# Identifying possible Marine Conservation Zones for highly mobile species: Principles for third-party proposals.

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# Identifying possible Marine Conservation Zones for highly mobile marine species: principles for third-party proposals

## Executive summary

Defra's guidance on the selection and designation of Marine Conservation Zones (MCZs) outlines their ambition to develop an ecologically coherent and well-managed network of MPAs (Defra, 2010), which in turn will contribute to the achievement of European and international marine conservation targets such as those outlined under the EU Marine Strategy Framework Directive and OSPAR Convention. Since 2013, Defra have designated 50 MCZs and in 2017 Defra are preparing to designate a further tranche of MCZs, with the possibility to include sites proposed for the conservation of highly mobile species.

Designating an area to conserve a species must clearly be able to contribute to the long-term viability of protected populations and where necessary help recover those populations within the MPA network. Although many highly mobile species in the UK are already protected under existing European and national legislation, MCZs could be designated for highly mobile species if there is clear evidence that their conservation would benefit from site-based protection measures.

This document provides guidance by way of 'principles' that third-parties should follow in developing MCZ proposals for highly mobile species (Section 2):

- **Ecological significance -** of an area to the life history of the proposed highly mobile species feature
- **Persistence** - of the proposed highly mobile species feature over time (allowing for natural seasonal and inter-annual variation) and occurrence at higher densities in contrast to the surrounding sea area
- **MPA size and delineation** of the proposed MCZ at an appropriate scale for the conservation of the proposed highly mobile species features
- **Appropriateness of management -** has been considered to best ensure the conservation objectives of the proposed highly mobile species features are met

Section 4 provides a submission template third-parties should use to develop their proposals, and Section 5 the assessment framework JNCC and Natural England will use to review submissions.

Our findings will then be provided to Defra for their consideration as to whether proposals are suitable for designation as an MCZ; proposed MCZs would then be subject to public consultation and an assessment of their potential socio-economic impact prior to any final decision to designate as MCZs.

## 1. Background

1.1. In 2010, Defra published guidance on the selection and designation of Marine Conservation Zones (Defra 2010). In that document it is stated that the overall aim of the Marine Protected Area (MPA) network is to develop an ecologically coherent and well-managed network of Marine Protected Areas (MPAs) that is well understood and supported by sea-users and other stakeholders. Achieving this aim will make a major contribution to recovering and protecting the richness of our marine wildlife and environment and help toward achieving Good Environmental Status in our seas as required by the EU Marine Strategy Framework Directive.

1.2. Defra (2010) notes that the MPA network will comprise European marine sites (that is Special Protection Areas and Special Areas of Conservation) together with Marine Conservation Zones (MCZs), marine parts of Ramsar sites and Sites of Special Scientific Interest.

1.3. Section 117 of the Marine and Coastal Access Act (2009) sets out the grounds for designating Marine Conservation Zones, noting their purpose is to conserve features. 'Conserve' is further explained to clarify that an MCZ should 'assist in it's [the feature] conservation' and enable or facilitate maintenance or recovery. Designating an area to conserve a species must clearly be able to contribute to the long-term viability of protected populations and, where necessary, help recover those populations.

1.4. In the UK many highly mobile species are already protected under existing European and national legislation. Marine protected areas (including MCZs) should be designated for highly mobile species only where there is clear evidence that their conservation would benefit from site-based protection measures, such as where a species is present in sufficient numbers at predictable and stable locations (for example where there is an important food source) in order to establish meaningful site boundaries, conservation objectives and management that would go beyond that provided by wider seas measures.

1.5. The ecology of highly mobile species at sea (cetaceans, birds and fish/elasmobranchs) is such that it is considered in many cases that their conservation can be more effectively delivered through measures taken at the wider seas scale, rather than measures taken within sites such as MCZs. However, where there is evidence that a spatially definable area is of persistent importance to the life history of a highly mobile species and of localised threats that need to be managed in that area, site-based mechanisms may prove to be effective conservation tools. Few such areas have been identified so far in English Waters and Northern Irish Offshore Waters. Exceptions include the identification of Kingsmere MCZ as being of important for black bream.

