable. ††††† We were not provided with the appropriate assessment but the MHPA did send a copy of the environmental statement instead

4.1 Construction of a new liquefied natural gas (LNG) terminal at South Hook within Pembrokeshire Marine SAC, Milford Haven Waterway SSSI

Introduction

This project consisted of the establishment of a liquefied natural gas receiving terminal on an old refinery site owned by ESSO. The original refinery had been decommissioned many years previous but the old jetty had been left in place. The development required a major refurbishment of the jetty as well as storage, regassification and pipeline facilities on the land. From a marine perspective the key consents were associated with the jetty works, dredging and the site discharges.

The jetty lies within the Pembrokeshire Marine SAC and also passes across the Milford Haven Waterway Site of Special Scientific Interest (SSSI), which is predominantly intertidal. Consequently, consents from five competent authorities were required. The jetty works consents were issued initially in 2003 but then revised and the consent varied in 2005. Planning applications were made in 2003/4, the dredging was undertaken in 2005 and finally the discharge consents were issued(2008)(pers. comm. M. Camplin, 2008).

Pembrokeshire Marine SAC is selected for eight Habitats Directive Annex I habitat types and five Annex II species (Reg 33 advice, Countryside Council for Wales, 2005). The conservation objectives for the EMS were worded generically and so encompassed all associated NIFs contained within the qualifying Annex I and Annex II features. Key NIFs in this case were eelgrass beds (*Zostera marina*) and maerl beds (*Phymatolithon calcareum*[20]), see Figure 5.

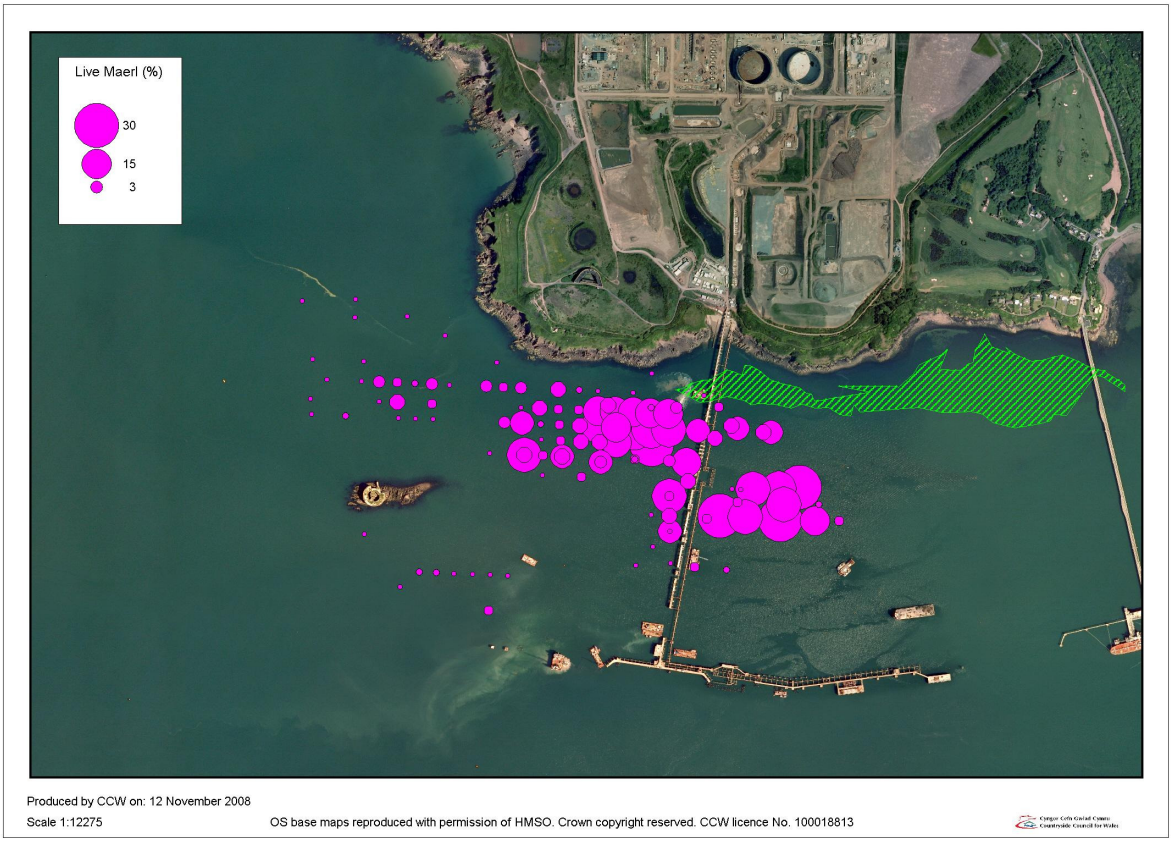


Figure 5. *Zostera marina* bed (green) and maerl (pink dots) adjacent to the South Hook LNG site (Copyright: Countryside Council for Wales)

[20] Significantly this is the only remaining live maerl bed in Wales although small fragments do occur in other locations (pers. comm. Dr. Jason Hall-Spencer)

The Environmental Statement (ES) for the Environmental Impact Assessment of the development (RPS on behalf of Qatar Petroleum and ExxonMobil, 2003) contains very thorough descriptions of the features of the EMS and the potential impacts of the development. It also considers features other than the qualifying features (e.g. BAP features). The ES identifies a number of potential direct and consequential impacts likely to have a "significant effect" on the SAC's qualifying features, indicating that appropriate assessment should have been undertaken by the competent authorities concerned. The ES does not address any impacts in relation to the conservation objectives of the site, which an appropriate assessment would do.

Activities of concern

- Refurbishment of the jetty
- Effluent discharges
- Capital and maintenance dredging

Competent authorities involved and role

The Pembrokeshire Coast National Park Authority (PCNPA) was the competent authority in respect of the planning permission for this application. PCNPA's jurisdiction stops at the low water mark. The jetty and all works below the low water mark were outside its jurisdiction, and the foreshore was considered to be unaffected by the development (PCNPA). Above high water, the development site is a brown field site (the old ESSO Refinery site) with no nature conservation designations (the SSSI includes the foreshore only; see section on SSSI consent below). The consideration of the proposal therefore went as far as the screening process (stage 2 in Figure 4**)** and no appropriate assessment was undertaken.

The Milford Haven Port Authority (MHPA) was responsible for issuing a River Works License during the Construction of the South Hook liquefied natural gas terminal and undertook capital dredging associated with the development (which they themselves authorise). MHPA stated that an appropriate assessment had been carried out by the developer [pers. comm. Capt. M. Andrews, (MHPA), 2008] but not by MHPA in this instance. According to MHPA only the qualifying features were examined, and nationally important features were not addressed, although MHPA commented that other species and habitats (e.g. BAP) would have been considered as part of the EIA and ES for the entire project proposal as part of the planning process [pers. comm. Capt. M. Andrews, (MHPA), 2008].

On behalf of the Welsh Assembly Government Defra's Marine Consents and Environment Unit (now the Marine and Fisheries Agency, MFA) was at the time responsible for issuing consents under the Food and Environmental Protection Act 1985 (FEPA) and the Coast Protection Act 1949 (the delivery of these functions is now being taken in-house by WAG which has established its own Marine Consents Unit). The MCEU did not carry out an appropriate assessment and issued consent with conditions. Upon expiry of the consent MCEU reissued it a further eight times in total.

The Environment Agency Wales (EAW) is responsible for discharges from the site during construction and then operation (issuing Pollution Prevention and Control licences). In this case operational discharges would involve substantial discharge of sodium nitrate.

CCW has a role in advising each of the competent authorities about the whether the proposal is likely to be significant in terms of the conservation objectives of the site (and therefore whether an appropriate assessment is needed) and in assessing the implications of the proposal (for example during the preparation of an appropriate assessment). CCW is also responsible for issuing SSSI consents. Consideration of the effect on the EMS as a consequence of issuing the consent considered only the qualifying features but CCW noted that as conservation objectives for the site encompassed all other nationally important features contained within the relevant qualifying features, these were 'considered' where they lay within the SSSI.

Issues raised by respondents

The PCNPA were concerned that:

- The current multi-sectoral approach to planning was not appropriate for the delivering the requirements of European and National legislation.

The PCNPA commented that:

> "*This plan or project had the potential to cause significant damage to the marine SAC, and to specific features. Whether or not it has is for others to comment on. It is a huge development entailing massive investment and very complex civil engineering above and below low water mark. It raised searching questions as to the efficacy of the current piecemeal, highly sectoral approach which characterises the way in which such projects are dealt with in the UK, in terms of delivering requirements of European and National legislation.*"

MHPA found the consenting process to be a useful exercise, which has resulted in improvements to their internal processes. However, the process raised a number of issues:

- The process considered qualifying features only, and no other features were considered directly, except in the associated EIA and resulting ES.
- The process resulted in some "angst", especially over the term 'significance' and hence disagreement between the competent authorities and CCW over whether appropriate assessment was required.
- Early consultation with CCW resulted in revision of development plans in relation to dredging activities with the development plan modified in a cost effective way to minimize the dredging.
- While efforts were made to minimise impacts to interest sub-features (maerl) some, e.g. from the use of a jack-up barge[21] during construction were unavoidable.
- Further damage to maerl resulted from moorings in the vicinity of the maerl bed but the MHPA were surprised that the contractor obtained permission from CCW.

The MFA (formerly the MCEU) commented that whilst no appropriate assessment was undertaken for any of the consents issued (or reissued), there were specific conditions including operational agreements (made to reduce impacts), for example:

> *As agreed with the Licensing Authority and Countryside Council for Wales, no more than 25 piles under Strong Box 45 - 46 are permitted to be cut off at a level no greater than 1,000 mm above the seabed to protect the Red Maerl beds in the area.*
>
> (Source: MFA)

The Environment Agency Wales (EAW) is responsible for discharges from the site during construction and then operation (issuing Pollution Prevention and Control licenses). In this case operational discharges would involve substantial discharge of sodium nitrate. A copy of the EAW discharge consent was not available to the authors.

CCW raised the following concerns.

- CCW advised MCEU of the need for an appropriate assessment due to potential significant effects on the EMS features (large shallow inlet and bay) as a consequence of the proposed jetty works. CCW also advised the Environment Agency of a potential adverse effect on

[21] A **jack-up barge** is a platform that is able to stand still on the sea floor, resting on a number of supporting legs. Supporting columns may be moved up and down by a hydraulic or electrical system. The whole barge can also be jacked up when the supporting legs touch the seafloor [Source: http://news.bbc.co.uk/1/hi/magazine/7206780.stm]

site integrity as a consequence of the proposed site discharge. However, both authorities issued consents without an appropriate assessment.

- Once terrestrial planning consent had been approved and substantial investment made in terms of the land based structure, a precedence existed for subsequent consents (pers. comm. M. Camplin, 2008).
- To issue consents with conditions is indicative of there being some level of detrimental effects on the EMS features, and therefore should have prompted an appropriate assessment. CCW staff do not believe some of the agreed conditions were adhered to by developers (who were under no legal obligation to do so as the conditions were issued separately to the consent).
- The development caused damage to both the eelgrass (*Zostera*) and maerl beds. Monitoring of the maerl showed substantial impacts in the first year of jetty works. For example: total infaunal taxa recorded showed a 35% reduction and a 44% reduction in abundance. In the primary impact zone directly adjacent to the jetty the reductions were 46% and 52% respectively (Camplin, 2007).
- The consent for operational discharges allows a discharge of sodium nitrate adjacent to the maerl and eelgrass (*Zostera*) of a level that makes it one of the top three point source discharges of inorganic nitrogen into Milford Haven estuary. Milford Haven estuary is already impacted by excessive nutrient levels and this long-term discharge may exacerbate these impacts, which are not limited to maerl and eelgrass (*Zostera*) (Camplin, 2007, pers. comm., M. Camplin, 2008).

CCW also noted that:

- For the SSSI, an impact was identified after initial consent but in this instance early consideration, provision and adoption of advice led to the modification of the planned works to reduce the scale and longevity of impacts which the developer followed (pers. comm., M. Camplin, 2008).

Conclusions

This was a complex and large development involving terrestrial and marine consents from a number of different competent authorities. The key issues raised were:

- A piecemeal multi-sectoral approach to the development, so that the competent authorities were not in a position to assess the development as a whole.
- Differences in opinion regarding the interpretation of terms such as "significant effect".
- The ES identifies a number of potential impacts likely to have a “significant effect” on the SAC's qualifying features, indicating that an appropriate assessment should have been carried out. The process for ensuring an appropriate assessment is undertaken if required appears to be inadequate.
- The relevant consenting process for the EMS only addresses the qualifying features so that other important marine features only receive protection indirectly.
- There was no evidence in any assessment that the developments were considered in combination with other relevant plans or projects going on at the time (e.g. Dragon LNG terminal).
- Two NIFs associated with a qualifying feature were subject to damage and deterioration.

At face value, the individual competent authorities discharged their legal responsibilities with respect to the EMS as the Habitats Regulations only require that the Competent Authorities seek CCW's advice for an appropriate assessment, but not for determining if an appropriate assessment is needed (i.e. if there is significant effect). However the comments above identified significant flaws in the consenting process supported by the fact that the net result of

the development was that two NIFs associated with a qualifying feature were subject to damage and deterioration. The effectiveness of protection of the EMS in this case is questionable.

4.2 SemLogistics refurbishment (petrochemical tank storage depot) within Pembrokeshire Marine SAC, Milford Haven Waterway SSSI

Introduction

SemLogistics operates the UK's largest petrochemical tank storage depot. It is based at Waterston, Pembrokeshire. The site consists of a tank farm and associated pipe work and jetty for transfer of products. This case study involved SemLogistics' plan for the refurbishment of the tank farm and the provision of improved berthing facilities at its jetty.

The jetty and berth lies within the Pembrokeshire Marine SAC and also passes across the Milford Haven Waterway SSSI which is predominantly intertidal. Again, five competent authorities (PCC, Defra – MCEU, MHPA, EAW and CCW) were involved in giving consents for the project (see Table 6).

Activities of concern

- Capital dredging of the berth and the approach from the main channel of the estuary.
- Jetty extension required new piles to be driven in to support the new topside and cargo transfer arms[22], and pipe work to be created.
- Prop wash[23] from tug boats carrying out the work.

The current situation is that there will not be deepening of the approach as originally proposed, which was by far the largest area of capital dredge required. Also, the berth has been rotated so that it better follows the line of the current and underwater topography, substantially reducing the capital dredging of the berth itself. The timing of piling and the use of vibropiling as well as the presence of a marine mammal observer has been agreed as mitigation for potential acoustic impacts to spawning herring and marine mammals. There remains the need for resolution of the likely impacts from prop wash (pers. comm., M. Camplin, 2008).

Competent authorities involved and role

Pembrokeshire County Council (PCC) ensured that the ES (for the EIA) covered all aspects of both the terrestrial and marine components of this project. However, PCC was only responsible for consenting terrestrial aspects of the development (pers. comm., A. Williams (PCC), 2008). They did not carry out an appropriate assessment.

The MCEU (now the MFA) was at the time responsible for issuing consents under the Food and Environmental Protection Act 1985 (FEPA) and the Coast Protection Act 1949 (CPA) on behalf of WAG.

