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Identification of Priority Marine Features in Scottish offshore waters

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Summary

The Joint Nature Conservation Committee and Scottish Natural Heritage (SNH) have been working together on behalf of Scottish Government to develop a prioritised list of marine features in Scotland to underpin conservation action across Scottish Government's 'three-pillar approach' to effective marine nature conservation as part of their Marine Nature Conservation Strategy.

In order to produce the list, referred to as the Priority Marine Features (PMFs) list, species and habitats on existing conservation schedules were assessed against criteria that considered whether a significant proportion of their population occur in Scotland's seas, whether they are under threat or in decline and the functional role they play.

This report details work undertaken to identify the list of recommended PMFs in Scottish offshore waters by JNCC and compliments the report produced by SNH that details the equivalent work undertaken in territorial waters (Howson *et al* 2012).

It is envisaged that the combined PMF list will be used to support the advice SNH and JNCC provide on marine biodiversity, playing a role in the delivery of the new marine planning and licensing systems set out in the Marine (Scotland) Act 2010 and the UK Marine and Coastal Access Act 2009.

Contents

1 Aims and scope

The Joint Nature Conservation Committee (JNCC) and Scottish Natural Heritage (SNH) are working together on behalf of Scottish Government to recommend a list of Priority Marine Features (PMFs) in Scotland's seas. The purpose of this list will be to guide policy decisions regarding the conservation of Scotland's seas. For practical reasons, the work has been split into two parts covering territorial waters (led by SNH) and offshore waters (led by JNCC). The work undertaken for the identification of PMFs in territorial waters in presented in Howson *et al* (2012).

This report and the accompanying list of offshore PMFs presented in Annex 1, which have been produced by marine species and fisheries specialists at JNCC, comprise JNCC's advice on the offshore component of the Scottish PMF list.

SNH and JNCC compiled a separate list of features of nature conservation importance for which it would be appropriate to use area-based mechanisms such as marine protected areas as a means of affording protection (MPA search features). This list covers both territorial and offshore waters and has been published as an annex in the Scottish MPA Selection Guidelines. Offshore habitats included in this list have been thoroughly reviewed by JNCC habitats specialists and others, and are considered to adequately cover the requirements for the PMF list. This report therefore largely describes and presents work on the development of a list of species PMFs in offshore waters.

2 Assessment methodology developed for offshore waters

An initial long-list of species of conservation interest was drawn up from a number of national and international conservation instruments. These included the UKBAP priority species, OSPAR list of threatened and declining species, annexes of the EU Habitats Directive, Berne Convention and Convention on Migratory Species (Bonn Convention). The resulting long-list comprised 131 species. This list is somewhat shorter than the long-list of species for territorial waters (Howson *et al* 2012), largely because Nationally Important Marine Features (NIMF) were not considered. The NIMF list was a precursor to the UKBAP list and all the features on this list have been assessed against BAP criteria at the UK level. In addition, relatively few of these features occur in offshore waters. Consequently, it was considered unnecessary to re-consider them.

A criteria-based approach was developed in order to refine the initial long-list of species. As was the case for territorial waters, six criteria were considered:

- Proportional importance
- Decline/Threat of decline
- Functional importance
- Rarity
- Data deficiency
- International commitment

3 Criteria application

3.1 Proportional importance

For many species in Scottish offshore waters, quantitative data on abundance and distribution are lacking making it difficult to objectively make a judgement as to whether a species has proportional importance in Scottish waters.

In addition, it is not clear whether percentage thresholds for national, regional and global significance are equally applicable to the larger geographical area of Scottish offshore waters as they are for territorial waters. As well as this, for highly mobile migratory species, many of which have very extensive global distribution, percentage occurrence in Scottish offshore waters may not necessarily give a good indication of the importance of Scottish waters for their conservation.

A simple qualitative filter was applied with the intention of excluding species that are not normally present in Scottish waters or are present at such low levels that effective conservation measures are unlikely to be achievable.

Species were categorised according to eight descriptive or semi-quantitative descriptors of status in Scottish offshore waters. No firm thresholds were set to define the categories and assignment of species to categories therefore relied heavily on expert judgement. Data sources used to support this categorisation included MarLIN distribution maps, CMS whales and dolphin information reports, Fishbase.org, OSPAR case studies and ICES working group reports. The eight categories were;

- **not present:** species has not been recorded in Scottish waters
- **extirpated:** species occurred in Scottish waters in the past but is now effectively extinct from Scotland
- **vagrant:** species considered to be vagrant in Scottish offshore waters
- **rare migrant:** wide-ranging species with regular but very scarce records in Scotland where Scottish waters make up only a very small proportion of their overall range (e.g. leatherback turtle).
- **edge of range:** mobile species with a very common presence elsewhere, for which Scottish waters are at the periphery of their distribution (e.g. common sole)
- **Inshore:** species which occur predominantly in territorial waters so unlikely to be significant beyond 12 nautical miles
- **data deficient;** presence in Scottish offshore waters unknown or uncertain
- **regular occurrence;** regularly occurring in Scottish offshore waters as part of normal distribution.