1.6. This document lays out a set of principles (Section 2) that Natural England and JNCC believe are important for third-parties to consider within the context of proposing MCZs for highly mobile species in English Waters and Northern Irish Offshore Waters. In Section 3 we provide lists of those species for which MCZs may be appropriate and a high-level assessment of whether their ecology and occurrence in English Waters and Northern Irish Offshore Waters (or knowledge thereof) is likely to result in there being a good case for further site protection. In

Section 4, we provide a submission template for third-parties to complete in preparing any submission for Natural England and JNCC to consider. Section 5 sets out an overview of how Natural England and JNCC will assess third-party proposals.

1.7. All submissions should be sent electronically to mcz@defra.gsi.gov.uk by **midnight 29th July 2016**. Proposals received after this date will not be considered.

1.8. Proposals will only be considered within English Waters and Northern Irish offshore waters.

1.9. It is important to note that the decision on whether a highly mobile species should be progressed as a designated feature of a MCZ rests with Defra. Natural England and JNCC only provide scientific advice in their role as statutory nature conservation advisors.

## 2. Principles to guide the development of proposals

2.1. The identification of MCZs to date has been based on the principles outlined in the Ecological Network Guidance (ENG) (Natural England and JNCC, 2010) to establish a network of MPAs. The ENG sets out a series of seven network design principles (with 19 underlying guidelines) for developing a network of MCZs, to reflect the guidance provided by the OSPAR Commission and the obligations under the Marine & Coastal Access Act (2009). These principles provide the context in which sites can be identified for features such that all sites in combination make up the network. In addition, the ENG also lays out several further considerations that may be helpful in the development of a network of MCZs.

2.2. Some of the guidelines and further considerations in the ENG are not directly relevant in the context of highly mobile species. In Annex I of this guidance document, we provide an interpretation of the ENG principles and further considerations in the context of highly mobile species as a means to establishing which principles third-parties must consider in developing proposals for highly mobile species MCZs

2.3. Principles for third-parties to consider in developing proposals for MCZs to conserve highly mobile species

JNCC and Natural England have developed the following principles that should be considered, alongside the relevant ENG principles, by third-parties in developing proposals for MCZs for highly mobile species to contribute to the MPA network:

- **Principle 1 - Ecological significance** – is the area considered to be of critical importance to the life cycle of the highly mobile species, e.g. for feeding or breeding behaviours. 'Critical importance' should be read as if the area was not protected within an MCZ the species would be affected at a population or sub-population level. Identifying the need for, the number of, and the location of MCZs to conserve a highly mobile species should be based on an appropriate-scale assessment. An appropriate scale assessment might be, for example, at the bio-geographical level, UK-wide assessments or, for cetaceans, within Management Units of important areas for each species. Such an approach can

help demonstrate how any single or suite of site proposals may contribute to the conservation of a given species.

This principle links to the ENG principles of *representativity*, *replication, adequacy* and *connectivity* because it concerns the number, size and distribution of sites for highly mobile species clearly relevant to important life-history stages, and the further consideration of *areas of additional ecological significance* (see Annex I). Where there is evidence to support multiple sites of importance to different life-history stages of a given highly mobile species within English Waters and Northern Irish Offshore Waters, multiple MCZ proposals for a given highly mobile species may be considered. In the context of adequacy, third-parties must also give consideration to any protection afforded by existing MPAs and other measures for the conservation of species in UK waters.

**Principle 2 – Persistence –** supporting data should demonstrate long-term presence (allowing for natural seasonal and inter-annual variation) at a greater than average density of the wider area where possible. Approaches to considering persistence can differ depending on the species type in question. To support third-parties, we have provided an overview of best practice examples in Annex II of this guidance document.