MHPA was required to consider the jetty works under their 1983 Act (known as a River Works License). MHPA, as the competent authority and the dredge operators, were also required to issue themselves consent to undertake capital dredging works (needed to increase the depth of the vessel berth and its approaches).

The Environment Agency Wales (EAW) is responsible for discharges from the site during construction and then operation (issuing Pollution Prevention and Control licences).

CCW has a role in advising each of the competent authorities about the whether the proposal is likely to be significant in terms of the conservation objectives of the site (and therefore whether an appropriate assessment is needed) and in assessing the implications of the proposal (for

[22] These are articulated units which connect the terminal with the moving vessels for transferring the liquid cargo.

[23] Turbulence from the boat propeller in shallow water resulting in re-suspension of sea bed sediments and creation of large scoured pits in the seabed.

example during the preparation of an appropriate assessment). CCW is also responsible for issuing SSSI consents. Consideration of the effect on the EMS as a consequence of issuing the consent considered only the qualifying features but CCW noted that as conservation objectives for the site encompassed all other nationally important features contained within the relevant qualifying features, these were 'considered' where they lay within the SSSI.

Issues raised by respondents

Pembrokeshire County Council (PCC) raised the following points:

- After advice from CCW, PCC ensured that the EIA covered all aspects of both the terrestrial and marine components of this project.
- PCC was only responsible for consenting terrestrial aspects of the development so they did not carry out an appropriate assessment.

The MFA was unable to answer our questions directly within the time frame due to staff absences. However, they sent through information for the appropriate assessment in the form of an Environmental Statement produced by Royal Haskoning (May 2007) on behalf of Semlogistics Milford Haven Ltd., but not the actual appropriate assessment. We were unable to ascertain whether an appropriate assessment was written. Consent was granted for the disposal of dredging spoil. Although no appropriate assessment was carried out, NIFs and EMS features were considered when the dredge disposal site was identified and this led to the selection of the current disposal site which is outside the SAC and believed not to significantly impact NIFs or EMS features.

MHPA made the following comments:

- An appropriate assessment[24] was carried out by them for the capital dredging but it addressed qualifying features only.
- MHPA's appropriate assessment stated that there would be no adverse effect on site integrity.
- Despite this, MHPA and the developers (SemLogistics) heeded CCW advice and modified the development plans in a cost effective way to minimize the dredging.
- The maintenance dredging activity is an ongoing process that was in place at the time of designation, therefore its impacts on the SAC features are part of the structure of the site.
- Prop-wash issues were not resolvable though operational changes but were allowed to proceed on the basis of overriding health and safety concerns (Regulation 49(2)), however future Tug procurement programmes will include measures to minimize if not eliminate this

CCW raised a number of issues with regards to this case:

- CCW were consulted for advice regarding the dredging appropriate assessment and identified that the proposed capital dredging would have an adverse effect on site integrity.
- Conservation objectives for the site encompassed all the NIFs contained within the relevant qualifying features, so these NIFs were 'considered' but were not named specifically as features, which causes confusion for developers.
- For the refurbishment of the jetty, CCW advised that there would be an adverse effect on site integrity as a consequence of tug prop-wash created by the use of larger tugs associated with the development of a larger vessel berth. Consent was granted despite this. CCW commented that the decision by the MHPA to proceed on the basis of

[24] We were not provided with the appropriate assessment but the MHPA did send a copy of the environmental statement instead.

"overriding health and safety" should have been made by the Welsh Assembly Government as procedurally outlined[25].

- Prop-wash has generated large pits in the seabed at adjacent large vessel berths that are over one hectare in area and several meters deep (i.e., in CCW's view, an adverse effect has occurred).
- CCW checked to ensure that annual disposal limits for the dredge spoil were going to be adhered to and mitigation appears to have been successful in this case.
- The term "significant adverse effect on site integrity" (*sic*)[26] needs clarification as it is currently interpreted differently by different authorities.
- CCW admit that they could have been clearer in their advice to PCC with respect to the impacts of the marine component of the project.

Conclusions

This case identified a terrestrial development plan that would impact the marine environment (as outlined in the Environmental Statement) and once again highlights the problem of the piece-meal approach to issuing consents and difficulties with the jurisdiction of some Competent Authorities ending at the low water mark.

The case study also illustrated the problem of ambiguous terms. There were some differences in the interpretation of the term "significant adverse effect on site integrity" (see footnote 26). The fact that the wrong term is used indicates a poor understanding of the legal tests. For example the Environmental statement (referred to by MHPA as an appropriate assessment) identifies that the capital dredging involves the removal of approximately 21,000m^3 of seabed material over an area of approximately 7,200m^2 and the maintenance dredging involves the removal of approximately 65,000m^3 of recent surface sediments, over an area of approximately 62,000m^2, by marine dredging (Maloney, 2007). The assessment identifies that this removal will "have an impact on the habitat structure at the location of dredging activity", "result in the loss of seabed dwelling species as a result of the dredging activity" and "there will be a permanent change in the hydrography of the seabed in the vicinity of the capital dredging activity". The assessment concludes that the project is likely to impact on the Pembroke Marine SAC but that this "impact is considered to be minor adverse, localised and small scale relative to the SAC as a whole" (Maloney, 2007). CCW believed that the effect on site integrity would be significant.

There also appear to have been problems regarding, firstly, the clarity of advice from CCW to the competent authorities and, secondly, the ways in which the advice from CCW was acted upon (or not acted upon). Competent authorities do not have a statutory obligation to act in accordance with CCWs advice (although they are required to consult CCW, and have regard to representations made (by CCW) for the purposes of appropriate assessment (Regulation 48(3)).

Finally, there also seems to be confusion over the Regulations in the decision to override advice and proceed with an activity on the basis of "overriding health and safety" citing Regulation 49(2). In fact, Regulation 49(2) merely defines "imperative reasons of over-riding public interest" by stating that:

[25] N.B. If a competent authority wants to consent a project in spite of adverse effects (i.e. for "imperative reasons of over-riding public interest" - regardless of whether these involve health and safety) they should notify the Secretary of State (SoS) (or Welsh Assembly Government, WAG) under Reg 49(5). This gives the SoS (or WAG) the opportunity to call in the decision. If the project is ultimately agreed to, the SoS is required under Reg 53 to secure compensatory measures (see stage 11 in Figure 4[0]).

[26] In fact, the Regulations do not include the term "significant adverse effect". The likelihood of a "significant effect" (Regulation 48(1)) determines whether an appropriate assessment is needed. If the appropriate assessment does not ascertain that the project will not "adversely affect" site integrity, the competent authority should not agree to it (Regulation 48(5)) unless there are no alternatives, and there are imperative reasons of overriding public interest (Regulation 49).

"*where the site concerned hosts a priority natural habitat type or a priority species, the reasons referred to in paragraph (1) must be either (a) reasons relating to human health, public safety or beneficial consequences of primary importance to the environment; or (b) any other reasons which in the opinion of the European Commission are imperative reasons of overriding public interest*".

Priority habitat types and species are specifically identified in the Directive. This distinguishes a site where qualifying interests include priority species or habitat types from other sites where imperative reasons of overriding public interest can be of a social or economic nature. The qualifying features of the Pembrokeshire Marine SAC do include a priority habitat type - coastal lagoons - although this was not affected by the development in this case study. Considerations of alternative solutions (the key precursor test to "imperative reasons of over-riding public interest") were made with MHPA adapting plans on CCW advice but were not found for the issue relating to prop wash.

Under the Regulations, the competent authority should have notified the relevant Minister of its intention to give consent. Regulation 49 (5) states:

"Where an authority other than the Secretary of State propose to agree to a plan or project under this regulation notwithstanding a negative assessment of the implications for a European site, they shall notify the Secretary of State. Having notified the Secretary of State, they shall not agree to the plan or project before the end of the period of 21 days beginning with the day notified to them by the Secretary of State as that on which their notification was received by him, unless the Secretary of State notifies them that they may do so."

This gives the Secretary of State or Welsh Ministers the opportunity to call in the decision. If the consent is ultimately granted, regulation 53 requires the Secretary of State or Welsh Ministers to secure any necessary compensatory measures to ensure the overall coherence of Natura 2000 is protected. Based on the evidence available to the authors it appears that this step is unlikely to have been taken. However, there is obvious confusion among competent authorities (see above) as to the legal necessity for this step in this case.

4.3 Hand raking cockles in Angle Bay within Pembrokeshire Marine SAC, Milford Haven Waterway SSSI

Introduction

The following case study was chosen to reflect that where an intertidal part of an EMS is underpinned by a SSSI, further legislation is available to enforce its protection. Section 28P(6) of the Wildlife and Countryside Act 1981 (as amended by the Countryside and Rights of Way (CRoW) Act 2000) makes it an offence for anyone to intentionally or recklessly damage or destroy the special interest features of a SSSI without a reasonable excuse, provided that the person was aware that what he destroyed or damaged was within a SSSI. If a person is convicted under this offence he is liable to a fine. Unlike the EMS procedures for projects and plans, the activity does not have to be a new project or plan; it can be an existing activity.

This case involved hand raking for cockles within and adjacent to sensitive marine habitats including *Zostera noltii* within Angle Bay. Angle Bay is within the Milford Haven Waterway SSSI with intertidal muddy sediment habitat features and beds of the eelgrass *Zostera noltii* (both named interest features for the SSSI). The area also forms part of the Pembrokeshire Marine SAC's "Large shallow inlet and bay" and "Mud-flats and sand-flats not covered by seawater at low tide" features.

CCW and the South Wales Sea Fisheries Committee (SWSFC) had become aware in 2004 that commercial fishing operators were interested in taking substantial numbers of cockles from Angle Bay. Shellfish health classification had been sought. CCW sought to influence the Local Authority's Environmental Health Department, advising them that there was a likely significant effect on the integrity of the Pembrokeshire Marine SAC as a consequence of the shellfish classification. The same stance was taken with the Food Standards Agency who actually issue

the classification. However, FSA sought legal opinion and adopted the view that they were not a competent authority in this case and that in any case, the issuing of a classification was not a plan or project under the Habitats Regulations.

"The cocklers came in the summer of 2006, a group of about 20, and worked for some months removing between 7,000 and 8000 kilos of cockles per day by hand raking" (pers.comm., M. Camplin, 2008). Initially 4x4 vehicles were used on the foreshore but following police action[27] and the placement of physical barriers to access by the adjacent land owner, this reduced to use of wheelbarrows. The area of the cockling activity included areas of dwarf eelgrass *Zostera noltii* (recovering following the Sea Empress oil spill of 1996).

Cocklers are not required to obtain any consent from fisheries regulators prior to cockling, nor are they required to obtain any consent from CCW prior to cockling in a SSSI, therefore the activity bypassed the assessment of plans or projects process under the Habitats Regulations.

However, as explained above, if the cocklers knowlingly damaged the special interest of the SSSI without having a reasonable excuse then they may be committing an offence under the Wildlife and Countryside Act, liable on summary conviction to a fine not exceeding £20,000. But CCW did not take action under this provision, and in fact no direct action to avoid habitat deterioration was taken by SWSFC or CCW. Action was taken by the police using their powers under the Road Traffic Act with input from CCW, to restrict vehicle access to the site.

Activities of concern

- Vehicle access
- Hand raking for cockles

Competent authorities involved and role

The Countryside Council for Wales (CCW) has powers under section 28 of the Wildlife and Countryside Act (as amended) to prosecute those who knowingly damage the special features of an SSSI (intentionally or recklessly).

South Wales Sea Fisheries Committee (SWSFC) has powers of temporary closure under their byelaw 24 (Temporary closure of shellfish fisheries). Sea Fisheries Committee powers (1966 Sea Fisheries Regulation Act) cannot offer prohibition, only restriction.

The Welsh Assembly Government has powers under Section 5 of the Sea Fish (Conservation) Act 1967 to close the area to cockling. However, no one requested that WAG take any action; they were largely unaware of the issue.

Issues raised by respondents

CCW made the following comments in relation to this case:

- The main problem was both an initial lack of action by SWSFC (e.g. temporary closure of the beds) or CCW (e.g. advising cocklers that they were damaging a SSSI and could face prosecution and a hefty fine, which could potentially have been followed by actual progress towards a prosecution if necessary).
- SWSFC powers, had they been applied, were limited to a temporary closure which would be insufficient in the long-term.
- CCW asked for a temporary closure and argued that upon lifting the closure the activity would be viewed as a plan or project and subject to an appropriate assessment under the Habitats Regulations.
- CCW's Director's Team issued a position statement in which Section 28P of the Wildlife and Countryside Act (as amended) was referred to as not fit for purpose.

[27] All vehicles are prohibited offroad (Section 34 Road traffic act and Pembrokeshire Coast National Park Authority Byelaw), enforced by the Police.

SWSFC made the following points:

- They already limit cockling to hand gathering and to mean low water springs.
- In response to CCW's request to further restrict cockling in Angle Bay they stated that they were unable to prohibit cockling and could only set up a temporary closure.
- SWSFC disagreed that reopening the fishery after a temporary closure could be viewed as a plan or project and therefore took the view that it would not require an appropriate assessment.

Conclusions

This case highlights a number of issues. Firstly although Article 6(2) of the Habitats Directive takes the prevention principle as a starting point, with member states encouraged to take appropriate steps to avoid damage of the sites and the features they contain, the overarching obligation is to prevent deterioration and disturbance. In this case prevention did not occur.

Article 11 of the Habitats directive requires surveillance of the conservation status of habitats and species within the EMS which should identify disturbance and deterioration. Surveillance of EMS requires lots of resources (time and money) and CCW was unaware that cockling was taking place within the SSSI until the application for a Shellfish health classification from the Food Standards Agency alerted them.

There was disagreement in this case over what could be considered to be a plan or project under the Habitats Regulations - Regulations 48 and 49 only apply in relation to plans and projects, and because the opening (or re-opening) of the fishery was not treated as one, there was no appropriate assessment (CCW believed reopening of the fishery following a temporary closure would constitute a plan or project; SWSFC disagreed). There was also disagreement over which bodies should be regarded as competent authorities - the FSA took the stance that it was not a competent authority, therefore Regulations 48 and 49 did not apply to its decision to issue shellfish health classification (which, in any case, it argued did not constitute a plan or project).

CCW could have requested that the Welsh Assembly Government intervene to close the fishery to protect the site, but did not. CCW could also have acted under section 28P of the Wildlife and Countryside Act, and possibly prosecuted the cocklers for damage to the *Zostera* bed within the SSSI but this was not pursued. This was apparently because of a lack of confidence in the legislation, and an unwillingness to commit to potentially pursuing the cocklers through the courts.

In the end the only powers that were employed to protect the site were the Section 34 Road traffic act and Pembrokeshire Coast National Park Authority Byelaw (enforced by Police) to prevent vehicle access to the site.

