

## 8. NATIONALLY-IMPORTANT MARINE FEATURES

185. The rationale behind identifying threatened, rare or otherwise exceptional species and habitats for priority conservation attention is that, unless urgent action is taken, such species and habitats could either be driven to extinction or reduced to tiny populations or residual areas. Examples of this approach to conservation are to be found in the international and national series of Red Data Books, in the Bern Convention, in the EC Birds and Habitats Directives, and in national species protection legislation. The approach is also an important component of the work being undertaken in relation to OSPAR Annex V.
186. In the UK, this approach has also been followed in the preparation of Biodiversity Action Plans for a range of priority habitats and species, as a significant contribution towards the national implementation of the Convention on Biological Diversity. In the terrestrial environment at least, these Action Plans have channelled a great deal of national and local endeavour into the conservation of the priority features. Some 60 Action Plans relate to marine species and habitats, but the marine environment presents a number of particular challenges for Action Plan implementation.
187. One of the tasks identified by the Review of Marine Nature Conservation was the need to determine how to select nationally-important marine features for the UK (taken to include marine landscapes, habitats and species), and how to conserve such features in practice. As part of this work, JNCC was requested to develop draft criteria for the identification of nationally-important marine features. Drawing extensively upon previous and current work in other fora, notably IUCN, OSPAR and the EC Habitats and Birds Directives, a criteria paper was prepared (Connor *et al.*, 2002), which contained an outline rationale and a suite of draft criteria, together with indicative threshold values for using these criteria. The paper was endorsed by the Review of Marine Nature Conservation Working Group for the purpose of trialling as part of the Pilot.
188. Following on from the work to identify nationally-important features was the need to consider the conservation requirements of these features and the appropriate mechanisms for achieving their practical conservation.

### The draft criteria

189. The draft criteria for the identification of nationally-important marine features fall into two groups. Firstly, there are criteria to identify features of special importance; secondly there are criteria to identify features which are threatened or declining.
190. Features of special importance include those whose distribution is focussed on the UK, where the UK may host a particularly high proportion of the feature in a regional or global context, and, consequently, have a special responsibility for their conservation. Additionally, within the UK, certain features are worthy of special recognition because of their rarity.
191. The criteria for the identification of features of **special importance** are given in Connor *et al.* (2002) as follows:

### Proportional importance:

A high proportion of the marine landscape, habitat, or population of a species (at any time of its life cycle) occurs within the UK. This may be related to either the global or north-east Atlantic/European extent of the feature, with global importance being of greater significance.

Features may be categorised as follows:

Globally important:

a high proportion of the global extent of a marine landscape or habitat or a high proportion of the global

population of a species (at some stage in its life cycle) occurs within the UK. 'High proportion' is considered to be more than 50%, when known.

Regionally important:

a high proportion of the regional (north-east Atlantic) extent of a marine landscape or habitat, or a high proportion of the regional population of a species (at some stage in its life cycle) occurs within the UK. 'High proportion' is considered to be more than 50%, when known.

### Rarity:

Marine landscapes, habitats and species that are sessile or of restricted mobility (at any time in their life cycle) are considered rare if their distribution is restricted to a limited number of locations. Rarity can be assessed at global, regional or national level as follows:

Globally rare: no guidelines available.

Regionally rare: the 'limited number of locations' is set at 2% of the 50 km by 50 km UTM grid squares for each of the following three bathymetric zones in the north-east Atlantic:

- a. littoral (intertidal zone and splash zone);
- b. sublittoral (down to 200 m depth);
- c. bathyal / abyssal (below 200 m depth).

Nationally rare: recorded in 1-8 of the 10 km x 10 km squares in GB (i.e. less than 0.5% of the total numbers of squares - based on the numbers of 10 km squares in which the feature is recorded in comparison with the total number of squares within the 3 nm limit). In the case of a mobile species, the total population size will determine rarity.

The assessment should be dependent on scientific judgement regarding natural abundance, range or extent and the adequacy of recording.

192. Previous nature conservation policy has accorded a high priority to features that have declined significantly in extent or quality, or which are under threat of such decline. This element of the overall approach to nature conservation needs to be retained as an essential part of the conservation framework. Failure to take measures to conserve such features is likely to lead to their being lost.

193. The criteria for **declining or threatened features** given by Connor *et al.* (2002) are the following:

**Decline:** an observed, estimated, inferred or suspected significant decline in numbers, extent or quality of a marine landscape, habitat or species (for species, quality refers to life history parameters). The decline may be historic, recent or current and may be throughout UK waters, or at a regional or global level.