Only those species considered to have **regular occurrence** in Scottish offshore waters were deemed to have passed this criterion.

3.2 Decline/threat of decline

As with the proportional importance criterion, for many species in Scottish offshore waters, quantitative data on abundance and distribution are lacking making it difficult to objectively make judgement as to whether a species is subject to decline/under threat of decline.

Everything included in the initial long-list of species have previously been assessed against a number of decline criteria including the UKBAP, OSPAR (Texel-Faial) and IUCN red-list criteria. They have therefore been recognised as threatened or declining on a regional or

global scale. In almost all cases, populations in Scottish offshore waters are part of these regional and global populations and so there is no biological justification for considering trends in the 'Scottish population' separately from wider scale trends. On this basis, it is assumed (unless there is clear evidence to the contrary) that any species that has passed the decline criteria for inclusion on the UKBAP, OSPAR, CITES or IUCN red-list is in decline or under threat of decline in Scottish offshore waters.

However, since some of these threat and decline assessments may have been carried out some time ago, possibly with fewer data than are available now, all of the species were 'sense checked' by JNCC marine species and fisheries specialists. Where there is clear evidence that previous threat/decline criteria are no-longer valid, this is noted in the comments column of the assessment spreadsheet.

3.3 Functional importance

Very few ecosystems in offshore waters are sufficiently well known to be able to ascribe functional importance to individual species. Consequently, functional importance has not been used as a pass/fail criterion in this assessment. However, in the few cases in which some key ecosystem role is known, this has been noted in the assessment spreadsheet for consideration at a later stage, e.g. in further refining the list, should this be required.

3.4 Rarity in Scotland

As with the approach undertaken for territorial waters, it was considered that rarity *per se* is not a good indicator of conservation importance as many species that are considered rare in Scotland are at the limits of a much wider distribution. It is also likely that some apparently rare species are simply under-recorded due to lack of appropriate surveying. Rarity was therefore not considered.

4 Recommended Priority Marine Features in Scottish offshore waters

JNCC's advice on recommended offshore species to be included on the list of Scottish PMFs has been combined with the habitat PMFs and is presented in Annex 1. Where PMFs in offshore waters have also been listed as PMFs in territorial waters, the Scottish marine area column has been filled in with 'both'.

5 References

HOWSON, C.M., STEEL, L., CARRUTHERS, M., GILLHAM, K. 2012. *Identification of Priority Marine Features in Scottish Territorial Waters*. Scottish Natural Heritage Commissioned Report. No. 388.

Appendix 1

This annex includes three tables covering seabed habitats, low or limited mobility species and highly mobile species. The tables highlight whether the features are of particular interest in offshore waters or both offshore and territorial waters.

Table 1 – Habitats

Priority Marine Feature (PMF)	**Component biotopes / species** (biotope / common name)	**Component biotopes / species** (biotope code / species name)	**Scottish marine area**
Burrowed mud	Seapens and burrowing megafauna in circalittoral fine mud	SS.SMu.CFiMu.SpnMeg	Both
	Burrowing megafauna and *Maxmuelleria lankesteri* in circalittoral mud	SS.SMu.CFiMu.MegMax	Both
	Tall seapen	*Funiculina quadrangularis*	Both
	Fireworks anemone	*Pachycerianthus multiplicatus*	Both
	Mud burrowing amphipod	*Maera loveni*	Both
Carbonate mound communities	Carbonate mound communities	No code	Offshore waters
Cold-water coral reefs	Coral reefs	SS.SBR.Crl	Both
Coral gardens	Coral gardens	No code	Offshore waters
Deep sea sponge aggregations	Deep sea sponge aggregations	No code	Offshore waters
Northern sea fan and sponge communities	Deep sponge communities (circalittoral)	CR.HCR.DpSp	Both
	Northern sea fan	*Swiftia pallida*	Both
Offshore deep sea muds[1]	Offshore deep sea muds	SS.SMu.OMu.AfalPova SS.SMu.OMu.ForThy SS.SMu.OMu.LevHet SS.SMu.OMu.PjefThyAfil SS.SMu.OMu.MyrPo	Offshore waters

[1] In addition to the continental shelf biotopes listed, the PMF also includes Atlantic and Arctic influenced offshore deep sea muds occurring on and off the continental slope.

