RED BAY SAC
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CONSERVATION OBJECTIVES

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1. INTRODUCTION

EU Member States have a clear responsibility under the Habitats and Birds Directives[1] to ensure that all habitats and species of Community Interest are maintained or restored to Favourable Conservation Status (FCS). Natura 2000 sites have a crucial role to play in achieving this overall objective since they are the most important core sites for these species and habitats. Each site must therefore be managed in a way that ensures it contributes as effectively as possible to helping the species and habitats for which it has been designated reach a favourable conservation status within the EU.

To ensure that each Natura 2000 site contributes fully to reaching this overall target of FCS, it is important to set clear conservation objectives for each individual site. These should define the desired state, within that particular site, of each of the species and habitat types for which the site was designated.

Once a site has been included in the Natura 2000 network, Member States are required to implement, on each site, the necessary conservation measures which correspond to the ecological requirements of the protected habitat types and species of Community Interest present, according to Article 6.1 of the Habitats Directive. They must also prevent any damaging activities that could significantly disturb those species and habitats (Article 6.2) and to protect the site from new potentially damaging plans and projects likely to have a significant effect on a Natura 2000 site (Article 6.3, 6.4).

Conservation measures can include both site-specific measures (i.e. management actions and/or management restrictions) and horizontal measures that apply to many Natura 2000 sites over a larger area (e.g. measures to reduce nitrate pollution or to regulate hunting or resource use).

In Northern Ireland, Natura 2000 sites are usually underpinned by the designation of an Area of Special Scientific Interest (ASSI) under the Environment (NI) Order 2002 (as amended). However, the Environment Order only extends to the Mean Low Water (jurisdictional limit of local authorities); therefore, some marine Natura 2000 sites are not underpinned by ASSI designations.

[1] 92/43/EEC and 2009/147/EC (codified version of Directive 79/409/EEC as amended)

2. ROLE OF CONSERVATION OBJECTIVES

Conservation Objectives have a role in

- Conservation Planning and Management – guide management of sites, to maintain or restore the habitats and species in favourable condition

- Assessing Plans and Projects, as required under Article 6(3) of the Habitats Directive - Habitats Regulations Assessments (HRA) are required to assess proposed plans and projects in light of the site's conservation objectives.

- Monitoring and Reporting – Provide the basis for assessing the condition of a feature, the factors that affect it and the actions required.

3. DEFINITION OF FAVOURABLE CONSERVATION STATUS

Favourable Conservation Status is defined in Articles 1(e) and 1(i) of the Habitats Directive:

The conservation status of a natural habitat is the sum of the influences acting on it and its typical species that may affect its long-term natural distribution, structure and functions as well as the long term survival of its typical species. The conservation status of a natural habitat will be taken as favourable when:

- Its natural range and areas it covers within that range are stable or increasing, and
- The specific structure and functions which are necessary for its long-term maintenance exist and are likely to continue to exist for the foreseeable future, and
- The conservation status of its typical species is favourable as defined in Article 1(i).

For species, favourable conservation status is defined in Article 1(i) as when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future, and;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its population on a long term basis.

3.1 DEFINITION OF FAVOURABLE CONDITION

Favourable Condition is defined as "**the target condition for an interest feature in terms of the abundance, distribution and/or quality of that feature within the site**".

The standards for favourable condition (Common Standards) have been developed by JNCC and are applied throughout the UK. Achieving Favourable Condition on individual sites will make an important contribution to achieving Favourable Conservation Status across the Natura 2000 network.

4. SITE INFORMATION

COUNTY: ANTRIM

REFERENCE COORDINATES: 55.1144 -6.02361

AREA: 965.54 ha

5. SUMMARY SITE DESCRIPTION

Red Bay SAC is sited within the northern part of Red Bay. Red Bay is the largest embayment of the east Antrim coastline outside Larne Lough, and measures approximately 9.5km across the mouth of the bay (as measured from Garron Point in the south to Tornamoney Point north of Cushendun village). The bay is open to the east and sheltered from westerly winds by the Antrim Coast and Glens Area of Outstanding Natural Beauty. The bay is predominantly a marine site although there are significant influxes of freshwater which enter the sea via a number of rivers that flow directly into Red Bay as well as to the waters north and south of the bay itself.