4.4 Scallop dredging within Lleyn Peninsula and the Sarnau SAC

Introduction

Scallop fishing effort has increased in the Lleyn Peninsula and the Sarnau SAC since the mid 1990s. The SAC is selected for nine Habitats Directive Annex I habitat types and three Annex II species (Reg 33 advice, Countryside Council for Wales, 2005). The conservation objectives for the site are phrased broadly so as to encompass all of the NIFs they contain. For example, the objective for Annex I feature "Reefs" covers biogenic reefs such as horse mussel reefs (*Modiolus modiolus*), mussel reefs (*Musculus discors*), and honeycomb worm reefs (*Sabellaria alveolata*) although only horse mussel reefs are specifically mentioned.

No appropriate assessment was carried out since the closure or opening of fishing areas are not considered to be a plan or project by the North Western and North Wales Sea Fisheries Committee (NWNWSFC). Under the *'public right to fish'* fishing activities may go ahead unless there is a closure order in place.

The advice of the Conservation Agency (CCW) was heeded and resulted in the creation of a byelaw by the NWNWSFC to close an area to fishing in order to protect features of concern.

Activities of concern

- Scallop dredging in inshore waters, especially regarding horse mussel (*Modiolus modiolus*) and mussel (*Musculus discors*) reefs, part of the qualifying "Reefs" feature, identified during the SAC survey and mapping.

Competent authorities involved and role

The competent authority involved in this case study is the NWNWSFC, which is responsible for fisheries management measures in this region. Initial contact was made by NWNWSFC to CCW in the late 1990s to see if there was any issue related to scallop fishing activity in the SAC, since the NWNWSFC annually issue authority to fish licenses.

CCW have a role in advising the competent authority (in this case NWNWSFC) on activities likely to impact features of the EMS.

Issues raised by respondents

NWNWSFC made the following comments in relation to this case and to the process in general:

- There is a lack of clarity as to what is or is not a "plan or project".
- It was possible to put this closure in place because they had good clear cut advice on the nature of the feature (from CCW) and the impact of the activity was obvious.
- In order to put something into a byelaw it needs to be clear and specific otherwise it cannot be enforced.
- They felt that the outcome of many appropriate assessments were a little arbitrary.

CCW were pleased with the measures taken by NWNWSFC, however they raise the following concerns and issues:

- Whilst the features are currently protected, future protection is uncertain since the closed area has to be renewed annually when the licences for authority to fish are reviewed. It is possible that if the membership of the NWNWSFC should change, the byelaw may not be renewed.
- However, if the closed area were to be re-opened, this action may be considered a plan or project, and hence subject to an appropriate assessment.

Conclusions

A large part of the successful protection of these features can be attributed to the early consultation and ongoing communication between the CCW and the NWNWSFC.

It is important to note that the closed area came about because of the byelaw making power of the NWNWSFC. Regulations 48 and 49 (of the Habitat Regulations) were not called into play to provide a mechanism to protect the vulnerable habitats that comprised the named features in the EMS - i.e. no appropriate assessment was undertaken. Instead, this could be seen as the competent authority taking action to prevent deterioration of the EMS, as is required under Article 6(2) of the Habitats Directive.

The point raised by NWNWSFC was that the reason protection was successful here is that the feature is clear cut, and its environmental importance is clear (e.g. as well as being part of the Annex I Reefs feature, horse mussel beds are a BAP habitat) and the impact is clear (i.e. a single pass of a scallop dredge does most of the damage, and horse mussels are well known to be susceptible to damage from scallop dredging). Also, scallop dredging is a relatively easy impact to control through closed areas.

Although this case study showed a positive outcome in terms of site protection, it was suggested (by NWNWSFC) that improvements could be seen more generally if nature conservation agencies were more clear and specific in their advice, so that the competent authority knows what needs to be protected and what activities are likely to cause damage.

5. Overall conclusions and recommendations

The study gave rise to the following conclusions and recommendations.

5.1 Occurrence and protection of nationally important and OSPAR features within Welsh EMSs

In terms of recorded occurrences, over 90% of species and 99% of habitats that are "Important Welsh Features" are represented within Wales' current suite of EMSs. Important Welsh Features are those identified in this project as features of noted importance at UK level, under OSPAR, and in the annexes of the Habitats Directive, that have been recorded in Wales. Overall of the Important Welsh Features:

- 7% of species and 16% of habitats are qualifying features for at least one EMS, and a further 4% of both species and habitats are named in the conservation objectives of at least one site;
- 16% of species and 1% of habitats are named in Regulation 33 advice for at least one EMS but not within the conservation objectives;
- 78% of habitats and 69% of species occur in at least one EMS but do not feature at all in Regulation 33 advice; and
- up to 4% of species do not occur within EMS at all. The analysis suggested that 1% of habitats did not occur within EMSs but that this could be due to inaccuracy of recording as the habitat in question had been recorded very close to EMS boundaries.

A large proportion of species and habitat features in Wales are not specifically mentioned in the conservation objectives for European Marine Sites. Some conservation objectives are worded broadly so as to encompass typical species and biotopes of the broad Annex I habitat types, even though they are not mentioned specifically. This could benefit features that fall into this category, but the case studies did not provide enough information to assess whether this is indeed the case. In fact, in case studies 1)-3) damage to such features was allowed to proceed, but it is not possible to say whether this was related to the fact that they were only covered generically, rather than specifically mentioned by the conservation objectives, because the Annex I habitat features that they were associated with were damaged. Some of the issues raised by the case studies are considered further below, and recommendations are made.

It is possible that features that are not covered by conservation objectives could indirectly benefit from the protection given to EMSs, either due to spatial overlap with qualifying features or if management decisions exclude certain impacts from entire sites, in order to safeguard the qualifying features. The extent of this indirect protection has not been assessed as part of this project.

Further work could usefully build upon the findings of this project by looking the following questions.

- What is the degree of overlap with qualifying features, for the Important Welsh Features that are not covered by conservation objectives of EMSs? This would give an indication of which Important Welsh Features would likely benefit from protective mechanisms focused on qualifying features and sub-features named in conservation objectives.
- Of those Important Welsh Features that do occur within the current EMS network, what proportion occurs within the network? Is it likely to be sufficient for conservation (or potential recovery) of the feature?
- Of those Important Welsh Features that do not occur within the EMS network, which would benefit from site-based protection?
- How well are Important Welsh Features that are not qualifying features for EMSs protected by other means - e.g. following Environmental Impact Assessment, are they ever taken into account in determining licenses or license conditions for marine projects?

Consideration of these factors would be helpful in supporting thinking as to what further actions will be needed to adequately protect the suite of Important Welsh Features (and other features not considered in this analysis such as seabirds). For example, it would help to inform use of the new domestic designation "Marine Conservation Zones" to be introduced in the Marine Bill.

5.2 Case studies - issues and recommendations

The number of case studies examined in this short study was, by necessity, small. And yet, such a small sample of what must be a much larger number of development applications within EMSs, highlighted some instances where EMS features (including qualifying features and nationally important features) were not effectively protected.

A number of issues have been identified, described below, and recommendations are made in relation to these. The case studies did not consider whether features that are not mentioned, or covered generically, in conservation objectives gained any protection through the processes described. This would be a helpful area for further study, as noted above.

Recommendation 1: Building on this report a full review of the implementation and effectiveness of EMSs for the protection of interest features, and important marine features of Wales and the UK should be undertaken.

Such a review should examine, *inter alia*:

1) how the decision to conduct or not conduct an appropriate assessment is reached;
2) how appropriate assessments are conducted;
3) the state of interest features as a result of past, present and on-going developments;
4) the extent to which non-qualifying features which are not covered by conservation objectives benefit from the protection of EMSs;
5) the effectiveness of the mitigation measures, including those in consent and their enforcement (if any); and
6) post-project appraisal of the impacts of developments undertaken.

Piecemeal sectoral approach, with some projects crossing the marine/terrestrial divide

The case studies highlighted that a number of competent authorities, with different competencies and jurisdictions, may be involved in consenting different components of a project.

The consenting process would benefit from a single marine agency responsible for overseeing developments that occur at the land-water interface, to ensure that appropriate assessments and consents are better integrated. The forthcoming Marine Bill offers the potential for some improvements. A Marine Management Organization (MMO) is to be created that will be responsible for many, but not all, consents in English and UK offshore waters. Welsh Ministers are not intending to create a similar body, and because there is a mixture of reserved and devolved competencies in Welsh waters it is likely that a number of competent authorities will still be involved. However, Welsh Ministers will be given powers to prepare Marine Plans which should bring together information about sensitivities of marine areas, as well as existing activities, etc. As the Marine Planning body, Welsh Ministers should have on overview of all applications for planning permission or other consents in the coastal zone. This should provide a clearer opportunity for the marine impacts of a terrestrial component to be considered.

Recommendation 2: Co-ordination between different competent authorities in coastal and marine areas is essential, particularly where projects span the marine: terrestrial divide. The Marine Bill should set out a requirement for consultation between terrestrial and marine planning and consenting bodies. Detailed procedural guidance to support the legislation will be essential.

Major developments can run over several years, with different stages consented at different times

Two issues were found with developments that ran over several years.

1) Initial phases on land may get planning consent because they are located on brown field sites. This results in significant investment prior to applications for consent for subsequent, related proposals affecting the marine environment. This investment may make the subsequent proposals more likely to be consented, e.g. for imperative reasons of over-riding public interest (Regulation 49).
2) The individual components of the development may not by themselves be considered to cause significant or adverse effects, and therefore be granted consent but the cumulative effects of multiple installations in a site may be significant. There needs to be a clearer understanding by competent authorities of the proper application of the "in-combination" part of the determination of a "likely significant effect" (Regulation 48). Appropriate strategic spatial planning can help considerably in this respect.

Marine Planning should facilitate the consideration of the multiple stages of a development. The draft Marine Bill also sets out reforms to marine licensing regimes, which will enable a single licence to consider subsequent activities - e.g. a licence for building a jetty could include conditions not only on the construction phase but on the use of the jetty and future decommissioning.

Recommendation 3: Specific guidance should be provided for competent authorities on dealing with cumulative and in-combination effects in EMSs, reflecting the new provisions of the Marine Bill.

Clarity of features to be protected

For some EMSs, conservation objectives are quite broad and encompass all habitats and species associated with the qualifying features. In other sites, the conservation objectives focus more tightly on specific sub-features of the qualifying features. The conservation objectives are used as a checklist against which the likely effects of a plan or project on site integrity are determined. If a nationally important feature is not mentioned specifically within conservation objectives, then it is likely that little if any effective protection will be afforded it (through the assessment of plans or projects), even if the site description contains a lot of detail about it.

Most respondents to the case study questions reported that only qualifying Annex I and II features were considered, with only a few respondents acknowledging that nationally important features were considered where they were contained within a relevant conservation objective. There are also issues with conversion from Annex I habitats to BAP and OSPAR categorisation, making it difficult for competent authorities to understand which BAP and OSPAR habitats are in effect sub features of the broader scale Annex I features.

One respondent (NWNWSFC) made the point that for structural habitats where it is obvious that physical disturbance causes damage (e.g. horse mussel reefs in this case) the situation is clear and conservation agencies only need to identify where they are and the need to protect them from fishing damage, and effective protection can be put in place. However, many of the features identified in the conservation objectives are broad scale habitats (e.g. Annex I habitats), composed of numerous more specific habitats. Therefore the evidence of their sensitivities and vulnerability to impacts is unclear. In such cases it is difficult to identify the implications of activities and the management process falls down.

Recommendation 4: Clarification of the sensitivities and vulnerability of the qualifying features and sub-features could be usefully provided within the conservation objectives. Such clarification should be backed up with scientific evidence where available but where it is not available a precautionary approach will be applicable. A 2004 ruling by the European Court

of Justice in relation to cockle fisheries in the Waddenzee SPA ("the Waddenzee ruling")[28] clarified that competent authorities should authorise an activity affecting an EMS "*only if they have made certain it will not adversely affect the integrity of that site. That is the case where no reasonable scientific doubt remains as to the absence of such effects*".

Recommendation 5: Consideration should be given to the use of other mechanisms - including the domestic "Marine Conservation Zones" designation to be introduced through the Marine bill - to protect Important Welsh Features that are not directly protected by EMS designations (e.g. because they are not associated with qualifying features).

Lack of full understanding and differing interpretations of the Habitats Regulations by competent authorities

A number of instances were highlighted in the case studies, either where there was disagreement over the application of the Regulations, often due to differing interpretations of terms and responsibilities, or where there was apparent confusion over the requirements of the Regulations.

Ambiguous terminology:

In some of the case studies (1 and 2) there were disagreements between CCW and the competent authority over the likelihood of a "significant effect" on site integrity. In some cases this meant that no appropriate assessment was undertaken, even though CCW suggested it should be. Competent authorities are not required to seek CCW's advice in order to determine whether a plan or project is likely to have a significant effect on site integrity. However, this should be seen as best practice.

One way to determine whether a significant effect is likely would be to consider the longevity and scale of the impact and the conservation value of the receptor. This is influenced by the

- type of human activity, its nature, location, timing, duration and intensity;
- the receptor[29], and its intolerance and recoverability.

The Waddenzee judgement stated that Article 6(3) of the Habitats Directive (which is transposed by Regulations 48 and 49) should be interpreted as meaning that any plan or project (apart from those directly concerned with the management of the site) has to be subject to appropriate assessment "*if it can not be excluded, on the basis of objective information, that it will not have a significant effect on that site, either individually or in combination with other plans or projects*". Section 48 of the ruling also attempts to clarify the link between likely significant effect and the site's conservation objectives, stating "*Conversely, where such a plan or project is likely to undermine the conservation objectives of the site concerned, it must necessarily be considered likely to have a significant effect on the site. As the Commission in essence maintains, in assessing the potential effects of a plan or project, their significance must be established in the light, inter alia, of the characteristics and specific environmental conditions of the site concerned by that plan or project.*"

There is no formal consultation process between competent authorities and CCW at this stage (determination of whether there is a likely significant effect), and this has led in some cases to miscommunications. Presently, competent authorities are encouraged to make informal negotiations with CCW regarding permissions and planning in EMSs, in order to identify concerns early in the planning process. However, this is often time consuming, and since the process is informal, often no record is kept.

---

[28] Institute for European Environmental Policy 2004. Fisheries/Nature Conservation: ECJ Ruling on the Waddenzee cockle fishery http://www.walescoastalpartnership.org.uk/images_client/resource/IEEP%20ECJ%20Cockle%20ruling.pdf

[29] Where the 'receptor' is that component of the environment (e.g. species, habitat, community) exposed to the effects (direct or indirect) of the activitiy.

What constitutes a "plan or project"?

Case study 3 highlighted a lack of clarity over what should be considered as a "plan or project" under the Habitats Regulations. In case study 3, CCW advised the Food Standards Agency that issuing a health classification that would lead to reopening of the fishery would be likely to have a significant effect on the integrity of the EMS. The FSA took the view that they could not be seen as a competent authority, and the classification could not be considered a plan or project under the Directive - therefore no appropriate assessment was undertaken at this stage. Subsequently, CCW considered that the reopening of the cockle fishery after a temporary closure by the SWSFC would be considered a plan or project, and therefore an opportunity for appropriate assessment but the SWSFC did not agree (and as a result, no temporary closure was put in place). The Waddenzee ruling provided some clarity that changes brought about by fisheries management measures should be viewed as plans or projects and therefore subject to appropriate assessment if likely to have a significant effect on site integrity. This would arguably have been applicable to both instances above.