This principle links to the ENG principle of *best available evidence* (see Annex I). Third-parties should ensure that they consult with a wide-range of appropriate information sources when developing any proposal for an MCZ to conserve a highly mobile species. Preference will be given to proposals underpinned by scientifically robust, quality assured long-term datasets that account for aspects such as seasonal and inter-annual variation. However, it should be noted that lay and expert-knowledge may also be used as an information source to support proposals. Contrary information should not be ignored – in other words evidence should not be used selectively without good reason.

- **Principle 3 – MPA size** – MCZs should be large enough to maintain the supporting functions that the species requires in a given location where any site is being considered. Such consideration includes ensuring that any supporting habitats, oceanographic processes, geological/geomorphological features or species important to the conservation of a given highly mobile species in the same locality are also considered in the context of MCZ size and extent. MCZ proposals aiming to conserve highly mobile species should follow the MCZ boundary setting principles outlined in the ENG; i.e. ensuring a minimum number of straight lines, ensuring compact shapes tightly aligned to features (including an appropriate margin if considered necessary to achieve conservation of the features) and combining adjoining discrete locations.

  This principle links to the ENG principle of *viability* and the further consideration of *MCZ boundaries* (see Annex I). Third-parties should ensure that boundaries are drawn around areas of regular/predictable species concentrations. Where there is a clear link between a highly mobile species and specific habitats and/or species (e.g. as a prey source), oceanographic processes or geological/geomorphological features, those parameters can be used as a

basis for boundary delineation rather than the distribution of the highly mobile species itself.

**Principle 4 – Appropriateness of management** – The particular value of site-based protection measures to the conservation of the species must be clear in an MCZ proposal to conserve a highly mobile species. For example, the proposal would demonstrate how a site-based measure compares to wider (possibly already existing) measures. Site-based measures may be particularly useful where localised threats are present that are not adequately considered by wider existing measures. A proposal should also consider whether improvements to measures taken at a wider area would be more effective than a local site-based measure such as a MCZ.

This principle links to the ENG principles of *protection* and the further consideration of *impacts and feature vulnerability* (see Annex I).

Although not covered by a specific principle, the further consideration *scientific value* may also be considered by third-parties where relevant.

## 3. Species for which proposals will be considered

3.1. In the sub-sections that follow, we provide a review of the appropriateness of MCZs for a range of cetaceans, birds and bony fish/elasmobranchs to help guide third-parties in the development of MCZ proposals. The ENG feature lists did not include any species listed in the EC Habitats Directive and EC Birds Directive for which site-based protection is required. Those species will not generally require further protection under national legislation (Defra 2010). Some of the highly mobile species are also subject to on-going work to identify SACs or SPAs to complete the Natura 2000 network. Any sites designated for these species will therefore make a contribution to the MPA network in due course.

3.2. It is important to note that some of the features listed in this section may already be afforded some protection by existing MPAs and this should be taken into account before new MCZs are identified. Those MPAs may already be making an appropriate contribution to the MPA network for that species, and the requirement for additional sites would need to be clearly justified in the context of the wider conservation of the species.

3.3. Third parties should not consider the features introduced below as a finite list for which MCZs can be designated. The Marine & Coastal Access Act (2009) allows for the designation of MCZs for any marine species or habitat (e.g. as has been the case with Kingmere MCZ for Black Bream). These guidelines should not inhibit third-parties from identifying MCZs for other features where there is a strong case for site designation to contribute to their conservation.

3.4. **CETACEANS**

JNCC and Natural England's assessment of the 'in-principle' suitability of MCZs for resident or regularly present cetaceans in English Waters and Northern Irish Offshore Waters is presented in Table 1. In-principle suitability for site protection has been considered under three categories: 1) unknown; 2) unlikely, and 3) possibly. Whether an MCZ is necessary to conserve the species and/or make a contribution to the MPA network is a separate consideration. The latter consideration is important since some

species in Table 1 also fall on Annex II of the EC Habitats Directive and will therefore be considered for designation in an SAC. Given there is currently a process ongoing to designate SACs for harbour porpoises, we think it unlikely that a case could be made for an MCZ for this species at this time.