The Red Bay site is located off the County Antrim village of Cushendun, Northern Ireland. It contains Annex I *Sandbanks slightly covered by seawater at all times* which are composed of maerl, sub-fossil maerl, coarse sands, gravels and cobbles. The sand bank is comprised of relic drowned drumlins from the last ice-age ca 15000 yr BP. The Red Bay sandbanks are dominated by both living maerl and sub-fossil maerl and have been thoroughly mapped and characterised as part of this SAC selection assessment. Unique to this site is the presence of large 2-3m high megaripples of sub-fossil maerl, much of which is dominated by living maerl, *Phymatolithon calcarium* with some *Lithothamnion glaciale* (the third UK species of maerl, *Lithothamnion corallioides*, being a more southern species not currently found in Red Bay), and three extremely rare algal species endemic to maerl: *Cruoria cruoriaeformis*, *Halymenia latifolia* and *Gelidiella calcicola*. These

mega-ripples are comprised of maerl, gravel and sands on the crests, and cobbles and globular sub-fossil maerl in the troughs, with occasional sand patches on the slopes. Annex I 'Reefs' is an additional feature of this site, as a non-qualifying Category D feature.

The Red Bay County Antrim marine SAC contains a relatively large area of the rare maerl biotope "*Phymatolithon calcarium* maerl beds with red seaweeds in shallow infralittoral clean gravel or coarse sand", which is a listed sub-feature of Annex I sandbanks in the interpretation manual of European Habitats. *Phymatolithon calcarium* is also listed under Annex Vb of the Habitats Directive as a species of community interest whose taking in the wild and exploitation may be subject to management measures.
Map 1 shows the SAC boundary and location of the site selection features.

Non-qualifying habitats

West towards the shore the sediment gives way to a fringing rocky reef which extends into the intertidal zone as a hard rocky shore. Sand sediments do encroach into a small sheltered sandy beach in the north-west corner of the SAC, just north of the mouth of the River Dun. Further north than this the shoreline reverts to a hard rocky shoreline. Eastward away from the shore the site slopes down to depths in excess of 40m and the sandbank features merge into a flat gravel plain.

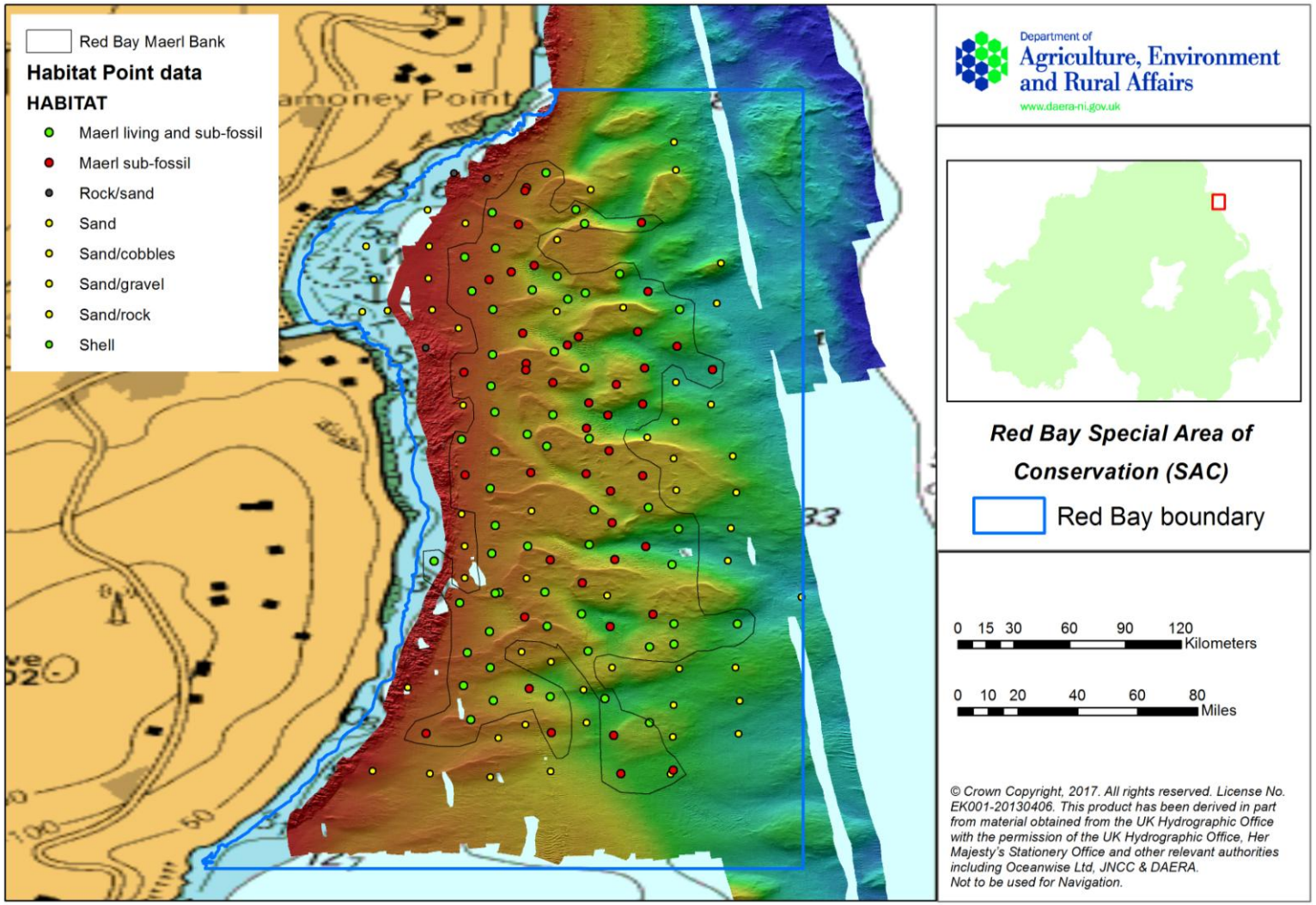
Further details of the site are available on the DAERA website (https://www.daera-ni.gov.uk/publications/reasons-designation-special-area-conservation-red-bay).