Confusion over what is meant by appropriate assessment

Often information for an appropriate assessment is produced by a consultant (often employed by the developer), whilst the actual appropriate assessment itself should be undertaken by the competent authority, with advice from CCW. During the study we were often sent the information for the appropriate assessment rather than the assessment itself.

It should also be noted that "*the appropriate assessment is not the same as an EIA under the provisions of the EIA Regulations. Compliance with the Directives 85/337/EEC and 97/11/EC is achieved through the Environmental Impact Assessment process which should run alongside and concurrently with the "appropriate assessment" under the Habitats Regulations in compliance with Directive 92/43/EEC. Neither procedure overrides the other; both must be followed where both sets of Regulations apply*" (extract from Tyldesley & Associates, 2005).

In the case of EIA, conservation priority species and habitats (such as BAP species and habitats) could be considered as part of the assessment and included in the Environmental Statement for the entire project as part of the planning process. This is unlikely to be the case for the appropriate assessment, which would focus on the qualifying features listed in the conservation objectives of the Regulation 33 documentation for an EMS. This relationship needs to be clarified since some of the respondents in this study appeared to believe that if an environmental statement has been supplied then an appropriate assessment may not be necessary. The competent authority needs to be explicit over whether the environmental statement provides the necessary information for it to carry out an appropriate assessment. If not, it has the powers to request further information.

Confusion over Regulations 49 and 53: imperative reasons of overriding public interest, and compensation requirements

In case study 2, a decision was taken by a competent authority that in spite of an adverse effect on site integrity, a project had to proceed on the grounds of "overriding health and safety" under Regulation 49(2). This in itself represents a misunderstanding of Regulation 49; 49(2) is only relevant if priority species and habitats (identified within the Directive) are reasons for which an EMS has been designated. In this circumstance, competent authorities can only rule that a project must proceed for "*imperative reasons of overriding public interest*" (IROPI) for reasons of "*human health, public safety or beneficial consequences of primary importance to the environment*" or "*other reasons which in the opinion of the European Commission are imperative reasons of overriding public interest*". Thus regulation 49(2) is intended to make the assessment of IROPI more rigorous because of the presence of priority features. It does not affect the subsequent requirements of Regulation 49. As pointed out by CCW in case study 2, the decision to proceed should have been notified to the relevant Minister, under Regulation 49(5).

If a decision is made to allow a project to proceed for IROPI, in spite of a potential adverse effect on a EMS, Regulation 53 requires Ministers to secure "*that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected*". There

was no evidence that this requirement was considered in Case Study 2. This appears to amount to a breach of Article 6(4) of the Habitats Directive.

In addition, in a number of instances in the case studies, appropriate assessments were not carried out but consents were issued with conditions. A point was raised during consultations that this essentially provided a mechanism for side stepping consideration of the effects and possible mitigation, and, most importantly, negates the obligation on the developer to adhere to any agreements made post consent. However, it could also be argued that conditions provide the basis for mitigation within the planning system. The problem is not the issuing of conditions but rather how appropriate they are, how much they mitigate and of course if they are a) put in place, b) monitored, and c) enforced.

Poor implementation of Article 6(2) requirement to prevent deterioration of EMSs

In Case Study 3, no action was taken to prevent the opening of a new fishery because it was not, at the time, regarded as a plan or project. It could be argued that steps should have been taken in any case, because Article 6(2) of the Habitats Directive requires competent authorities to take appropriate steps to avoid deterioration and significant disturbance to the qualifying interests of European sites. In case study 4, the NWNWSFC took action to stop a fishery without consideration of whether the fishery represented a plan or project, or any need for appropriate assessment.

The Waddenzee ruling clarified the implications of Article 6(2). The ruling confirmed that Article 6(2) does not operate at the same time as Article 6(3) i.e. the assessment of plans and projects (transposed by Regulations 48 and 49 of the Habitats Regulations). However, it is highly relevant in ensuring that anticipatory steps are taken by relevant bodies to ensure the management and operation of fisheries does not cause damage to European sites. This would require appropriate monitoring systems to be put in place to highlight when problems are likely to occur.

Within 12nm, Article 6(2) is currently applied by virtue of Regulation 3(4) of the Habitats Regulations, which requires competent authorities, in the exercise of their functions, to "*have regard to the requirements of the Habitats Directive so far as they may be affected by the exercise of those functions*". This is less than explicit in what is expected of competent authorities in complying with Article 6(2).

Recommendation 6: WAG should provide clear, comprehensive guidance for all competent authorities, backed up by training for the relevant competent authorities to ensure a common and consistent understanding of how the Habitats Directive and Habitats Regulations should be interpreted and applied. This should cover matters including:

- determination of likely significant effect, including consultation with CCW and keeping a formal record of discussions;
- what constitutes a plan or project, reflecting the Waddenzee ruling;
- the requirements of appropriate assessment, and the steps that should be followed if an adverse impact on site integrity is identified;
- development of appropriate mitigation measures and monitoring, including consultation with CCW.
- what is expected of competent authorities under Article 6(2) of the Habitats Directive (transposed by Regulation 3(4)), again reflecting the Waddenzee ruling.

6. Acknowledgements

We would like to thanks James Dargie from the Countryside Council for Wales for providing an up-to-date snapshot of their Marine recorder database and to our colleague Beckey Seeley for collating the species and habitat records for Wales.

Much of the information presented in the second part of this work is unpublished and was collected from the relevant competent authorities directly. We would like to thank all those who took the time to answer our questions; Mike Camplin (CCW), Ifor Jones (Pembrokeshire Coast National Park Authority), Blaise Bullimore, Shaun McLennan [Marine Fisheries Agency (DEFRA)], Phil Coates (South Wales Sea Fisheries Committee), Captain Mark Andrews (Milford Haven Port Authority), Stephen Atkins (North Western and North Wales Sea Fisheries Committee), Lucy Kay (CCW), Alf Williams (Pembrokeshire County Council).

7. References

Camplin M. (2007) Lessons from managing marine SACs in Wales. In *Coastal Futures 2007Conference Presentation*

Camplin M. (2008) Personal correspondance notes for the case studies on the effectiveness of EMS for the protection of nationally important marine features in Wales. pp. 15. Pembrokeshire: Senior Marine Conservation Officer, Countryside Council for Wales.

Cole-King A. (2005) Consideration of plans and projects affecting Natura 2000 sites: some informal guidance Version 2Countryside Council for Wales, Bangor, Informal guidance for CCW staff, 19 pp.

Countryside Council for Wales (2005) Advice provided by the Countryside Council for Wales in fulfilment of Regulation 33 of the Conservation Regulations (Natural Habitats, &*c.) Regulations 1994Countryside Council for Wales, Bangor, 238 pp.

Dernie K.M., Ramsay K., Jones R.E., Hill A.S., Wyn G.C. & Hamer J.P. (2006) Implementing the Ecosystem Aprpoach in Wales: current status of the maritime environment and recommendations for management. *CCW Policy Research Report*, No. 06/9, 48 pp.

Hiscock K. & Harris R. (2007) Nationally Important Marine Features and Biodiversity Action Plan Marine Priority Habitats and Species: Supplementary Report. Report to the Joint Nature Conservation Committee from the Marine Biological Association. JNCC Contract F90-01-892Marine Biological Association, Plymouth, pp.

Jackson D.L. & McLeod C.R.E. (2000) Handbook on the UK status of EC Habitats Directive interest features: provisional data on the UK distribution and extent of Annex I habitats and the UK distribution and population size of Annex II species. Revised 2002. JNCC Report 312., pp.

JNCC (2007) UK List of Priority Species and Habitats. (19/03/2008). http://www.ukbap.org.uk/NewPriorityList.aspx

Maloney M. (2007) *Appropriate Assessment for Semlogistics Dredging*. Milford Haven Port Authority, 90 pp.

OSPAR (2003) Initial OSPAR List of Threatened and/or Declining Species and Habitats*Biodiversity Series*, OSPAR Commission, 1-904426-12-3, pp.

Parliamentary Office of Science and Technology (2008) *Marine Conservation Zones, POSTNOTE no. 310*. 4 pp.

RPS on behalf of Qatar Petroleum and ExxonMobil (2003) South Hook LNG Terminal, Milford Haven. Application for Licence under the Food and Environment Protection Act 1985: Marine Environmental Statement Addendum 10 pp.

Tanner K., Campbell C. & Dodd A. (2008) Safeguarding our Seabirds: Marine Protected Areas for the UK's seabirds. The RSPB, Sandy, UK. 20 pp. http://www.rspb.org.uk/Images/Safeguardourseabirds_tcm9-185543.pdf

Tyldesley D. & Associates (2005) *Guidance on the Environmental Impact Assessment ProcessDoc Ref: 1477 4th edition*.

Welsh Office (1996) Nature Conservation and Planning*Planning Guidance (Wales)*, Welsh Office, Cardiff, Technical Advice Note (Wales) 5, 16 pp.

Appendix 1. List of species identified as Important Welsh Features

Species name	Candidate NIMF species	BAP species	OSPAR species	Annex II Species
Acipenser sturio	X			
Aiptasia mutabilis	X			
Alcyonium glomeratum	X			
Alkmaria romijni	X			
Allomelita pellucida	X			
Alosa alosa				X
Alosa fallax	X			X
Amphianthus dohrnii	X	X		
Anguilla anguilla	X			
Anotrichium barbatum	X	X		
Antedon petasus	X			
Arctica islandica	X		X	
Asterina phylactica	X			
Atrina fragilis	X	X		
Axinella damicornis	X			
Baldia johnstoni	X			
Barnea candida	X			
Caryophyllia inornata	X			
Caryophyllia smithii	X			
Celleporina decipiens	X			
Cetorhinus maximus		X	X	
Chondria coerulescens	X			
Clupea harengus	X	X		
Colomastix pusilla	X			
Cruoria cruoriaeformis	X	X		
Cucumaria frondosa	X			
Delphinus delphis	X	X		
Dermochelys coriacea	X	X	X	
Dermocorynus montagnei	X	X		
Diazona violacea	X			
Echinus esculentus	X			
Edwardsia timida	X	X		
Eunicella verrucosa	X	X		
Eurypon clavatum	X			
Gadus morhua	X	X	X	
Galeorhinus galeus		X		
Gammarus chevreuxi	X			
Gammarus insensibilis	X			
Gelidiella calcicola	X			
Gracilaria bursa-pastoris	X			
Grampus griseus	X	X		
Guernea coalita	X			
Halcampoides elongatus	X			
Halichoerus grypus	X			X
Haliclona angulata	X			
Haliclystus auricula	X	X		
Hyperoodon ampullatus	X	X		
Lagenorhynchus acutus	X	X		

Species name	Candidate NIMF species	BAP species	OSPAR species	Annex II Species
Lamna nasus		X		
Lampetra fluviatilis	X			X
Laomedea angulata	X			
Lepadogaster candollei	X			
Leptocheirus hirsutimanus	X			
Leptocheirus pectinatus	X			
Leuconia gossei	X			
Leucothoe procera	X			
Leucothoe spinicarpa	X			
Liljeborgia kinahani	X			
Listriella mollis	X			
Listriella picta	X			
Lithothamnion corallioides	X	X		
Lophius piscatorius	X	X		
Lucernariopsis campanulata	X	X		
Lutra lutra				X
Merlangius merlangus	X	X		
Merluccius merluccius	X	X		
Metopa solsbergi	X			
Modiolus modiolus	X			
Molva molva	X	X		
Monoculodes borealis	X			
Mycale contarenii	X			
Nephasoma rimicola	X			
Nucella lapillus				
Ocnus planci	X			
Orcinus orca	X	X		
Ostrea edulis	X	X	X	
Otina ovata	X			
Padina pavonica	X	X		
Palinurus elephas	X	X		
Parametaphoxus fultoni	X			
Paraphellia expansa	X			
Parazoanthus anguicomus	X			
Peltocoxa brevirostris	X			
Petromyzon marinus	X		X	X
Phakellia ventilabrum	X			
Phallusia mammillata	X			
Phoca vitulina	X	X	X	
Phocoena phocoena	X	X	X	X
Phymatolithon calcareum		X		
Pleuronectes platessa	X	X		
Pollachius virens	X			
Polyplumaria flabellata	X			
Polysiphonia foetidissima	X			
Polysyncraton lacazei	X			
Pomatoschistus minutes	X			
Pterosiphonia pennata	X			
Pyura microcosmus	X			

Species name	Candidate NIMF species	BAP species	OSPAR species	Annex II Species
Raja montagui			X	
Raja undulata		X		
Sabellaria alveolata	X			
Sabellaria spinulosa	X			
Salmo salar	X		X	X
Schmitzia hiscockiana	X			
Scolanthus callimorphus	X			
Scomber scombrus	X	X		
Siphonoecetes striatus	X			
Skenea ossiansarsi	X			
Sphacelaria mirabilis	X			
Squalus acanthias		X		
Squatina squatina		X		
Stylostichon dives	X			
Suberites massa	X			
Synoicum incrustatum	X			
Trachurus trachurus	X	X		
Tritaeta gibbosa	X			
Truncatella subcylindrica	X			
Tursiops truncatus	X	X		X
Zanardinia prototypus	X			

Appendix 2. List of habitats identified as Important Welsh Features

Habitat name	cNIMF habitat	BAP habitat	OSPAR habitat	Annex I habitat
Alaria esculenta on exposed sublittoral fringe bedrock	X			
Ascophyllum nodosum & *Fucus vesiculosus* on variable salinity mid eulittoral rock	X			
Ascophyllum nodosum on very sheltered mid eulittoral rock	X			
Blue mussel beds		X		
Bryozoan turf and erect sponges on tide-swept circalittoral rock	X			
Burrowing megafauna and *Maxmuelleria lankesteri* in circalittoral mud	X			
Capitella capitata and *Tubificoides* spp. in reduced salinity infralittoral muddy sediment	X			
Capitella capitata in enriched sublittoral muddy sediments	X			
Ceramium sp. and piddocks on eulittoral fossilised peat	X			
Cerianthus lloydii and other burrowing anemones in circalittoral muddy mixed sediment	X			
Circalittoral mixed sediment	X			
Cirratulids and *Cerastoderma edule* in littoral mixed sediment	X			
Coastal lagoons				X
Coastal saltmarsh				
Coralline crust-dominated shallow eulittoral rockpools	X			
Estuaries				X
Estuarine rocky habitats		X		
Eunicella verrucosa and Pentapora foliacea on wave-exposed circalittoral bedrock	X			
Faunal communities on variable or reduced salinity infralittoral rock	X			
Fragile sponge & anthozoan communities on subtidal rocky habitats		X		
Fucoids and kelp in deep eulittoral rockpools	X			
Fucus ceranoides on reduced salinity eulittoral rock	X			
Fucus serratus and under-boulder fauna on exposed to moderately exposed lower eulittoral boulders	X			
Fucus serratus with sponges, ascidians and red seaweeds on tideswept lower eulittoral mixed substrata	X			
Fucus vesiculosus on variable salinity mid eulittoral boulders & stable mixed substrata	X			
Horse mussel reef		X	X	
Intertidal boulder communities				
Intertidal chalk				
Intertidal mudflats		X	X	
Intertidal *Mytilus edulis* beds on mixed and sandy sediments			X	
Laminaria digitata and under-boulder fauna on sublittoral fringe boulders	X			
Large shallow inlets and bays				X
Littoral caves & overhangs	X			
Littoral chalk communities				
Littoral mixed sediments	X			
Maerl beds			X	
Mediomastus fragilis, Lumbrineris spp. and venerid bivalves in circalittoral coarse sand or gravel	X			
Melinna palmata with *Magelona* spp. and *Thyasira* spp. in infralittoral sandy mud	X			
Moerella spp. with venerid bivalves in infralittoral gravelly sand	X			
Mud habitats in deep water		X		
Mudflats and sandflats not covered by seawater at low tide (intertidal mudflats and sandflats)				X
Mussel and/or barnacle communities	X			
Mytilus edulis and *Fucus vesiculosus* on moderately exposed mid eulittoral rock	X			
Mytilus edulis and piddocks on eulittoral firm clay.	X			
Neomysis integer and *Gammarus* spp. in variable salinity infralittoral mobile sand	X			
Neopentadactyla mixta in circalittoral shell gravel or coarse sand	X			
Oligochaetes in variable or reduced salinity infralittoral muddy sediment	X			