The list of cetaceans is derived mainly through previous assessments of those species considered to be resident/common in the UK (Pinn, 2010; approximately defined as at least 75 sightings a year)[1]. These are also the species about which we have sufficient information to complete assessments of conservation status under the EC Habitats Directive.

**Table 1** JNCC and Natural England's assessment of the 'in-principle' suitability of MCZs for resident cetaceans in English Waters and Northern Irish Offshore Waters.

| **Species name** | **Common name** | **Suitability of MCZs in English Waters and Northern Irish offshore Waters** | **Management unit identified** |
|---|---|---|---|
| *Balaenoptera acutorostrata* | Minke whale | Unknown | Yes – see IAMMWG, 2015 |
| *Balaenoptera physalus* | Fin whale | Unlikely – preferred habitat is in deeper waters off the continental shelf, however high numbers have been observed in the Celtic and Irish seas in the summer months | No |
| *Delphinus delphis* | Common dolphin | Unknown | Yes - see IAMMWG, 2015 |
| *Globicephalas melas* | Long finned pilot whale | Unlikely - the species is at the limit of its distribution in UK/English Waters and Northern Irish Offshore Waters | No |
| *Grampus griseus* | Risso's dolphin | Unknown | Yes – see IAMMWG, 2015 |

[1] A variety of data sources such as strandings reports, NGO reports, and industry data indicate the presence of increased numbers of humpback whale in UK waters in recent years. However, the species has not been included in the list as currently it not seen in sufficient numbers on an annual basis.

| Species name | Common name | Suitability of MCZs in English Waters and Northern Irish offshore Waters | Management unit identified |
|---|---|---|---|
| *Lagenorhynchus acutus* | Atlantic white sided dolphin | Unlikely - preferred habitat likely to be in deeper areas beyond English waters and Northern Irish Offshore Waters | Yes - see IAMMWG 2015 |
| *Lagenorhyncus albirostris* | White-beaked dolphin | Possibly | Yes - see IAMMWG, 2015 |
| *Orcinus orca* | Killer whale | Unlikely – predominately observed in Scottish waters in the UK | No |
| *Phocoena phocoena* | Harbour porpoise | Possibly – note the species is listed on Annex II of EC Habitats Directive (see comment in 3.4 above) | Yes - see IAMMWG, 2015 |
| *Physeter macrocephalus* | Sperm whale | Unlikely - as the species is at the limit of its distribution in UK/English Waters and Northern Irish Offshore Waters | No |
| *Tursiops truncatus* | Bottlenose dolphin | Possibly– note the species is listed on Annex II of EC Habitats Directive (see comment in 3.4 above) | Yes - see IAMMWG, 2015 |

### 3.5. **BIRDS**

The process of drawing up a long-list of species of potential bird FOCI comprised those listed on any one of: the OSPAR list of Threatened and/or Declining Species and Habitats, NERC Section 41 Species of Principal Importance in England, the species listed as Red or Amber status in the Birds of Conservation Concern 4 (Eaton *et al* 2015), species listed on Schedule 1 of the Wildlife & Countryside Act 1981 (as amended) (protected at all times), and species listed on Annex 1 of the Birds Directive.

This approach identified 328 species/sub-species/races of birds. However, species were excluded from the final list of potential bird FOCI in a two-step process. First, species were excluded if they were not included on the list of British bird species published at http://www.bto.org/about-birds/birdfacts/british-list or only considered on that list to be either “accidental” or a “scarce visitor” in Britain. This step removed 131 of the initial 328 species. Of the remaining 197 species, 146 species were

excluded on the basis that they are provisionally assessed to make no or only limited use of fully marine habitats. This resulted in a short-list of 51 bird FOCI species (Table 2).

Species listed on Annex I of the Birds Directive are only considered on the basis that, in the context of conservation in the marine environment, there has yet to be an assessment of the protection afforded to these species by the suite of existing or proposed marine Special Protection Areas (SPAs) within the MPA network. For the same reason, regularly occurring migrants, which might also be features of marine SPAs, were also included in Table 2 provided they met the other selection criteria set out above.