5.1 BOUNDARY RATIONALE

The beds were first recorded as part of the Northern Ireland Sub-littoral Survey (Erwin *et al*, 1986) although a hint of their true extent and conservation value was only discovered following a sewage outfall pre-discharge survey conducted by the Industrial Research & Technology Unit (IRTU) in 1999. Following on from this study and further studies by the various Government Agencies and a Queens University Belfast PhD by Sam Vize (Vize, 2005) on the distribution and biodiversity of maerl beds in Northern Ireland, the Department decided to propose Red Bay as a SAC for the feature sandbank, sub-feature maerl. As part of this process NIEA (formerly Environment & Heritage Service) commissioned mapping and seabed video surveys focussing on two sites off Cushendun and Garron Point (MERC, 2007). Queens University Belfast Centre for Biodiversity & Conservation Research (QUERCUS) was subsequently commissioned to review this new data and all other existing datasets to assess if either site warranted designation against agreed selection criteria.

The QUERCUS report (QUERCUS, 2008) forms the basis for selection of Red Bay, County Antrim as a Special Area of Conservation. Comparisons were made

against other sites along the east Antrim Coast and nationally against sites in Scotland, Wales and the Republic of Ireland. While the Garron Point and Ballygalley Head sites to the south had a similar infaunal species composition to Red Bay, the presence at the Red Bay site of extremely rare algal species endemic to maerl (*Cruoria cruoriaeformis* (the second record in Northern Ireland), *Halymenia latifolia* (the first record for Northern Ireland) and *Gelidiella calcicola* (most northerly record of this southern Lusitanian species), combined with the presence of large mega-ripples of sub-fossil maerl overlying flat topped drowned drumlins, fully warrants Red Bay's selection as an SAC.



Map 1 Red Bay SAC with Annex I habitat sandbanks which are slightly covered by seawater all of the time and distribution of maerl

6. SAC SELECTION FEATURES

Feature type	Feature	Global Status	Size/ extent/ pop~
Habitat	Sandbanks which are slightly covered by sea water all the time	A	965.54 ha
Habitat	Reefs	D	

Table 1. List of SAC selection features. Those with global status A-C will be referred to in ANNEX I.

The global status is an expert judgement of the overall value of the site for the conservation of the relevant Annex I habitat. Sites have been graded A, B or C - in the UK these gradings have been interpreted as follows:

A - Sites holding outstanding examples of the habitat in a European context.

B - Sites holding excellent stands of the habitat, significantly above the threshold for SSSI/ASSI notification but of somewhat lower value than grade A sites.

C - Examples of the habitat which are of at least national interest (i.e. usually above the threshold for SSSI/ASSI notification on terrestrial sites) but not significantly above this. These habitats are not the primary reason for SACs being selected.

D - Habitat present but not of sufficient extent or quality to merit listing as SAC feature.

There is therefore a distinction between the principal features for which sites have been selected (those graded A or B) and those which are only of secondary interest (those graded C). This is a useful distinction but it is important to note that all three grades are qualifying SAC interest features.