	Extent	Quality
Marine landscapes and habitats	A marine landscape or habitat that has declined in extent to 90% or less of its former natural extent in the UK, or its distribution within the UK has become significantly reduced (e.g. lost from several sub-regions).	A marine landscape or habitat for which quality, based on change from natural conditions caused by human activities, is negatively affected by: (1) a change of its typical or natural components over almost the entire UK, or (2) the loss of its typical or natural components in several sub-regions. Such judgement is likely to include aspects of biodiversity, species composition, age composition, productivity, biomass per area, reproductive ability, non-native species and the abiotic character of the habitat.

Extent		Quality
Species	A population of a species occurring in the UK is defined as significantly declined: if numbers of individuals show an extremely high and rapid decline in the area over an appropriate time frame, or the species has already disappeared from the major part of its former range in the area, or if numbers of individuals are at a significantly low level due to a long, continuous and distinct general decline in the past.	<p>The species has suffered a significant decline in one or more of the following:</p> <ul style="list-style-type: none"> <li>● Loss of genetic diversity</li> <li>● Loss of fecundity</li> <li>● Reduction in the number of mature individuals</li> <li>● Fragmentation of the population</li> </ul>

194. Assessments of decline should be those that occur beyond what is known about long-term natural variability and resilience, as well as in an appropriate time frame for that feature.

195. Lesser degrees of decline than 'significantly declined' will occur but will not qualify under this criterion. Evidence for decline can be based on actual evidence or reasonable expert judgement. The percentages suggested for categorizing habitat decline reflect the fact that habitats are far less likely to recover from even a small percentage loss compared to most species.

**Threat of significant decline:** the feature is expected to suffer significant decline in the foreseeable future due to its expected high level of exposure to damaging activities and to its inherent sensitivity to those activities. Where such potential decline is inferred or estimated, a precautionary approach should be adopted.

196. Sensitivity accounts for both the ease of damage to the feature by the activity and to its ability to recover from that damage. Sensitivity factors include, for example, smothering, loss of substratum and abrasion resulting from human activities.

197. The following table offers a way of integrating relative sensitivity and the degree of exposure to damaging activities to give a threat of significant decline rating (equates to vulnerability) (Gilliland, 2001).

Degree of exposure	Sensitivity			
	High	Moderate	Low	None detectable
High	High	High	Moderate	N/A
Medium	High	Moderate	Low	N/A
Low	Moderate	Low	Low	N/A
None	N/A	N/A	N/A	N/A

**Methods**

198. In order to develop a comprehensive list of nationally-important marine features, ideally all UK marine features should be tested against the criteria. It is unlikely that such a monumental task is achievable realistically, and it would certainly not be cost-effective. A list of those features thought likely to meet the criteria was, therefore, compiled initially to create a 'provisional' list.

199. The provisional list was compiled from features which are currently considered to be of conservation concern by other fora, e.g. OSPAR, IUCN, the Habitats Directive and the Birds Directive, together with species that were listed as nationally rare by Sanderson (1996). Expert review of this list resulted in some additions and deletions.

200. For the purpose of the Pilot, a list of nationally-important features which occur in the Irish Sea was needed. A subset of the provisional list was, therefore, created, containing those features which are known to occur in the Irish Sea (the Irish Sea provisional list).