**Table 2:** JNCC and Natural England's assessment of the 'in-principle' suitability of MCZs to conserve bird species present in English Waters and Northern Irish Offshore Waters.

The species listed are those which i) appear on at least one of the lists of species of conservation concern mentioned above, ii) appear on the list of British Birds compiled by the BTO iii) are not considered on that list to be either "accidental" or "scarce visitors" AND iv) have been provisionally assessed to make significant use of areas of water that lie below the Mean Low Water Springs mark – i.e. fully marine habitat. The third column provides an initial assessment of the likely suitability of each species for protection through MCZs within English Waters and Northern Irish Offshore Waters with a rationale that is largely based on species overall abundance and tendency to predictably aggregate in elevated densities in relatively defined sea areas within these waters at certain times of year.

| Common name | Scientific name | Suitability of MCZs in English Waters and Northern Irish Offshore Waters | W&C Act Sch 1 | NERC S41 | OSPAR list | BOCC4 (red) | BOCC4 (amber) | Annex 1 Birds Directive |
|---|---|---|---|---|---|---|---|---|
| Arctic Skua * | *Stercorarius parasiticus* | Unlikely - passage occurrence only | 0 | 0 | 0 | 1 | 0 | 0 |
| Arctic Tern | *Sterna paradisaea* | Possibly - colonial breeder with limited foraging range | 0 | 0 | 0 | 0 | 1 | 1 |
| Balearic Shearwater* | *Puffinus mauretanicus* | Possibly - aggregates in inshore SoSW in non-breeding season | 0 | 1 | 1 | 1 | 0 | 1 |
| Black Guillemot | *Cepphus grylle* | Possibly - colonial breeder with limited foraging range | 0 | 0 | 0 | 0 | 1 | 0 |
| Black Tern | *Chlidonias niger* | Unlikely - too scarce | 1 | 0 | 0 | 0 | 0 | 1 |
| Black-headed Gull * | *Chroicocephalus ridibundus* | Possibly - colonial breeder with limited foraging range | 0 | 0 | 0 | 0 | 1 | 0 |
| Black-legged Kittiwake | *Rissa tridactyla* | Possibly - colonial breeder with limited foraging range | 0 | 0 | 1 | 1 | 0 | 0 |
| Black-necked Grebe* | *Podiceps nigricollis* | Possibly - aggregates in inshore in non-breeding season | 1 | 0 | 0 | 0 | 1 | 0 |
| Black-throated Diver | *Gavia arctica* | Possibly - aggregates in inshore in non-breeding season | 1 | 0 | 0 | 0 | 1 | 1 |
| Brent Goose | *Branta bernicla* | Possibly - aggregates in coastal sites in non-breeding season and relies on marine resources | 0 | 1 | 0 | 0 | 1 | 0 |
| Caspian Gull | *Larus cachinnans* | Unlikely - too scarce | 0 | 0 | 0 | 0 | 1 | 0 |
| Common Gull * | *Larus canus* | Unlikely - limited evidence of aggregations in non-breeding season | 0 | 0 | 0 | 0 | 1 | 0 |
| Common Scoter | *Melanitta nigra* | Possibly - aggregates in inshore SoSW in non-breeding season | 1 | 1 | 0 | 1 | 0 | 0 |
| Common Tern | *Sterna hirundo* | Possibly - colonial breeder with limited foraging range | 0 | 0 | 0 | 0 | 1 | 1 |
| Cory's Shearwater* | *Calonectris borealis* | Unlikely - limited evidence of aggregations in non-breeding season | 0 | 0 | 0 | 0 | 0 | 1 |
| Common Eider | *Somateria mollissima* | Possibly - aggregates year round in inshore | 0 | 0 | 0 | 0 | 1 | 0 |
| Northern Fulmar | *Fulmarus glacialis* | Possibly - very large foraging range when breeding, limited evidence of aggregations outside breeding season but colonial breeder which conducts maintenance | 0 | 0 | 0 | 0 | 1 | 0 |