Click here to go to the Natura 2000 Standard Data Form for Red Bay SAC.

7. CONSERVATION OBJECTIVES

The ***Conservation Objective*** for this site is:

To maintain (or restore where appropriate) the

- ***Sandbanks which are slightly covered by sea water all the time***

to favourable condition.

Maintain implies that the feature is in favourable condition and will, subject to natural change, remain at its condition at designation. Restore implies that the feature is degraded to some degree and that activities will have to be managed to reduce or eliminate negative impact(s). Restoration in the marine environment can refer to natural recovery through the removal of unsustainable physical, chemical and biological pressures, as well as intervention.

For each SAC feature, there are a number of component objectives which are outlined in the table below. These include a series of attributes, measures and targets which form the basis of *Condition Assessment*. The results of this will determine whether the feature is in favourable condition or not. The feature attributes and measures are found in the attached annex.

8. SAC SELECTION FEATURE OBJECTIVE REQUIREMENTS

Feature	Global Status	Component Objective
Sandbanks which are slightly covered by sea water	A	Maintain the extent and volume of sandbanks which are slightly covered by sea water all the time, subject to natural processes.
		Allow the natural processes which determine the development, structure and extent of sandbanks which are slightly covered by sea water all the time, to operate appropriately.
		Maintain and enhance, as appropriate, the viability, distribution and diversity of typical species within this habitat.

9. MANAGEMENT CONSIDERATIONS

It is not considered that there are any major management issues relating to the Red Bay SAC. The following issues relate to many marine sites and in certain circumstances may have some bearing on the management of Red Bay SAC.

10. MAIN THREATS, PRESSURES AND ACTIVITIES WITH IMPACTS ON THE SITE

Both on-site and off-site activities can potentially affect SAC features. The list below is not exhaustive, but deals with the most <u>likely</u> factors that are either affecting Red Bay SAC, or could affect it in the future.

Aggregate extraction/Maerl extraction
Extraction of aggregates or extraction of maerl, either within or adjacent to the SAC, have the potential to cause direct loss or deterioration of qualifying habitats and communities; including the deterioration of qualifying habitats and communities by smothering and increased turbidity from re-suspended material.

Agriculture and Forestry
Diffuse run-off from agriculture and forestry practices has the potential to cause deterioration of qualifying habitats and communities, primarily through the deterioration of water quality due to organic or inorganic pollutants.

Aquaculture – finfish farming
Finfish farming has the potential to cause deterioration of qualifying habitats and communities through changes in water quality, smothering from waste material and physical disturbance from mooring systems. There is potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals which are already widely distributed in the UK. Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

Aquaculture – shellfish farming
Shellfish farming has the potential to cause deterioration of the qualifying habitats and communities through physical damage (e.g. installation of mooring blocks and continued scouring by riser chains) and changes in community structure caused by smothering from pseudo-faeces (undigested waste products) and debris (including dead shells) falling from the farm. There is also potential for accidental introduction of new non-native species and increasing the spread of existing non-native plants and animals through importation or translocation of shellfish stocks. Invasive species have the potential to cause deterioration of the qualifying interests by altering community structure and quality.

Diving
The study of the seabed by divers is in harmony with conservation interests provided no damage is done. Over collection of marine life could, however, prove damaging to the populations of certain species.

Coastal and Marine Development
The construction and maintenance of structures, both within and adjacent to the sea, have the potential to cause direct loss or deterioration of qualifying habitats and communities. An example is coastal defence or harbour/marina structures that may change local patterns of sediment suspension or deposition. Other examples of civil engineering that may have the potential to cause direct loss or deterioration of qualifying habitats and communities, through direct disturbance to the feature or increased sedimentation leading to smothering, include:
Renewable and other energy installations;
Pipelines and cables;

Hydrocarbon capture and storage.

Commercial Fishing – Mobile gear (dredging and demersal trawling)
Benthic dredging and demersal trawling has the potential to cause deterioration and damage to qualifying habitats and communities (particularly maerl, Hall-Spencer, 2000) through direct contact with the dredge gear, and sedimentation when dredging or trawling occur close to the qualifying interest. Unlike a demersal trawl, a pelagic trawl, operated correctly, should never make contact with the seabed. There is currently a voluntary ban on mobile gear. This is currently under review and may result in a prohibition through a fishery regulation.

Commercial Fishing – Static gear (creel/pot fishing)
The use of creels and/or pots in a localised area has the potential to cause deterioration of qualifying habitats and communities through direct contact, particularly during their deployment and/or recovery. Current levels of pot fishing do not appear to be causing any significant impacts on the conservation objectives.