201. The criteria were then tested by selecting a sample set of 25 'test' features selected from the Irish Sea provisional list, and applying the criteria to them. The test features were selected so as to cover all levels of feature (marine landscapes, habitats and species). The test species were selected to cover a broad range of taxonomic groups; this was to ensure that the criteria would be tested on the broadest range of feature types possible within the constraints of the Pilot. The sample of 25 'test' features represents approximately 10% of the features on the Irish Sea provisional list.
202. The work to test the criteria was carried out partly by JNCC (16 features), and partly by *MarLIN* (9 features). The criteria were applied to the test features by drawing up dossiers for each feature. The dossiers drew together information relating to each criterion in turn. Information sources used were those readily available to JNCC, including the JNCC marine reports and reprints collection, the internet, and the scientific literature available online. *MarLIN* had access to similar information and to the library resources of the Marine Biological Association.
203. Under the 'proportional importance' criterion, information on national and global species distribution and population numbers was researched. Exact information on what proportion of the global resource of a feature occurs nationally is usually unavailable. Therefore, inferences were often made from existing information on global distribution patterns and national/regional/global population sizes.
204. The 'rare' criterion was adopted from work originally carried out by Sanderson (1996), who assessed the rarity of UK marine benthic species based on information in the Marine Nature Conservation Review database. All features listed as 'rare' in Sanderson (1996) were accepted as meeting the 'rare' criterion.
205. The 'decline' and 'threat of decline' criteria were assessed by searching readily-available sources for relevant information. Exact information of percentage declines in the national resource of a feature is rarely available, but, in many cases, there is sufficient information to provide robust evidence for significant levels of decline or threat. In some cases, more tenuous inferences have to be drawn from the available data.
206. In order to investigate the extent to which the Irish Sea data used in the exercise reflected the true extent of knowledge of species and habitat distribution, the Marine Biological Association was commissioned to undertake an intensive literature search, and to contact individuals and institutions which might hold relevant information, on 48 of the features on the Irish Sea provisional list, to see how much additional information might be available.
207. In order to identify areas with high concentrations or clusters of records of nationally-important features, those features on the Irish Sea provisional list where relevant information was available were mapped in a GIS. Benthic features (benthic invertebrates, algae, and habitats) were mapped from records on the JNCC marine database. Seabird, cetacean and basking shark distribution maps were generated from data supplied by JNCC and the Marine Conservation Society.

## Results

208. The result of the criteria testing was that 18 of the 25 features tested qualified as nationally-important features (i.e. they met one or more of the criteria), one feature was borderline, two features failed to meet any of the criteria, and for 4 features there proved to be insufficient data to make the assessment. The features tested and the results of the assessment are given in Table 6.

**Table 6: Results of applying the criteria to the 25 test features.**

The first three columns identify the test features. The subsequent four columns show which criteria they meet or fail, or indicate that insufficient information was available to carry out the assessment. The column labelled NI shows the overall result of the assessment (yes - nationally-important; no - not nationally important; ? - unknown).

**Abbreviations:**

**PI** = Proportional Importance;

**R** = Rare;

**D** = Decline;

**T** = Threat of significant decline;

**NI** = Nationally Important;

**yes** = indicates criterion is met and the feature therefore qualifies as nationally important;

**yes\*** = probably meets criterion based on available information;

**(yes)** = borderline case;

**poss.** = possibly meets criterion;

**no\*** = probably does not meet criterion;

**no** = does not meet criterion;

**?** = not enough information found to carry out assessment

Test Feature	Common name	Feature Type	PI	R	D	T	NI	Comments
<i>Axinella damicornis</i>	Sponge	Species	?	no	?	?	?	Minimal information available
<i>Balanophyllia regia</i>	Scarlet and gold star coral	Species	no	no	?	?	?	Minimal information available
<i>Eunicella verrucosa</i>	Pink seafan	Species	no	no	?	poss	no	Suffers from lack of information despite recent research programmes
<i>Funiculina quadrangularis</i>	Tall sea pen	Species	no	no	yes	yes	yes	Suffers from lack of information despite recent research programmes
<i>Atrina fragilis</i>	Fan mussel	Species	no	yes	yes	yes	yes	
<i>Palinurus elephas</i>	European spiny lobster	Species	no	no	yes	yes*	yes	
<i>Cetorhinus maximus</i>	Basking shark	Species	?	yes*	yes	yes	yes	Suffers from lack of information
<i>Dipterus oxyrinchus</i>	Long-nosed skate	Species	no	yes	yes*	yes*	yes	
<i>Gadus morhua</i>	Cod	Species	no	no	yes	yes	yes	Much relevant info available.

Test Feature	Common name	Feature Type	PI	R	D	T	NI	Comments
<i>Lophius piscatorius</i>	Sea monkfish	Species	no	no	?	yes	yes	Possibly more information available especially with respect to past declines
<i>Alosa alosa</i>	Allis shad	Species	no	no*	yes	yes	yes	Some populations may be locally extinct. Decline may be reversed in some areas
<i>Puffinus puffinus</i>	Manx shearwater	Species	yes	?	?	poss.	yes	Much information available
<i>Halichoerus grypus</i>	Grey seal	Species	(yes)	no	no	poss.	(yes)	Meets criterion for proportional importance at regional but not at global level. This is a 'borderline' case.
<i>Callophyllis cristata</i>	Red seaweed	Species	?	?	?	?	?	Minimal information available
<i>Anotrichium barbatum</i>	Bearded Anotrichium	Species	no	yes	yes	yes	yes	Decline may be due to natural variability.
<i>Ostrea edulis</i> beds	Native oyster beds	Habitat	no	no	yes	yes	yes	Best considered at habitat level, though would also qualify at species level.
<i>Limaria hians</i> beds	File shell beds	Habitat	?	?	yes	yes	yes	Inferences made from information about the species <i>Limaria hians</i> as little/no information found regarding the habitat.
<i>Sabellaria spinulosa</i> reefs	Ross worm reefs	Habitat	?	yes*	yes	yes	yes	Suffers from lack of information and different definitions of habitat