| Common name | Scientific name | Suitability of MCZs in English Waters and Northern Irish Offshore Waters | W&C Act Sch 1 | NERC S41 | OSPAR list | BOCC4 (red) | BOCC4 (amber) | Annex 1 Birds Directive |
|---|---|---|---|---|---|---|---|---|
| | | activities in surrounding waters | | | | | | |
| Northern Gannet | *Morus bassanus* | Possibly - very large foraging range when breeding, limited evidence of aggregations outside breeding season but colonial breeder which conducts maintenance activities in surrounding waters | 0 | 0 | 0 | 0 | 1 | 0 |
| Glaucous Gull* | *Larus hyperboreus* | Unlikely - too scarce | 0 | 0 | 0 | 0 | 1 | 0 |
| Goldeneye | *Bucephala clangula* | Possibly – aggregates in inshore SoSW in non-breeding season | 0 | 0 | 0 | 0 | 1 | 0 |
| Great Black-backed Gull * | *Larus marinus* | Possibly - colonial breeder with limited foraging range | 0 | 0 | 0 | 0 | 1 | 0 |
| Great Northern Diver | *Gavia immer* | Possibly - aggregates in inshore in non-breeding season | 1 | 0 | 0 | 0 | 1 | 1 |
| Great Skua | *Stercorarius skua* | Unlikely - passage occurrence only | 0 | 0 | 0 | 0 | 1 | 0 |
| Greater Scaup | *Aythya marila* | Possibly - aggregates in inshore in non-breeding season | 1 | 1 | 0 | 1 | 0 | 0 |
| Guillemot | *Uria aalge aalge* | Possibly - colonial breeder with limited foraging range, conducts maintenance activities is surrounding waters and aggregates to a degree in non-breeding season | 0 | 0 | 0 | 0 | 1 | 0 |
| Guillemot (albionis) | *Uria aalge albionis* | Possibly - colonial breeder with limited foraging range, conducts maintenance activities is surrounding waters and aggregates to a degree in non-breeding season | 0 | 0 | 1 | 0 | 0 | 1 |
| Herring Gull | *Larus argentatus* | Possibly - colonial breeder with limited foraging range, and aggregates to a degree in non-breeding season | 0 | 1 | 0 | 1 | 0 | 0 |
| Iceland Gull * | *Larus glaucoides* | Unlikely - too scarce | 0 | 0 | 0 | 0 | 1 | 0 |
| Leach's Storm-petrel * | *Oceanodroma leucorhoa* | Unlikely – no evidence of aggregations outside breeding season and very large foraging area when breeding. | 1 | 0 | 0 | 0 | 1 | 1 |
| Lesser Black-backed Gull * | *Larus fuscus* | Possibly - colonial breeder with limited foraging range | 0 | 0 | 1 | 0 | 1 | 0 |
| Little Gull | *Hydrocoloeus minutus* | Possibly - some evidence of aggregations in inshore in non-breeding season | 1 | 0 | 0 | 0 | 0 | 1 |
| Little Tern | *Sternula albifrons* | Possibly - colonial breeder with limited foraging range | 1 | 0 | 0 | 0 | 1 | 1 |
| Long-tailed Duck | *Clangula hyemalis* | Unlikely - too scarce | 1 | 0 | 0 | 1 | 0 | 0 |
| Manx Shearwater | *Puffinus puffinus* | Possibly - very large foraging range when breeding, limited evidence of aggregations outside breeding season but colonial breeder which conducts maintenance activities in surrounding waters | 0 | 0 | 0 | 0 | 1 | 0 |
| Mediterranean Gull* | *Larus melanocephalus* | Possibly - colonial breeder with limited foraging range | 1 | 0 | 0 | 0 | 1 | 1 |
| Osprey | *Pandion haliaetus* | Unlikely - occurs in coastal sites on passage where they exploit resources in the marine environment but numbers | 1 | 0 | 0 | 0 | 1 | 1 |