Marine Traffic – Boat anchorages and moorings
Anchors and moorings have the potential to cause deterioration of qualifying habitats and communities through the direct impact of riser chains.

Marine Traffic – Boat maintenance and antifoulant use
Most antifoulant products are designed to kill or discourage naturally occurring organisms and, as such, cause damage to the water environment if used carelessly. Under such circumstances use of antifoulant has the potential to cause deterioration of qualifying habitats and communities within this site.

Marine Traffic – Commercial vessels
Red Bay SAC is within the confines of the North Channel, a busy shipping route. Large vessels entering the Irish Sea using the shipping traffic separation scheme may be less than 6km away as they pass Red Bay SAC. The pumping of bilges, discharge of ballast water, accidental grounding, or accidental oil (or other chemical) spillage from commercial vessels could therefore all occur close to the SAC. Such incidents have the potential to cause deterioration of qualifying habitats and communities through direct or indirect impacts. Emergency and oil spillage contingency plans should take into account specific qualifying interests and recognise the importance of marine SACs should such incidents occur. Smaller recreational and fishing vessels also have the potential to cause deterioration of qualifying habitats and communities through fuel spillage and grounding.

Scientific Research
Research activities have the potential to cause deterioration of qualifying habitats and communities through direct alteration, removal or manipulation of these

qualifying interests and their associated species. These activities should be communicated to the Department for specific advice for the potential of impact and subsequent mitigation.

Climate Change

Northern Ireland faces changes to its climate over the next century. Indications are that we will face hotter, drier summers, warmer winters and more frequent extreme weather events. The Northern Ireland Climate Change Adaptation Programme was published in January 2014. This contains the Northern Ireland Executive's response to the risks and opportunities identified in the Climate Change Risk Assessment for Northern Ireland (published January 2012) as part of the overall UK Climate Change Risk Assessment. The Adaptation Programme provides the strategic objectives in relation to adaptation to climate change, the proposals and policies by which each department will meet these objectives and the timescales associated with the proposals and policies identified in the period up to 2019.

ACTION: When developing SAC management plans, the likely future impacts of climate change should be considered.

11. MONITORING

The SACs are surveyed using two forms of monitoring:

Site Integrity Monitoring (SIM) is carried out to ensure compliance with the SAC conservation objectives. Potentially damaging activities may be picked up through the active marine ranger programme or by members of the public raising concerns with the Department. These reports are followed up through consultation with the relevant competent authorities.

Site Condition Assessment of the designated features is carried out on a rolling 6 year basis to pick up subtle changes in the condition of the feature and to ensure that the conservation objectives are being met.

Site condition assessments include a variety of techniques such as diving, remote cameras, sediment sampling and acoustic seabed mapping.

11.1 MONITORING SUMMARY

1. Monitor the integrity of the site (SIM or Compliance Monitoring)

This SIM should be carried out at least once every year.

2. Monitor the condition of the site (Condition Assessment)

Monitor the key attributes for each of the SAC selection features. This will detect if the features are in favourable condition or not. See Annex I.

The favourable condition table provided in Annex 1 is intended to supplement the conservation objectives only in relation to management of established and ongoing activities and future reporting requirements on monitoring condition of the site and its features. It does not by itself provide a comprehensive basis on which to assess plans and projects, but it does provide a basis to inform the scope and nature of any Habitats Regulations Assessment (HRA) that may be needed. It should be noted that completion of a HRA is a separate activity to condition monitoring, requiring consideration of issues specific to individual plans or projects.

12. REFERENCES

EUROPEAN ENVIRONMENT AGENCY (2008) Environmental Terminology Discovery Service http//glossary.eea.europa.eu/EEAGlossary/K/keystone_species [Accessed 20 October 2008]

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MERC Consultants (2007). Dive survey mapping of Maerl beds at Red Bay potential marine Special Area of Conservation.

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ANNEX I

The marine Annex I habitats are very broadly defined habitats that are often represented by large and complex sites. To effectively describe, monitor and manage such complex features, it has been necessary to divide some of them into smaller units called *sub-features*. Sub-features are distinctive biological communities (e.g. eelgrass beds, maerl beds, horse-mussel reefs), or particular structural or geographical elements of the feature. Due to the broad nature of marine Annex I features, it has often proved helpful, both in the development of conservation objectives, and of monitoring programs, to separate the feature into a number of constituent sub-features, and then to identify attributes and targets for the sub-features. The use of sub-features has been found to be particularly helpful for those marine Annex I features that represent whole physiographic units and permits a level of flexibility in the application of the UK's Common Standards Monitoring which has been found necessary when applying the standards at the site level.