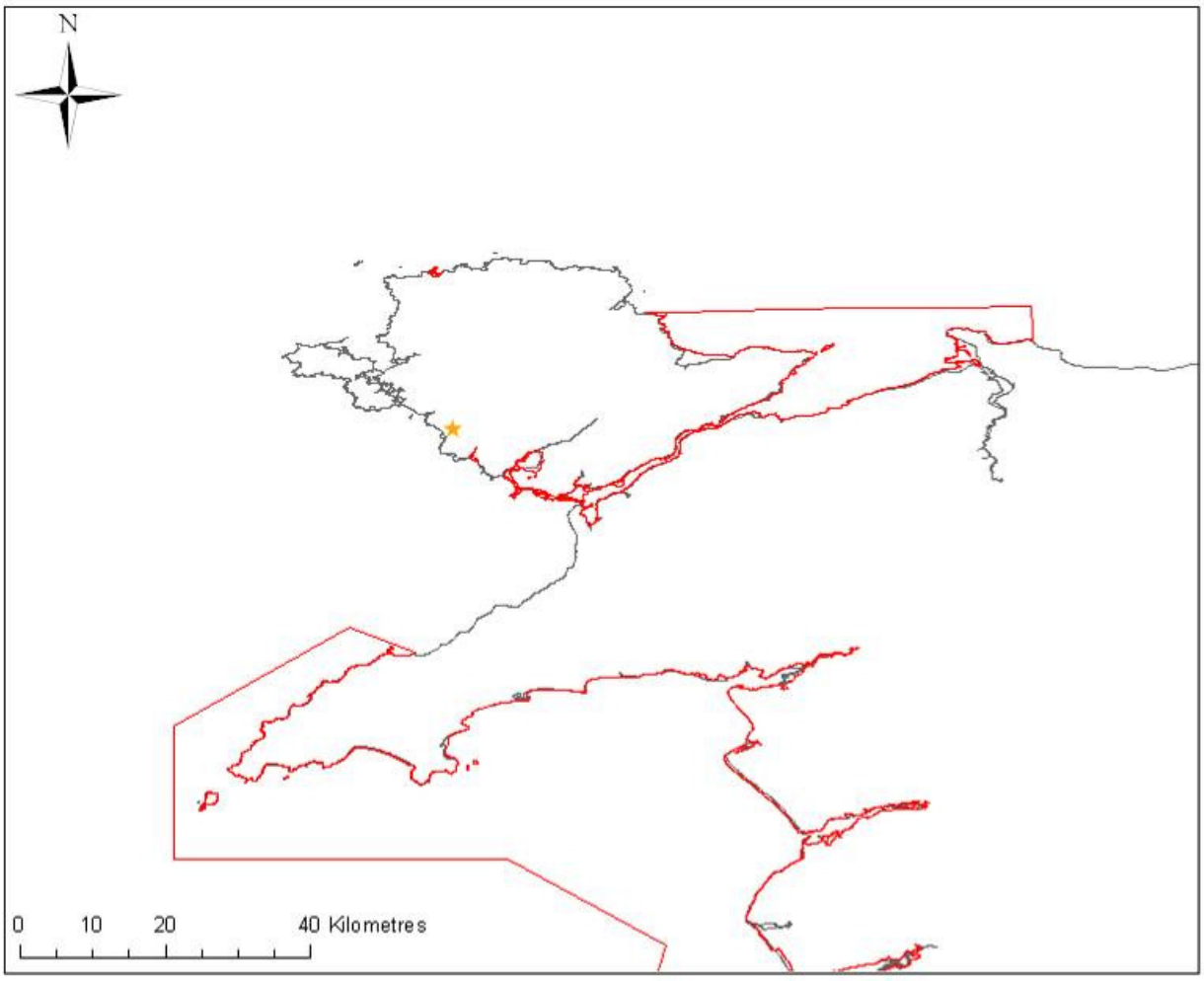
Habitat name	cNIMF habitat	BAP habitat	OSPAR habitat	Annex I habitat
Peat and clay exposures		X		
Polydora ciliata and Corophium volutator in variable salinity infralittoral firm mud or clay	X			
Reefs				X
Sabellaria alveolata reefs on sand-abraded eulittoral rock.		X		
Sabellaria spinulosa reefs		X	X	
Saline lagoons		X		
Sandbanks which are slightly covered by sea water all the time				X
Seagrass (*Zostera marina*) (a flowing plant) (Intertidal and subtidal)			X	
Sea-pen and burrowing megafauna communities			X	
Seaweeds in sediment-floored eulittoral rockpools	X			
Sheltered muddy gravels		X		
Spisula subtruncata and *Nephtys hombergii* in shallow muddy sand	X			
Sponges, cup corals and anthozoans on shaded or overhanging circalittoral rock	X			
Submerged or partially submerged sea caves				X
Subtidal chalk		X		
Subtidal sands and gravels		X		
Tide-swept channels		X		
Underboulder communities	X			
Annual vegetation of drift lines				X
Salicornia and other annuals colonising mud and sand				X
Spartina swards (*Spartinion maritimae*)				X
Atlantic saltmeadows (*Glauco-Puccinellietalia maritimae*)				X

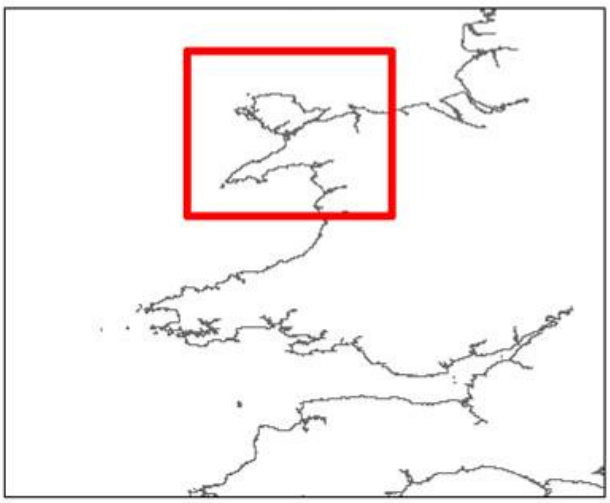
Appendix 3. Species identified as Important Welsh Features that have been recorded within the boundaries of a Welsh EMS but are not mentioned within the management documentation

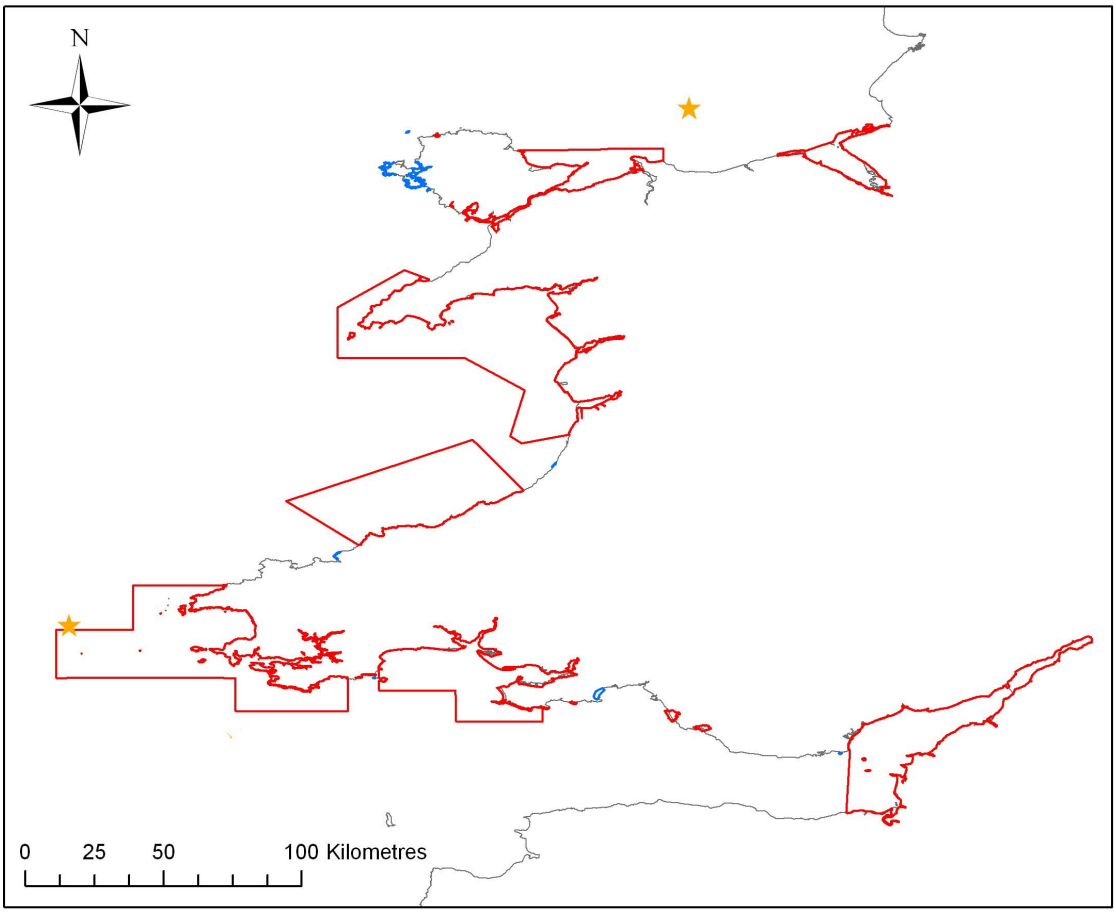
Species name	EMS occur in	Importance
Acipenser sturio	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	candidate NIMF
Alcyonium glomeratum	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF
Allomelita pellucida	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Antedon petasus	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF
Arctica islandica	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF & OSPAR
Asterina phylactica	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF
Atrina fragilis	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF & BAP
Baldia johnstoni	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	candidate NIMF
Barnea candida	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Caryophyllia smithii	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Glannau Ynys Gybi / Holy Island Coast (SSSI)	candidate NIMF
Celleporina decipiens	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Cetorhinus maximus	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	BAP , OSPAR
Chondria coerulescens	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Colomastix pusilla	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF
Cucumaria frondosa	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Delphinus delphis	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF & BAP
Dermochelys coriacea	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP & OSPAR
Diazona violacea	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Echinus esculentus	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF
Eunicella verrucosa	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF & BAP
Eurypon clavatum	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Gadus morhua	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP & OSPAR
Galeorhinus galeus	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	BAP
Gammarus insensibilis	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Gelidiella calcicola	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Grampus griseus	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF & BAP
Guernea coalita	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Halcampoides elongatus	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Haliclona angulata	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Haliclystus auricula	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF & BAP
Hyperoodon ampullatus	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP
Lagenorhynchus acutus	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF & BAP
Lamna nasus	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	BAP
Laomedea angulata	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Lepadogaster candollei	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Leptocheirus hirsutimanus	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Leptocheirus pectinatus	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF

Species name	EMS occur in	Importance
Leuconia gossei	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	candidate NIMF
Leucothoe procera	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Leucothoe spinicarpa	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Liljeborgia kinahani	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Listriella mollis	Cardigan Bay / Bae Ceredigion (SAC)	candidate NIMF
Listriella picta	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Lithothamnion corallioides	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP
Lophius piscatorius	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC),Ynys Feurig (SSSI)	candidate NIMF, BAP
Lucernariopsis campanulata	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF & BAP
Merluccius merluccius	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP
Metopa solsbergi	Cardigan Bay / Bae Ceredigion (SAC)	candidate NIMF
Molva molva	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP
Monoculodes borealis	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Mycale contarenii	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Nephasoma rimicola	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Ocnus planci	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Orcinus orca	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF & BAP
Ostrea edulis	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP , OSPAR
Padina pavonica	Carmarthen Bay and Estuary, Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP
Palinurus elephas	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP
Parametaphoxus fultoni	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Parazoanthus anguicomus	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Peltocoxa brevirostris	Cardigan Bay / Bae Ceredigion (SAC)	candidate NIMF
Phakellia ventilabrum	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Phallusia mammillata	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC),	candidate NIMF
Phoca vitulina	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP & OSPAR
Pollachius virens	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Polysiphonia foetidissima	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Pterosiphonia pennata	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Pyura microcosmus	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Raja montagui	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	OSPAR
Scolanthus callimorphus	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	candidate NIMF
Scomber scombrus	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF & BAP
Siphonoecetes striatus	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Skenea ossiansarsi	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC),	candidate NIMF
Sphacelaria mirabilis	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Squalus acanthias	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	BAP
Squatina squatina	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	BAP
Stylostichon dives	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Suberites massa	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Synoicum incrustatum	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Trachurus trachurus	Carmarthen Bay and Estuary, Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF, BAP
Tritaeta gibbosa	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF
Zanardinia prototypus	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF

Appendix 4. Distribution maps for Important Welsh Features (species and habitats) not recorded within Welsh EMS boundaries