Test Feature	Common name	Feature Type	PI	R	D	T	NI	Comments
<i>Modiolus modiolus</i> beds	Horse mussel beds	Habitat	no	no	yes	yes	yes	Best considered at habitat level. Suffers from lack of information and different definitions of habitat
CR.HCR.DpSp	Deep sponge communities	Habitat	poss	(yes)	no*	poss	?	More data analysis required
IR.HIR.Ksed.XKT	Tide swept kelp and seaweed communities	Habitat	?	no	yes*	yes	yes	
LS.LMX.LMUS	Intertidal mussel beds	Habitat	no	no	no	no	no	
Estuaries	Estuaries	Marine landscape	no	no	yes	yes	yes	Should meet proportional importance criterion - criterion threshold set too high. Meets 'decline' criterion in terms of decline in quality.
Deep-water mud basins	Deep-water mud basins	Marine landscape	no*	no	yes*	yes	yes	
Sealochs	Sealochs	Marine landscape	yes	no	yes*	yes*	yes	

209. The above results are of interest in themselves, but at least of equal significance were the conclusions gained from using the methodology. The main problem encountered with the method was the general insufficiency of data, and quite a number of judgements had to be made inferring conclusions from available information. For example, because quantitative information on national and global species populations is rare, 'proportional importance' often had to be inferred from different, though probably related, information such as the global distribution of the species (i.e. by assuming that species which are relatively widely distributed globally are likely to have a larger proportion of their population outside the UK than those having a much more restricted distribution). Similar inferences had to be made in the application of other criteria such as 'decline' and 'threat'. As a consequence, it is important that criteria are worded so as to allow the use of such inferences based on best scientific judgement, e.g. by using phrases such as 'believed or inferred decline', but ensuring that judgements are as rigorous as possible. Were strict quantitative thresholds insisted upon, it would be difficult to apply the criteria for all but a small minority of features. Even so, there will be a number of features for which, for the foreseeable future, there will be insufficient information to reach a clear decision.

210. There is a potential problem in using the criteria when applied to the marine landscapes because, except for types such as 'estuaries' for which spatial information is available, the relative extent of most has not yet been determined for the UK because the typology has only just been developed. However, this problem is one which can be overcome with further work.

211. It was found that there was no clear-cut level within the hierarchical structure of the National Marine Habitat Classification (Connor *et al.*, 2003) at which to identify habitats for the purpose of

testing. The testing exercise was applied initially at the biotope complex level (e.g. sublittoral mussel beds), but this included common mussel *Mytilus*-dominated biotopes as well as horse mussel *Modiolus modiolus* beds, and it may be necessary to use a lower level of the classification. In some cases, notably for reef forming species, the species might be common, but the habitat, which the species can form, is scarce. For example, Ross worm *Sabellaria spinulosa* is fairly widespread, but reef structures formed by this species are threatened and declining because of bottom trawling. The level at which habitats should be tested, therefore, is best determined by judgement on a case-by-case basis.

212. As a result of the testing exercise, it is recommended that the criteria be modified somewhat, so as to improve their applicability and to simplify the process for applying them. The recommended revisions are shown in Appendix 4.
213. The distribution of benthic species and habitats on the Irish Sea provisional list is shown in Map 15. Because of the relative lack of data in offshore waters, their distribution in those waters is likely to be under-represented.
214. For pelagic species, the distribution of seabird species on the provisional list in terms of relative species richness is shown in Map 16 for Irish Sea waters away from the immediate coast. Areas with the highest biodiversity index values tend to be concentrated in the Clyde Sea, the western half of the central Irish Sea, St George's Channel and close inshore around Pembrokeshire and off North Wales and Anglesey.
215. The results of the additional data search carried out by the Marine Biological Association were that no new records of any of the habitats could be found, but some new species records were located and were entered onto the database. It was concluded that the existing JNCC marine data base, though it will contain some gaps, is a cost-effective tool to use for the purpose of applying the criteria to benthic features. In undertaking future work on nationally-important features, it may only prove cost-effective to carry out such additional data searches where there are known significant gaps in the existing database or where there is reason to believe that the addition of further records will materially affect the outcome of the assessment.