Priority Marine Feature (PMF)	**Component biotopes / species** (biotope / common name)	**Component biotopes / species** (biotope code / species name)	**Scottish marine area**
Offshore subtidal sands and gravels[2]	Offshore subtidal sands and gravels	SS.SCS.OCS.GlapThyAmy SS.SCS.OCS.HeloPkef SS.SSa.CFiSa.EpusOborApri SS.SSa.CFiSa.ApriBatPo SS.SSa.OSa.MalEdef SS.SSa.OSa.OfusAfil	Offshore waters
Seamount communities	Seamount communities	No code	Offshore waters
Submarine structures made by leaking gases	Submarine structures made by leaking gases	No code	Both

[2] In addition to the continental shelf biotopes listed, the PMF also includes Atlantic and Arctic influenced offshore subtidal sands and gravels occurring on and off the continental slope.

Table 2 – Low or limited mobility species

Priority Marine Feature (PMF)	Species name	Taxon group	Scottish marine area
Northern feather star	*Leptometra celtica*	Starfish and feather stars	Both
Fan mussel	*Atrina pectinata*	Snails, clams, mussels and oysters	Both
Ocean quahog	*Arctica islandica*	Snails, clams, mussels and oysters	Both

Table 3 – Mobile species

Priority Marine Feature (PMF)	Species name	Taxon group	Scottish marine area
Anglerfish (juveniles only in territorial waters)	*Lophius piscatorius*	Bony fish	Both
Atlantic halibut	*Hippoglossus hippoglossus*	Bony fish	Offshore waters
Atlantic herring (juveniles and spawning adults in territorial waters)	*Clupea harengus*	Bony fish	Both
Atlantic mackerel	*Scomber scombrus*	Bony fish	Both
Black scabbardfish	*Aphanopus carbo*	Bony fish	Offshore waters
Blue ling	*Molva dypterygia*	Bony fish	Offshore waters
Blue whiting	*Micromesistius poutassou*	Bony fish	Offshore waters
Cod	*Gadus morhua*	Bony fish	Both
Greenland halibut	*Reinhardtius hippoglossoides*	Bony fish	Offshore waters
Horse mackerel	*Trachurus trachurus*	Bony fish	Offshore waters
Ling	*Molva molva*	Bony fish	Both
Norway pout	*Trisopterus esmarkii*	Bony fish	Both
Orange roughy	*Hoplostethus atlanticus*	Bony fish	Offshore waters
Round-nose grenadier	*Coryphaenoides rupestris*	Bony fish	Offshore waters
Saithe (juveniles only in territorial waters)	*Pollachius virens*	Bony fish	Both
Sandeels	*Ammodytes marinus* & *Ammodytes tobianus*	Bony fish	Both (although only *A. marinus* occurs offshore)
Whiting (juveniles only in territorial waters)	*Merlangius merlangus*	Bony fish	Both

Priority Marine Feature (PMF)	Species name	Taxon group	Scottish marine area
Basking shark	*Cetorhinus maximus*	Sharks, skates and rays	Both
Common skate	Formerly *Dipturis batis* now split provisionally into *D.* cf. *flossada* and *D*. cf. *intermedia*	Sharks, skates and rays	Both
Leafscale gulper shark	*Centrophorus squamosus*	Sharks, skates and rays	Offshore waters
Porbeagle shark	*Lamna nasus*	Sharks, skates and rays	Offshore waters
Portuguese dogfish	*Centroscymnus coelolepis*	Sharks, skates and rays	Offshore waters
Sandy ray	*Leucoraja circularis*	Sharks, skates and rays	Offshore waters
Spiny dogfish	*Squalus acanthias*	Sharks, skates and rays	Both
Atlantic white-sided dolphin	*Lagenorhynchus acutus*	Whales, dolphins and porpoises	Offshore waters
Bottlenose dolphin	*Tursiops truncatus*	Whales, dolphins and porpoises	Both
Fin whale	*Balaenoptera physalus*	Whales, dolphins and porpoises	Offshore waters
Harbour porpoise	*Phocoena phocoena*	Whales, dolphins and porpoises	Both
Killer whale	*Orcinus orca*	Whales, dolphins and porpoises	Both
Long-finned pilot whale	*Globicephela melas*	Whales, dolphins and porpoises	Offshore waters
Minke whale	*Balaenoptera acutorostrata*	Whales, dolphins and porpoises	Both
Northern bottlenose whale	*Hyperoodon ampullatus*	Whales, dolphins and porpoises	Offshore waters
Risso's dolphin	*Grampus griseus*	Whales, dolphins and porpoises	Both
Short-beaked common dolphin	*Delphinus delphis*	Whales, dolphins and porpoises	Both
Sowerby’s beaked whale	*Mesoplodon bidens*	Whales, dolphins and porpoises	Offshore waters
Sperm whale	*Physeter macrocephalus*	Whales, dolphins and porpoises	Offshore waters
White-beaked dolphin	*Lagenorhynchus albirostris*	Whales, dolphins and porpoises	Both
Common Seal	*Phoca vitulina*	Seals	Both
Grey seal	*Halichoerus grypus*	Seals	Both