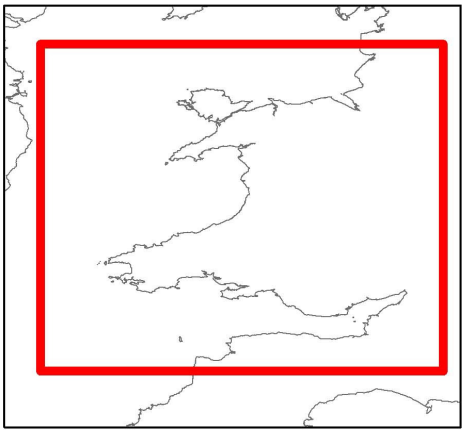


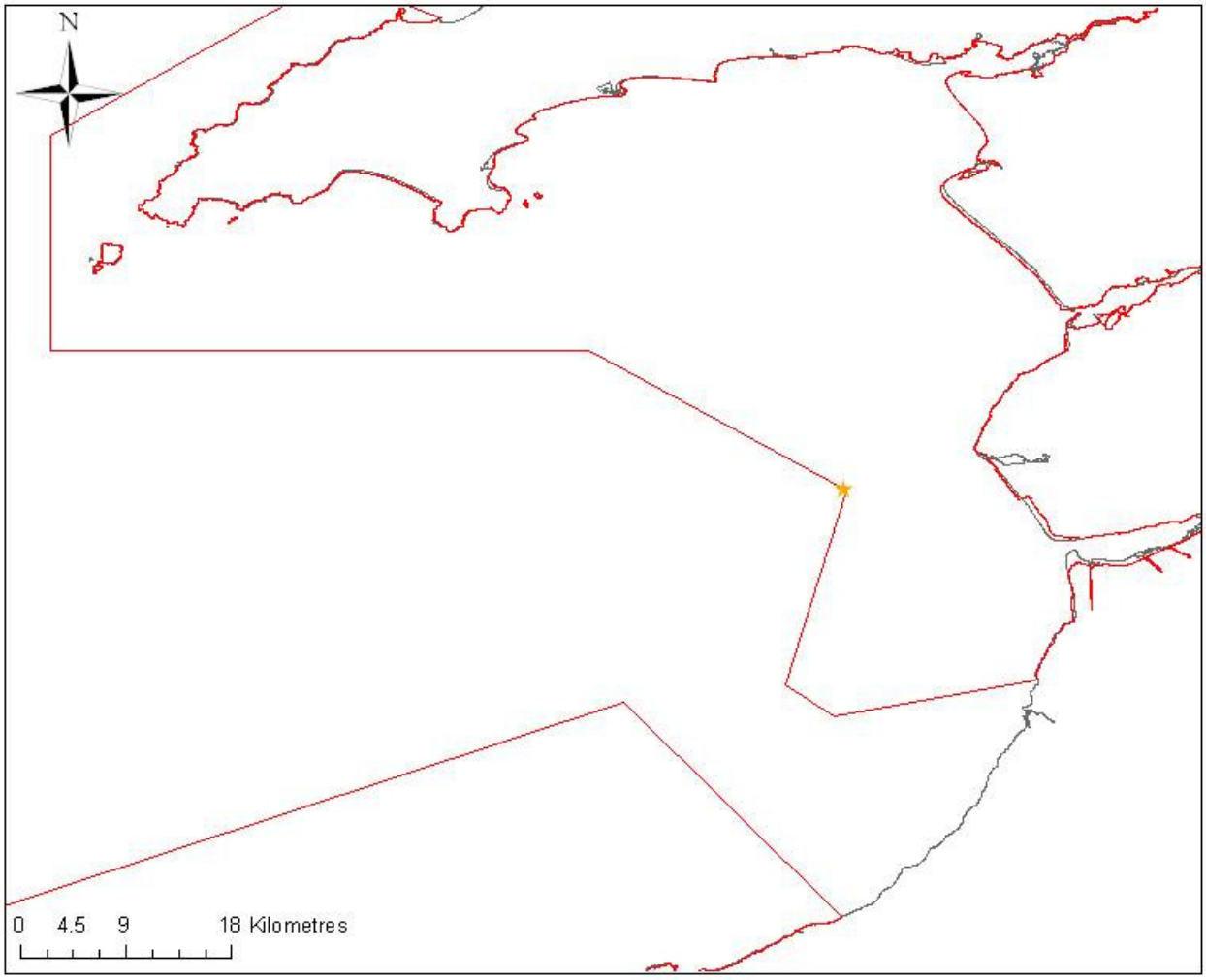




Legend

- ★ *Paraphellia expansa*
- Welsh SACs
- Welsh SSSIs not within the boundaries of an SAC