## Discussion

216. The draft criteria were fairly straightforward to apply, though time-consuming. Difficulty did arise as a result of the lack of data internationally, particularly with respect to the assessment of species populations, and habitat extent. Nonetheless, with the modifications proposed in Appendix 4, the criteria can be used effectively and produce results which assess consistently whether marine landscape, habitat and species features should be considered to be of national importance.
217. The practical conservation of nationally-important features is not straightforward. It is anticipated, from the work carried out to date, that in the order of 300 features might meet the criteria in the UK and adjacent waters, of which perhaps half will occur in the Irish Sea. These features will range from relatively static benthic features known from only one or two localities, to highly mobile, wide-ranging species. Some features will be conspicuous and easy to identify, others will be inconspicuous or difficult to differentiate from ones which are similar in appearance but which are not nationally-important. The approach needed to conserve the various features can be expected to differ considerably across the range of features.
218. In general, the features are likely to fall into one or more of the following categories:
  - i. features whose distribution is clustered and centred on a small number of distinct localities for all or most of the year;
  - ii. features which form aggregations in predictable localities during at least part of the year;

- iii. features which are widely but thinly distributed, though everywhere uncommon;
  - iv. species which are mobile, occurring as individuals or in small or even large groups, and which may be vulnerable to capture fisheries;
  - v. species which are vulnerable to disturbance resulting from human-induced noise, vibration or movement;
  - vi. features which have narrow tolerances in relation to water conditions or which are vulnerable to pollution;
  - vii. species which are relatively mobile and which are at the edge of their range in national waters.
219. While needs will vary across the range of features, the types of measures needed to conserve nationally-important features are likely to include:
- i. zoning of human activities so as to avoid damage or disturbance to sensitive areas, within a wider framework of spatial planning. This zoning would include the identification of areas of particular value to nature conservation where human activity would be carefully managed;
  - ii. measures to reduce the impact of the incidental take of vulnerable mobile species by capture fisheries;
  - iii. measures to reduce human-induced noise, vibration or movement;
  - iv. measures to ensure the maintenance or improvement of water quality conditions, or the avoidance of pollution;
  - v. measures aimed at maintaining the physical and biological processes that support marine ecosystems, including the maintenance of their trophic structure;
  - vi. Action Plans to address the specific needs of particular features.
220. Further work needs to be carried out to determine the balance of measures outlined in paragraph 219 across the features. It may prove cost-effective to undertake this scoping work, initially, in relation to features on the provisional list since a number of the measures will be required to conserve a wide range of other biodiversity features, and additional action to conserve nationally-important features of similar type may not be necessary. Where it appears that specific Action Plans would be needed for particular features, the criteria could then be applied to those features to ensure that they are, indeed, nationally-important and that such action is required.
221. It should be noted that one of the test species which failed the test criteria, the Pink seafan, is a Biodiversity Action Plan priority species. This fragile and attractive species is potentially threatened by mechanical damage and by collecting, and the conservation measures taken to support it are considered to be helping to maintain its populations. In circumstances such as these, the Pilot recommends the maintenance of existing conservation measures.
222. It is desirable that a single national process is operated in relation to the identification of nationally-important features and the identification of action needed to conserve them. The Pilot considers that it would be desirable, therefore, to combine the process recommended here with the current Biodiversity Action Plan process in relation to marine features.
223. Measures to address the needs of nationally-important features are discussed further in Chapters 9, 12 and 13 of this report.

**Recommendations**

224. The following recommendations are made with respect to nationally-important marine features:

**R17 The criteria for the identification of nationally-important marine features, as modified and shown in Appendix 4, should be adopted by the UK subject to any refinement that may be needed following further discussion with other countries through EU and OSPAR. The upper and lower ends of the range of nationally-important features should be marine landscapes and species respectively, but the scale at which habitats are selected should be left to judgement in the light of relevant circumstances.**

**R18 Further work should be carried out to determine which nationally-important features may require specific Action Plans. A single national process, including work undertaken under the UK Biodiversity Action Plan in relation to marine features, should be operated in the identification of nationally-important features and of the action needed to meet their conservation requirements.**

225. A full report of the work carried out on the nationally-important features is available (Lieberknecht *et al.*, 2004a, and online at [www.jncc.gov.uk/irishseapilot](http://www.jncc.gov.uk/irishseapilot)).