Feature 1 (SAC) - Sandbanks which are slightly covered by sea water all the time (status A)

*=primary attribute. One failure among primary attribute = unfavourable condition

FEATURE	SUB-FEATURE	ATTRIBUTE	MEASURE	TARGET	COMMENTS
Subtidal sandbanks		* Extent	Area (ha) of the subtidal sandbanks to be measured periodically (frequency to be determined)	Ensure that quality and extent of sandbank are not threatened by aggregate removal. Extent should remain as recorded in the baseline survey. Deviation in extent should only be due to natural processes.	Currently there is no licensed aggregate removal activity within or near to this SAC.

FEATURE	SUB-FEATURE	ATTRIBUTE	MEASURE	TARGET	COMMENTS
		* Sediment character	Particle size analysis (PSA). Parameters include percentage sand/silt/gravel, mean and median grain size, and sorting coefficient, used to characterise sediment type. Sediment character to be measured once during the reporting cycle.	Average PSA parameters should not deviate significantly from an established baseline subject to natural change.	Sediment character defined by PSA is key to the structure of the feature, and reflects all of the physical processes acting on it. Particle size composition varies across the feature and can be used to indicate spatial distribution of sediment types thus reflecting the stability of the feature and the processes supporting it.

FEATURE	SUB-FEATURE	ATTRIBUTE	MEASURE	TARGET	COMMENTS
		* Topography	Depth distribution of sandbanks from selected sites, measured periodically (frequency to be determined).	Depth distribution should not deviate significantly from an established baseline, subject to natural change.	Depth and distribution of the sandbank reflects the energy conditions and stability of the sediment, which is key to the structure of the feature. Depth of the feature is a major influence on the distribution of communities throughout. The baseline for this feature was delivered through various commissioned work (DARD & AFBI, 2005; EHS & AFBI, 2006; MERC, 2007; Quercus, 2008). Regular bathymetric surveys will assist in determining that the topography remains within baseline parameters.

FEATURE	SUB-FEATURE	ATTRIBUTE	MEASURE	TARGET	COMMENTS
		Water density	Average temperature/salinity in the subtidal measured periodically throughout the reporting cycle (frequency to be determined).	Average temperature/salinity should not deviate significantly from an established baseline, subject to natural change.	Temperature and salinity are characteristic of the overall hydrography of the area. Changes in temperature and salinity influence the presence and distribution of species (along with recruitment processes and spawning behaviour) including those at the edge of their geographic ranges and non-natives. General water quality parameters in the Irish Sea are measured through a range of WFD and MSFD monitoring programmes. The results will be collated and assessed as part of the site condition assessment.
	Maerl bed communities	* Extent	Percentage (%) of maerl (live & dead maerl), measured once during the reporting cycle.	No decrease in percentage of maerl as whole, or of either dead maerl or live maerl, from an established baseline subject to natural change.	The percentage of maerl beds (and distribution of live and dead components within the beds) is key to their structural and functional importance.

FEATURE	SUB-FEATURE	ATTRIBUTE	MEASURE	TARGET	COMMENTS
		* Distribution of maerl bed communities	Distribution of maerl bed communities (listed in appendix III). Measured once per reporting cycle.	Distribution of maerl bed communities should not deviate significantly from an established baseline, subject to natural change. Key reference sites will be selected and sampled in accordance with the baseline methodology to enable a direct comparison of communities/species.	The relative distribution of the biotopes listed in appendix III is an important structural aspect of the feature. Changes in relative extent and distribution may indicate long term changes in the physical conditions influencing the feature.

FEATURE	SUB-FEATURE	ATTRIBUTE	MEASURE	TARGET	COMMENTS
	Maerl bed communities cont.	* Species composition of maerl bed communities	Presence and abundance of composite species of biotopes from maerl areas. Measured during summer, one during reporting cycle.	Presence and abundance of composite species should not deviate significantly from an established baseline, subject to natural change.	Species composition is an important contributor to the structure of the live maerl bed. The presence and relative abundance of characterising species gives an indication of the quality of the biotopes and change in composition may indicate cyclic change/trend in sediment communities. Live maerl is species rich and contains rare algal species which are relatively stable, making this habitat a good indicator of the condition of the subtidal sandbanks.