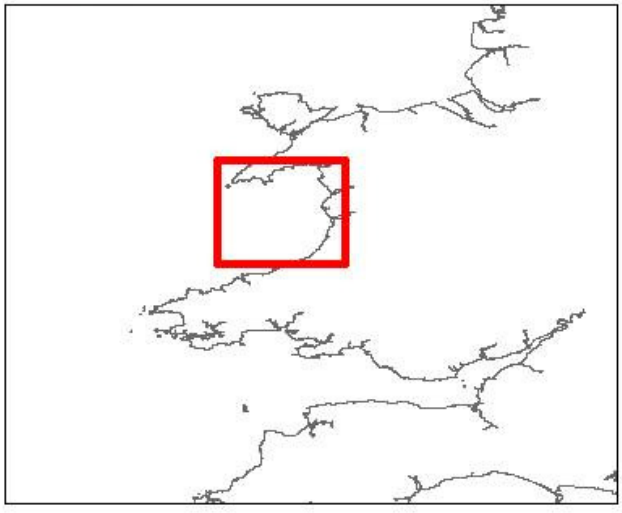


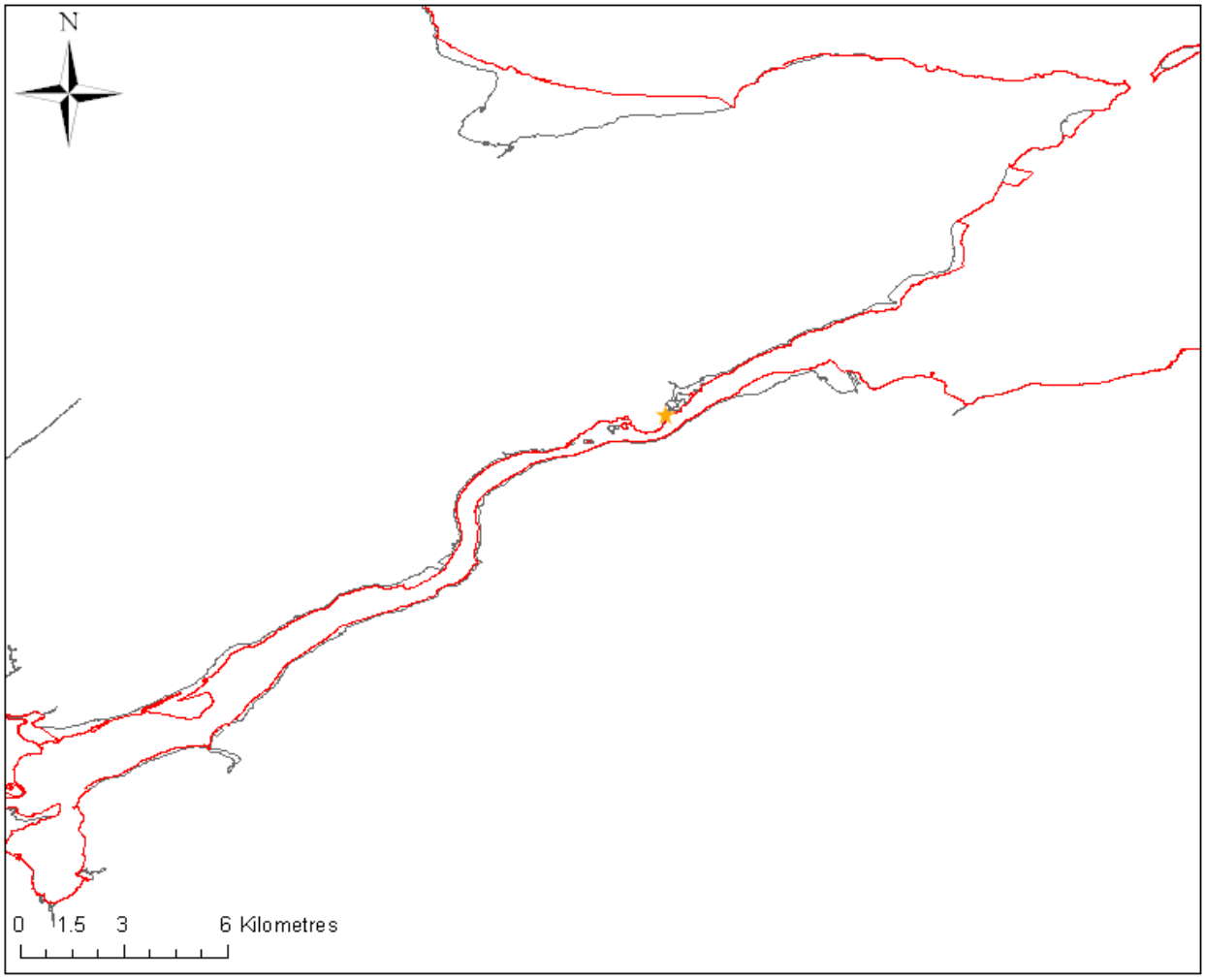


Legend

★ Polyplumaria flabellata

Welsh European Marine Sites

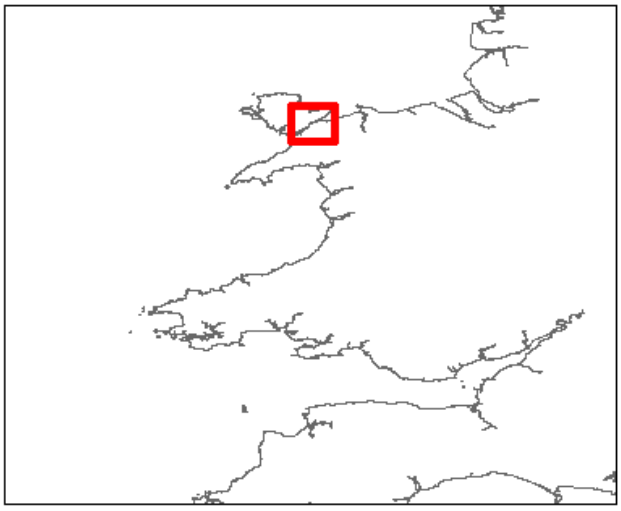


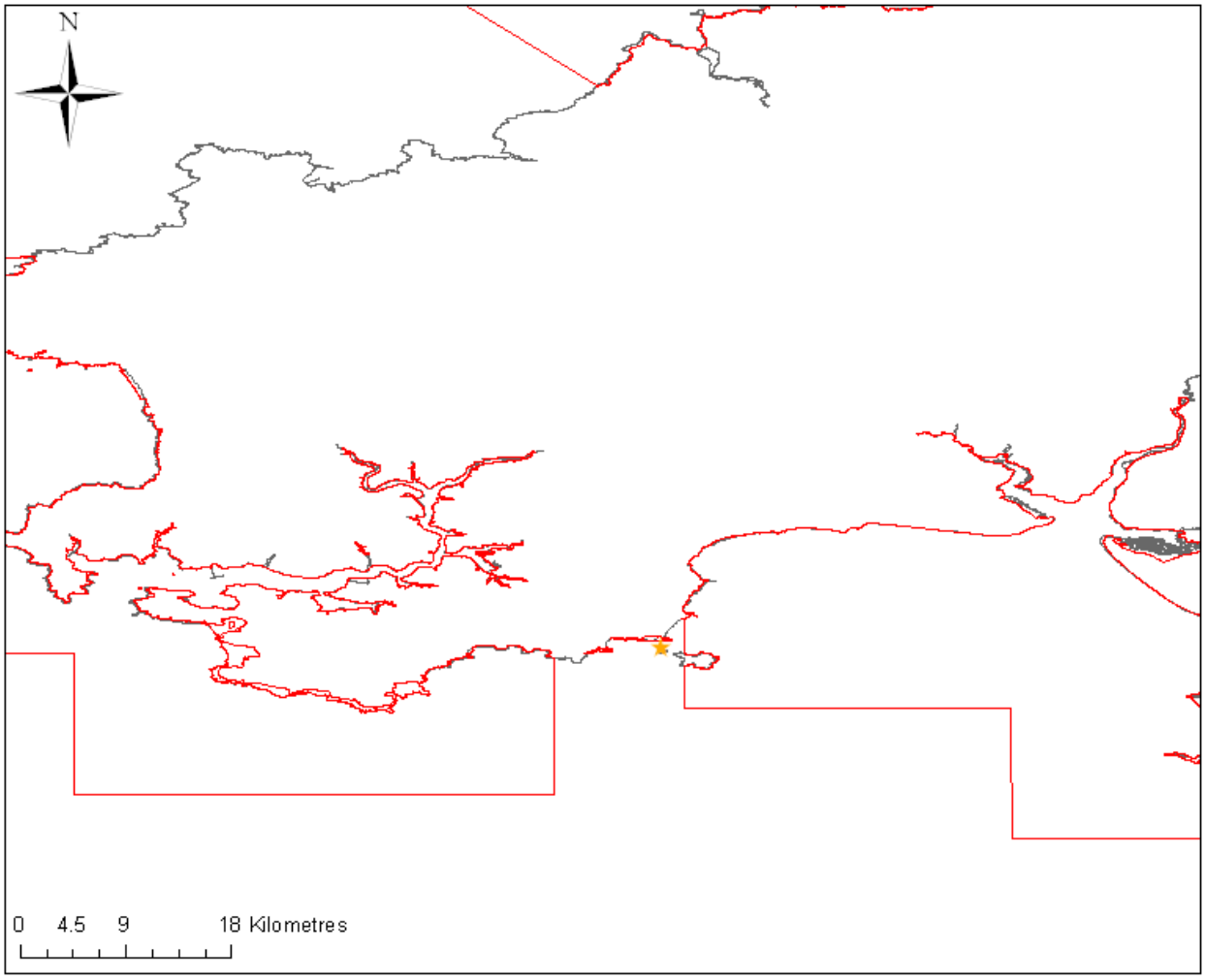


Legend

★ Raja undulata

Welsh European Marine Sites

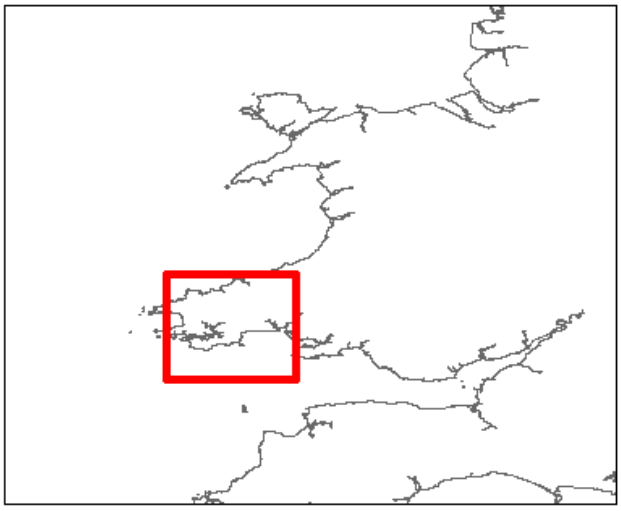


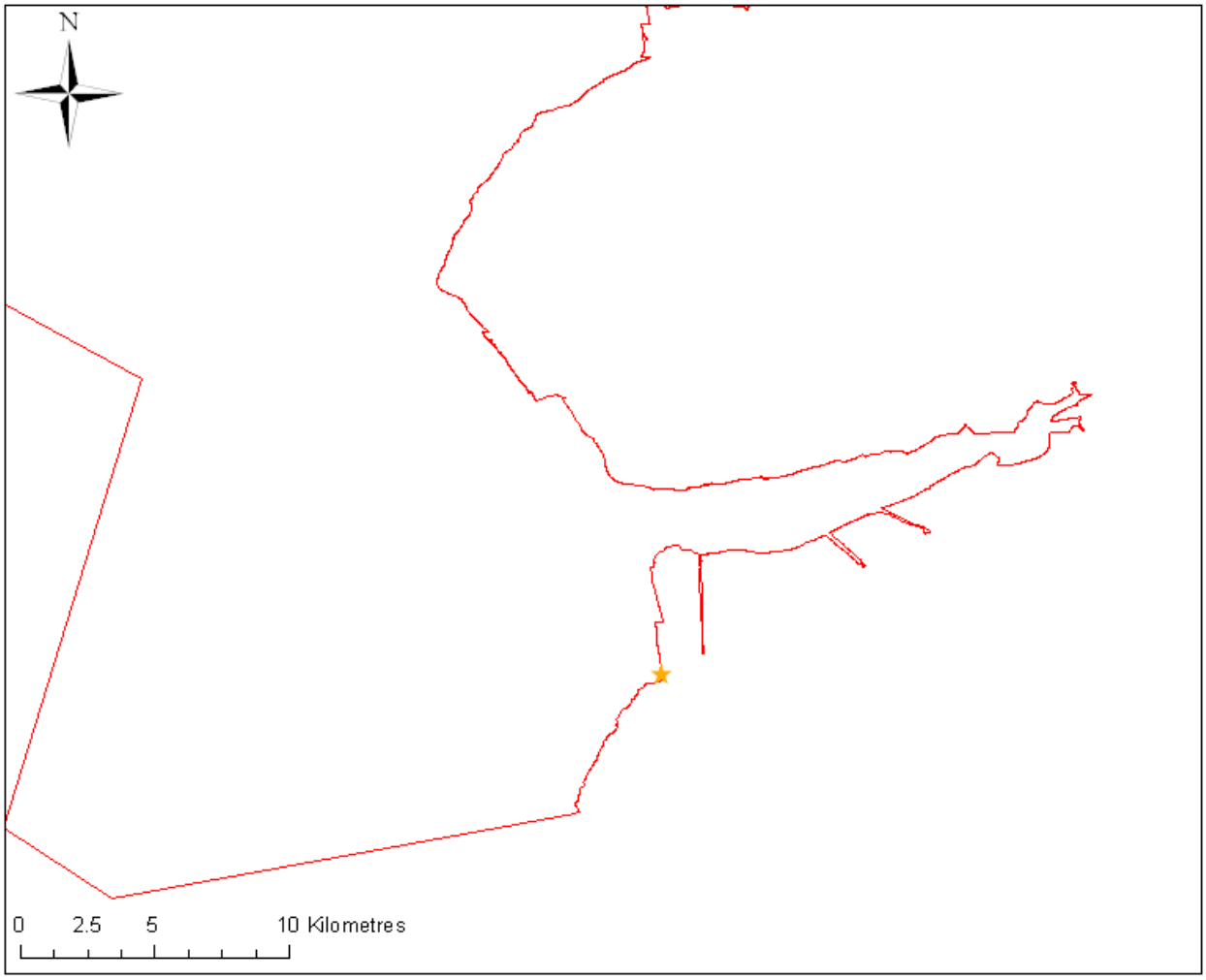


Legend

★ Truncatella subcylindrica

Welsh European Marine Sites

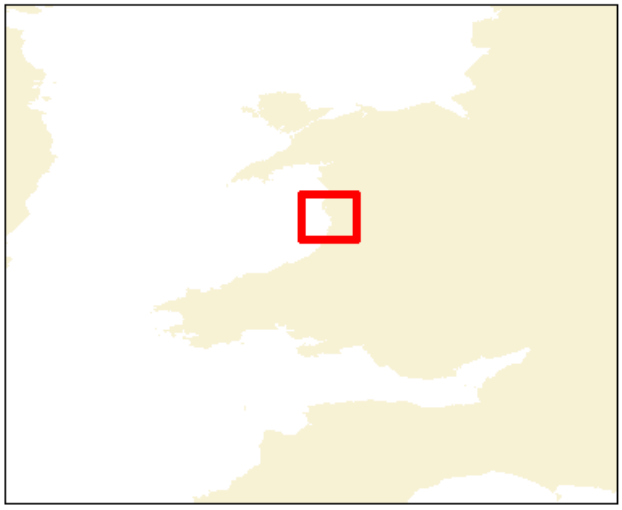




Legend

★ Ceramium sp. and piddocks on eulittoral fossilised peat'

Welsh European Marine Sites



Appendix 5. Tabulation to match BAP, OSPAR and candidate NIMF habitats to their respective Annex I habitats

Habitat name	Protected status	Annex I habitat						
		Reefs	Large shallow inlets and bays	Mudflats and sandflats not covered by seawater at low tide	Coastal lagoons	Sandbanks which are slightly covered by sea water all the time	Estuaries	Submerged or partially submerged sea caves
Alaria esculenta on exposed sublittoral fringe bedrock	candidate NIMF habitat	Y						
Ascophyllum nodosum & *Fucus vesiculosus* on variable salinity mid eulittoral rock	candidate NIMF habitat	Y	Y				Y	
Ascophyllum nodosum ecad mackaii beds on extremely sheltered mid eulittoral mixed substrata	candidate NIMF habitat	Y	Y				Y	
Ascophyllum nodosum on very sheltered mid eulittoral rock	candidate NIMF habitat	Y	Y					
Blue mussel beds	BAP habitat	Y					Y	
Bryozoan turf and erect sponges on tide-swept circalittoral rock	candidate NIMF habitat	Y						
Capitella capitata and *Tubificoides* spp. in reduced salinity infralittoral muddy sediment	candidate NIMF habitat						Y	
Carbonate mounds	BAP habitat	Y						
Carbonate mounds	OSPAR habitat	Y						
Ceramium sp. and piddocks on eulittoral fossilised peat	candidate NIMF habitat	Y						
Cirratulids and *Cerastoderma edule* in littoral mixed sediment	candidate NIMF habitat		Y	Y				
Coastal saltmarsh	BAP habitat		Y				Y	
Cold-water coral (*Lophelia pertusa*) reefs	BAP habitat	Y						
Cold-water coral (*Lophelia pertusa*) reefs	candidate NIMF habitat	Y						
Cold-water coral (*Lophelia pertusa*) reefs	OSPAR habitat	Y						
Coralline crust-dominated shallow eulittoral rockpools	candidate NIMF habitat	Y						
Deep-sea sponge communities	BAP habitat	Y						
Deep-sea sponge communities	candidate NIMF habitat	Y						
Deep-sea sponge communities	OSPAR habitat	Y						
Estuarine rocky habitats	BAP habitat	Y	Y				Y	

Habitat name	Protected status	Annex I habitat						
		Reefs	Large shallow inlets and bays	Mudflats and sandflats not covered by seawater at low tide	Coastal lagoons	Sandbanks which are slightly covered by sea water all the time	Estuaries	Submerged or partially submerged sea caves
Eunicella verrucosa and *Pentapora foliacea* on wave-exposed circalittoral bedrock	candidate NIMF habitat	Y						
Faunal communities on variable or reduced salinity infralittoral rock	candidate NIMF habitat	Y					Y	
Fragile sponge & anthozoan communities on subtidal rocky habitats	BAP habitat	Y						
Fucoids and kelp in deep eulittoral rockpools	candidate NIMF habitat	Y						
Fucus ceranoides on reduced salinity eulittoral rock	candidate NIMF habitat	Y	Y				Y	
Fucus serratus and under-boulder fauna on exposed to moderately exposed lower eulittoral boulders	candidate NIMF habitat	Y						
Fucus serratus with sponges, ascidians and red seaweeds on tideswept lower eulittoral mixed substrata	candidate NIMF habitat	Y	Y					
Fucus vesiculosus on variable salinity mid eulittoral boulders & stable mixed substrata	candidate NIMF habitat	Y	Y				Y	
Halcampa chrysanthellum and *Edwardsia timida* on sublittoral clean stone gravel	candidate NIMF habitat					Y		
Horse mussel (*Modiolus modiolus*) beds	BAP habitat	Y	Y					
Horse mussel (*Modiolus modiolus*) beds	OSPAR habitat	Y	Y					
Intertidal boulder communities	BAP habitat	Y						Y
Intertidal chalk	BAP habitat	Y						Y
Intertidal mudflats	BAP habitat	Y	Y	Y			Y	
Intertidal mudflats	OSPAR habitat		Y	Y			Y	
Intertidal *Mytilus edulis* beds on mixed and sandy sediments	OSPAR habitat	Y						
Laminaria digitata and under-boulder fauna on sublittoral fringe boulders	candidate NIMF habitat	Y						

Habitat name	Protected status	Annex I habitat						
		Reefs	Large shallow inlets and bays	Mudflats and sandflats not covered by seawater at low tide	Coastal lagoons	Sandbanks which are slightly covered by sea water all the time	Estuaries	Submerged or partially submerged sea caves
Laminaria saccharina with *Phyllophora* spp. and filamentous green seaweeds on variable or reduced salinity infralittoral rock	candidate NIMF habitat	Y	Y					
Littoral caves & overhangs	candidate NIMF habitat	Y						Y
Littoral chalk communities	OSPAR habitat	Y						Y
Littoral mixed sediments	candidate NIMF habitat		Y	Y				
Maerl beds	BAP habitat					Y		
Maerl beds	OSPAR habitat					Y		
Methane-derived authigenic carbonate (MDAC) reef	candidate NIMF habitat	Y						
Moerella spp. with venerid bivalves in infralittoral gravelly sand	candidate NIMF habitat					Y		
Mussel and/or barnacle communities	candidate NIMF habitat	Y						
Mytilus edulis and *Fucus vesiculosus* on moderately exposed mid eulittoral rock	candidate NIMF habitat	Y						
Mytilus edulis and piddocks in eulittoral firm clay	candidate NIMF habitat	Y						
Neomysis integer and *Gammarus* spp. in variable salinity infralittoral mobile sand	candidate NIMF habitat						Y	
Oceanic ridges with hydrothermal vents/fields	OSPAR habitat	Y						
Oligochaetes in variable or reduced salinity infralittoral muddy sediment	candidate NIMF habitat						Y	
Peat and clay exposures	BAP habitat	Y						
Philine aperta and *Virgularia mirabilis* in soft stable infralittoral mud	candidate NIMF habitat		Y					
Polydora ciliata and *Corophium volutator* in variable salinity infralittoral firm mud or clay	candidate NIMF habitat						Y	
Ruppia maritima in reduced salinity infralittoral muddy sand	candidate NIMF habitat				Y			
Sabellaria alveolata reefs	BAP habitat	Y						
Sabellaria spinulosa reefs	BAP habitat	Y						
Sabellaria spinulosa reefs	OSPAR habitat	Y						
Saline lagoons	BAP habitat	Y			Y			
Seagrass (*Zostera*) beds	BAP habitat		Y	Y	Y	Y		

Habitat name	Protected status	Annex I habitat						
		Reefs	Large shallow inlets and bays	Mudflats and sandflats not covered by seawater at low tide	Coastal lagoons	Sandbanks which are slightly covered by sea water all the time	Estuaries	Submerged or partially submerged sea caves
Seagrass (*Zostera*) beds	OSPAR habitat		Y	Y	Y	Y		
Seamount communities	BAP habitat	Y						
Seamounts	OSPAR habitat	Y						
Seaweeds in sediment-floored eulittoral rockpools	candidate NIMF habitat	Y						
Serpula vermicularis reefs on very sheltered circalittoral muddy sand	candidate NIMF habitat	Y	Y					
Serpulid reefs	BAP habitat	Y	Y					
Sheltered muddy gravels	BAP habitat		Y	Y			Y	
Spisula subtruncata and *Nephtys hombergii* in shallow muddy sand	candidate NIMF habitat					Y		
Sponges, cup corals and anthozoans on shaded or overhanging circalittoral rock	candidate NIMF habitat	Y						
Subtidal chalk	BAP habitat	Y						
Subtidal sands and gravels	BAP habitat					Y	Y	
Tide-swept channels	BAP habitat	Y	Y					
Underboulder communities	candidate NIMF habitat	Y						

Appendix 6. Biotopes included in Regulation 33 documentation (conservation objectives) converted to habitats identified as Important Welsh Features.

Biotope / community code	2004 code	Biotope name	EMS	BAP habitat	OSPAR habitat	candidate NIMF habitat	Annex I habitat
ICS.HeloMsim	SS.SCS.ICS.HeloMsim	*Hesionura elongata* and *Microphthalmus similis* with other interstitial polychaetes in infralittoral mobile coarse sand	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Subtidal sands and gravels			Sandbanks which are slightly covered by seawater all the time
ICS.Slan.	SS.SCS.ICS.SLan	Dense *Lanice conchilega* and other polychaetes in tide-swept infralittoral sand and mixed gravelly sand	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Subtidal sands and gravels			Sandbanks which are slightly covered by seawater all the time
IfiSa.ImoSa	SS.SSa.IFiSa.ImoSa	Infralittoral mobile clean sand with sparse fauna	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Subtidal sands and gravels			Sandbanks which are slightly covered by seawater all the time
LGS.AEur	LS.LSa.MoSa.AmSco	Burrowing amphipods and *Eurydice pulchra* in well-drained clean sand shores	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)				Large shallow inlets and bays Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities
LGS.AP.P	Discontinued; records reassigned mostly to Po and AmSco	Burrowing amphipods and polychaetes (often with *Arenicola marina*) in clean sand shores	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)				Large shallow inlets and bays Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities
LGS.AP.Pon	Discontinued; records reassigned mostly to Po and AmSco	Burrowing amphipods *Pontocrates* spp. and *Bathyporeia* spp. in lower shore clean sand	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)				Large shallow inlets and bays Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities

Biotope / community code	2004 code	Biotope name	EMS	BAP habitat	OSPAR habitat	candidate NIMF habitat	Annex I habitat
LGS.BarSnd	LS.LSa.MoSa.BarSa	Barren coarse sand shores	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)				Large shallow inlets and bays Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities
LGS.Lan	LS.LSa.MuSa.Lan	Dense *Lanice conchilega* in tide-swept lower shore sand	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Intertidal mudflats			Large shallow inlets and bays Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities
LGS.Ol	LS.LSa.MoSa.Ol.VS	Oligochaetes in reduced salinity or low salinity gravel or coarse sand shores	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)				Estuaries Mudflats and sandflats not covered by seawater at low tide
LGS.Tal	LS.LSa.St.Tal	Talitrid amphipods in decomposing seaweed on the strand-line	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)				Large shallow inlets and bays Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities
LMS.BatCor	LS.LSa.MuSa.BatCare	*Bathyporeia* spp. and *Corophium* spp. in upper shore slightly muddy fine sands	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Intertidal mudflats			Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities
LMS.MacAre	LS.LSa.MuSa.MacAre	*Macoma balthica* and *Arenicola marina* in muddy sand shores	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Intertidal mudflats			Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities

Biotope / community code	2004 code	Biotope name	EMS	BAP habitat	OSPAR habitat	candidate NIMF habitat	Annex I habitat
LMS.PCer	LS.LSa.MuSa.CerPo	Polychaetes and *Cerastoderma edule* in fine sand and muddy sand shores	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Intertidal mudflats			Large shallow inlets and baysEstuariesMudflats and sandflats not covered by seawater at low tideIntertidal mudflat and sandflat communities
LMS.Znol	LS.LMp.LSgr.Znol	*Zostera noltei* beds in upper to mid shore muddy sand	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Seagrass (Zostera) beds	Seagrass (Zostera) beds		Mudflats and sandflats not covered by seawater at low tide
LMU.HedMac	LS.LMu.MEst.HedMac	*Hediste diversicolor* and *Macoma balthica* in sandy mud shores	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Intertidal mudflats	Intertidal mudflats		Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities
LMU.HedMac.Are	Discontinued; records mostly reassigned to HecMac or biotopes in MuSa	*Hediste diversicolor*, *Macoma balthica* and *Arenicola marina* in muddy sand or sandy mud shores	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)				Estuaries Mudflats and sandflats not covered by seawater at low tide
LMU.HedMac.Mare	Discontinued; records reassigned mostly to HecMac or HedMacEte	*Hediste diversicolor*, *Macoma balthica* and *Mya arenaria* in sandy mud shores	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)				Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities
LMU.HedOl	LS.LMu.UEst.Hed.Cvol	*Hediste diversicolor* and oligochaetes in low salinity mud shores	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Intertidal mudflats	Intertidal mudflats		Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities

Biotope / community code	2004 code	Biotope name	EMS	BAP habitat	OSPAR habitat	candidate NIMF habitat	Annex I habitat
LMU.HedScr	LS.LMu.MEst.HedMacScr	*Hediste diversicolor* and *Scrobicularia plana* in reduced salinity mud shores	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Intertidal mudflats	Intertidal mudflats		Estuaries Mudflats and sandflats not covered by seawater at low tide Intertidal mudflat and sandflat communities
LR.AudCla	LR.FLR.CvOv.AudCla	*Audouinella purpurea* and *Cladophora rupestris* on upper to mid shore cave walls	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)			Littoral caves & overhangs	Reefs Large shallow inlets and bays Estuaries
LR.Cor	LR.FLR.Rkp.Cor	*Corallina officinalis* and coralline crusts in shallow eulittoral rockpools	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)			Coralline crust-dominated shallow eulittoral rockpools	Reefs Large shallow inlets and bays
LR.FK	LR.FLR.Rkp.FK	Fucoids and kelps in deep eulittoral rockpools	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)			Fucoids and kelp in deep eulittoral rockpools	Reefs Large shallow inlets and bays
LR.GCv	LR.FLR.CvOv.GCv	Green algal films on upper and mid-shore cave walls and ceilings	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)			Littoral caves & overhangs	Large shallow inlets and bays
LR.H	LR.FLR.Rkp.H	Hydroids, ephemeral seaweeds and *Littorina littorea* in shallow mixed substrata pools	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)				Large shallow inlets and bays Estuaries

Biotope / community code	2004 code	Biotope name	EMS	BAP habitat	OSPAR habitat	candidate NIMF habitat	Annex I habitat
LR.SByAs.Cv	LR.FLR.CvOv.SpByAs	Sponges, bryozoans and ascidians on deeply overhanging lower shore bedrock or caves	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)			Littoral caves & overhangs	Large shallow inlets and bays
LR.SByAs.Ov	LR.FLR.CvOv.SpByAs	Sponges, bryozoans and ascidians on deeply overhanging lower shore bedrock or caves	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)			Littoral caves & overhangs	Large shallow inlets and bays
LR.SR.Cv	LR.FLR.CvOv.SpR	Sponges and shade-tolerant red seaweeds on overhanging lower eulittoral bedrock and in cave entrances	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)			Littoral caves & overhangs	Large shallow inlets and bays
LR.SR.Ov	LR.FLR.CvOv.SpR	Sponges and shade-tolerant red seaweeds on overhanging lower eulittoral bedrock and in cave entrances	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)			Littoral caves & overhangs	Large shallow inlets and bays
LR.VmucHil	LR.FLR.CvOv.VmucHil	*Verrucaria mucosa* and/or *Hildenbrandia rubra* on upper to mid shore cave walls	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)			Littoral caves & overhangs	Large shallow inlets and bays Estuaries
MIR.Ldig.Pid	IR.MIR.KR.Ldig.Pid	*Laminaria digitata* and piddocks on sublittoral fringe soft rock	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Subtidal chalk			Large shallow inlets and bays
MLR.Fser.Pid	LR.MLR.BF.Fser.Pid	*Fucus serratus* and piddocks on lower eulittoral soft rock	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Intertidal chalk	Littoral chalk communities		Large shallow inlets and bays
MLR.MytPid	LR.MLR.MusF.MytPid	*Mytilus edulis* and piddocks on eulittoral firm clay	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Peat and clay exposures		Mytilus edulis and piddocks in eulittoral firm clay	Large shallow inlets and bays
SLR.Fserr.T	LR.HLR.FT.FserT	*Fucus serratus*, sponges and ascidians on tide-swept lower eulittoral rock	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC) Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Tide-swept channels			Reefs Large shallow inlets and bays

Biotope / community code	2004 code	Biotope name	EMS	BAP habitat	OSPAR habitat	candidate NIMF habitat	Annex I habitat
SLR.FserX.T	LR.HLR.FT.FserTX	*Fucus serratus* with sponges, ascidians and red seaweeds on tide-swept lower eulittoral mixed substrata	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC)	Tide-swept channels		Fucus serratus with sponges, ascidians and red seaweeds on tideswept lower eulittoral mixed substrata	Large shallow inlets and bays

Appendix 7. Habitats identified as Important Welsh Features recorded within the boundaries of a Welsh EMS but not mentioned in the management documentation

Habitat name	EMS	Importance
Alaria esculenta on exposed sublittoral fringe bedrock	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC), Newport C	candidate NIMF Habitats
Ascophyllum nodosum & *Fucus vesiculosus* on variable salinity mid eulittoral rock	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Severn Estuary / Môr Hafren (SAC)	candidate NIMF Habitats
Ascophyllum nodosum on very sheltered mid eulittoral rock	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	candidate NIMF Habitats
Blue mussel beds	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Dee Estuary / Aber Dyfrdwy(SAC), Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (S	BAP Habitats
Bryozoan turf and erect sponges on tide-swept circalittoral rock	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF Habitats
Burrowing megafauna and *Maxmuelleria lankesteri* in circalittoral mud	Cardigan Bay / Bae Ceredigion (SAC)	candidate NIMF Habitats
Capitella capitata and *Tubificoides* spp. in reduced salinity infralittoral muddy sediment	Severn Estuary / Môr Hafren (SAC)	candidate NIMF Habitats
Capitella capitata in enriched sublittoral muddy sediments	Severn Estuary / Môr Hafren (SAC)	candidate NIMF Habitats
Cerianthus lloydii and other burrowing anemones in circalittoral muddy mixed sediment	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	candidate NIMF Habitats
Circalittoral mixed sediment	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	candidate NIMF Habitats
Cirratulids and *Cerastoderma edule* in littoral mixed sediment	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF Habitats
Coastal saltmarsh	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Severn Estuary / Môr Hafren (SAC)	BAP Habitats
Coralline crust-dominated shallow eulittoral rockpools	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF Habitats
Estuarine rocky habitats	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Severn Estuary / Môr Hafren (SAC), Y Fenai a Bae	BAP Habitats
Eunicella verrucosa and *Pentapora foliacea* on wave-exposed circalittoral bedrock	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF Habitats
Faunal communities on variable or reduced salinity infralittoral rock	Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	candidate NIMF Habitats
Fragile sponge & anthozoan communities on subtidal rocky habitats	Pembrokeshire Marine / Sir Benfro Forol (SAC)	BAP Habitats
Fucoids and kelp in deep eulittoral rockpools	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	candidate NIMF Habitats
Fucus ceranoides on reduced salinity eulittoral rock	Cardigan Bay / Bae Ceredigion (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	candidate NIMF Habitats
Fucus serratus and under-boulder fauna on exposed to moderately exposed lower eulittoral boulders	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Severn Estuary / Môr Hafren (SAC)	candidate NIMF Habitats
Fucus serratus with sponges, ascidians and red seaweeds on tideswept lower eulittoral mixed substrata	Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF Habitats

Habitat name	EMS	Importance
Fucus vesiculosus on variable salinity mid eulittoral boulders & stable mixed substrata	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Dee Estuary / Aber Dyfrdwy(SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF Habitats
Intertidal boulder communities	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarna	BAP Habitats
Intertidal chalk	Pembrokeshire Marine / Sir Benfro Forol (SAC)	BAP Habitats
Intertidal mudflats	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Dee Estuary / Aber Dyfrdwy(SAC), Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (S	BAP Habitats, OSPAR Habitats
Intertidal *Mytilus edulis* beds on mixed and sandy sediments	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	OSPAR Habitats
Laminaria digitata and under-boulder fauna on sublittoral fringe boulders	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	candidate NIMF Habitats
Littoral caves & overhangs	Cardigan Bay / Bae Ceredigion (SAC), Dee Estuary / Aber Dyfrdwy(SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC), Beddmanarch-Cymyran (S	candidate NIMF Habitats
Littoral chalk communities	Pembrokeshire Marine / Sir Benfro Forol (SAC)	OSPAR Habitats
Littoral mixed sediments	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Severn Estuary / Môr Hafren (SAC)	candidate NIMF Habitats
Maerl beds	Pembrokeshire Marine / Sir Benfro Forol (SAC)	OSPAR Habitats
Mediomastus fragilis, *Lumbrineris* spp. and venerid bivalves in circalittoral coarse sand or gravel	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF Habitats
Melinna palmata with *Magelona* spp. and *Thyasira* spp. in infralittoral sandy mud	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC)	candidate NIMF Habitats
Moerella spp. with venerid bivalves in infralittoral gravelly sand	Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF Habitats
Mud habitats in deep water	Cardigan Bay / Bae Ceredigion (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	BAP Habitats
Mussel and/or barnacle communities	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Dee Estuary / Aber Dyfrdwy(SAC), Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarna	Candidate NIMF Habitats
Mytilus edulis and *Fucus vesiculosus* on moderately exposed mid eulittoral rock	Cardigan Bay / Bae Ceredigion (SAC), Dee Estuary / Aber Dyfrdwy(SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	Candidate NIMF Habitats
Neomysis integer and *Gammarus* spp. in variable salinity infralittoral mobile sand	Severn Estuary / Môr Hafren (SAC)	candidate NIMF Habitats
Neopentadactyla mixta in circalittoral shell gravel or coarse sand	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF Habitats
Oligochaetes in variable or reduced salinity infralittoral muddy sediment	Severn Estuary / Môr Hafren (SAC)	candidate NIMF Habitats
Peat and clay exposures	Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	BAP Habitats
Polydora ciliata and *Corophium volutator* in variable salinity infralittoral firm mud or clay	Pembrokeshire Marine / Sir Benfro Forol (SAC), Severn Estuary / Môr Hafren (SAC)	candidate NIMF Habitats
Sabellaria spinulosa reefs	Cardigan Bay / Bae Ceredigion (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	OSPAR Habitats, BAP Habitats
Saline lagoons	Bae Cemlyn / Cemlyn bay (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	BAP Habitats

Habitat name	EMS	Importance
Sea-pen and burrowing megafauna communities	Cardigan Bay / Bae Ceredigion (SAC),	OSPAR Habitats
Seaweeds in sediment-floored eulittoral rockpools	Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Severn Estuary / Môr Hafren (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	candidate NIMF Habitats
Sheltered muddy gravels	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Severn Estuary / Môr Hafren (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	BAP Habitats
Spisula subtruncata and *Nephtys hombergii* in shallow muddy sand	Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	candidate NIMF Habitats
Sponges, cup corals and anthozoans on shaded or overhanging circalittoral rock	Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC)	candidate NIMF Habitats
Subtidal chalk	Glannau Môn: Cors heli / Anglesey Coast: Saltmarsh (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	BAP Habitats
Subtidal sands and gravels	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Severn Estuary / Môr Hafren (SAC), Y Fenai a Bae	BAP Habitats
Tide-swept channels	Cardigan Bay / Bae Ceredigion (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Y Fenai a Bae Conwy / Menai Strait and Conwy Bay (SAC)	BAP Habitats
Underboulder communities	Cardigan Bay / Bae Ceredigion (SAC), Carmarthen Bay & Estuaries/ Bae Caeryrddin ac Aberoedd (SAC), Pembrokeshire Marine / Sir Benfro Forol (SAC), Pen Llŷn a`r Sarnau / Lleyn Peninsula and the Sarnau (SAC), Severn Estuary / Môr Hafren (SAC), Y Fenai a Bae	candidate NIMF Habitats

Appendix 8. Summary of the procedure for consideration a plan or project (pp) affecting a Natura 2000 site (SAC or SPA) or Ramsar site, in accordance with the 1994 Habitats Regulations (Source: Cole-King, 2005)

Starting point: A competent authority is considering undertaking, or giving any form of consent, licence permission or authorisation to, a pp, which might have implications for a European site (SAC or SPA).

Stage 1 Is the plan or project directly connected with or necessary to the management of the SAC/SPA?

If YES, pp can proceed.
If NO, go to Stage 2.

Stage 2 Is the plan or project likely to have a significant effect on a European site, either alone or in combination with other plans or projects?

If NO, pp can proceed.
If YES or DON'T KNOW, go to Stage 3.

Stage 3 The competent authority shall make an appropriate assessment of the implications of the plan or project for the site, in view of the site's conservation objectives.

Go to Stage 4.

Stage 4 In the light of the conclusions of the assessment, the competent authority shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site (subject to Stages 6 onwards). Has it been ascertained that the plan/project will not adversely affect the integrity of the site?

If YES, pp can proceed.
If NO or DON'T KNOW go to Stage 5.

Stage 5 Are there any conditions or restrictions which could be applied to enable it to be ascertained that there will be no adverse effect on integrity?

If YES, pp can proceed subject to those additional conditions/restrictions.
If NO, either refuse pp, or go to Stage 6.

Stage 6 Having failed to ascertain no adverse effect on the integrity of the site, and having failed to identify any conditions or restrictions which would enable it to be concluded that there will be no adverse effect, are there alternative solutions to the plan or project?

If YES, pp cannot proceed.
If NO, go to Stage 7 (where a SAC is involved) or to Stage 8 (where no SAC is involved).

Stage 7 Would a habitats directive priority habitat type be adversely affected by the plan/project?

If NO, go to Stage 8.
If YES, go to Stage 9.

Stage 8 Given that no priority habitats will or may be affected, must the plan/project be carried out for imperative reasons of over-riding public interest (IROPI), which may include those of a social or economic nature?

If NO, the pp cannot proceed.
If YES, go to Stage 10.

Stage 9 Given that priority habitats will or may be affected, must the plan/project be carried out for imperative reasons of over-riding public interest (IROPI) which relate to human health, public safety, beneficial consequences of primary environmental importance or other imperative reasons of over-riding public interest?

If NO, the pp cannot proceed.
If YES, go to Stage 10.

Stage 10 The competent authority, if minded to allow the plan/project, must notify the Welsh Assembly Government (for devolved matters) or the UK Secretary of State (for non-devolved matters) and wait 21 days before undertaking or allowing the plan/project.

Go to Stage 11.

Stage 11 WAG (or for non-devolved matters, the Secretary of State) must secure that any necessary compensatory measures are taken to ensure that the overall coherence of Natura 2000 is protected.