| Common name | Scientific name | Suitability of MCZs in English Waters and Northern Irish Offshore Waters | W&C Act Sch 1 | NERC S41 | OSPAR list | BOCC4 (red) | BOCC4 (amber) | Annex 1 Birds Directive |
|---|---|---|---|---|---|---|---|---|
| | | at any one time/place likely to be very low. | | | | | | |
| Common Pochard | *Aythya ferina* | Possibly - aggregates in inshore in non-breeding season | 0 | 0 | 0 | 1 | 0 | 0 |
| Atlantic Puffin | *Fratercula arctica* | Possibly - colonial breeder with limited foraging range, conducts maintenance activities is surrounding waters and aggregates to a degree in in non-breeding season | 0 | 0 | 0 | 1 | 0 | 0 |
| Razorbill | *Alca torda* | Possibly - colonial breeder with limited foraging range, conducts maintenance activities is surrounding waters and aggregates to a degree in non-breeding season | 0 | 0 | 0 | 0 | 1 | 0 |
| Red-necked Grebe* | *Podiceps grisegena* | Unlikely - too scarce | 0 | 0 | 0 | 1 | 0 | 0 |
| Red-necked Phalarope* | *Phalaropus lobatus* | Unlikely - too scarce | 1 | 0 | 0 | 1 | 0 | 1 |
| Red-throated Diver | *Gavia stellata* | Possibly - aggregates in inshore in non-breeding season | 1 | 0 | 0 | 0 | 0 | 1 |
| Roseate Tern | *Sterna dougallii* | Possibly - colonial breeder with limited foraging range | 1 | 1 | 1 | 1 | 0 | 1 |
| Sandwich Tern | *Sterna sandvicensis* | Possibly - colonial breeder with limited foraging range | 0 | 0 | 0 | 0 | 1 | 1 |
| Shag | *Phalacrocorax aristotelis* | Possibly - colonial breeder with limited foraging range and aggregates in inshore in non-breeding season | 0 | 0 | 0 | 1 | 0 | 0 |
| Slavonian Grebe | *Podiceps auritus* | Possibly - aggregates in inshore in non-breeding season | 1 | 0 | 0 | 1 | 0 | 1 |
| Smew | *Mergellus albellus* | Unlikely - too scarce | 0 | 0 | 0 | 0 | 1 | 1 |
| British Storm Petrel* | *Hydrobates pelagicus* | Unlikely - very large foraging range when breeding, limited evidence of aggregations outside breeding season | 0 | 0 | 0 | 0 | 1 | 1 |
| Velvet Scoter | *Melanitta fusca* | Unlikely - too scarce | 1 | 0 | 0 | 1 | 0 | 0 |
| White-tailed Eagle | *Haliaeetus albicilla* | Unlikely - too scarce | 1 | 0 | 0 | 1 | 0 | 1 |
| Yellow-legged Gull | *Larus michahellis* | Unlikely - too scarce | 0 | 0 | 0 | 0 | 1 | 0 |

*These species do not appear on the UK MPA features list[2] either because they are not qualifying features of any SPA in the UK or because the sites at which they are listed features are breeding colonies which in general will lie above Mean High Water, and so not sufficient to be considered marine.

There are several bird species listed on the UK MPA features list[4] that do not appear in Table 2. All of these are species which are qualifying features of coastal SPAs containing marine supporting habitats lying below Mean High Water. However, they are excluded from Table 2 on the

[2] Snapshot of the UK MPA Features List taken on 13 Jan 2016. The UK MPA Features List is a working document and will be published in due course.

basis that they are not considered to significantly depend upon fully marine habitats in English Waters and Northern Irish Offshore Waters i.e. areas below Mean Low Water Springs (MLWS) (which are most likely to be considered suitable for designation as MCZs). Four exceptions to this are: Goosander (*Mergus merganser*), Red-breasted Merganser (*Mergus serrator*), Great Cormorant (*Phalacracorax carbo*) and Great Crested Grebe (*Podiceps cristatus*) all of which make significant use of sea areas below MLWS. They do not appear in Table 2 because they do not feature on any of the lists of species of conservation concern from which the long-list of species was derived. Their exclusion from Table 2 does not mean that proposals for these (or other) species will not be considered on their merits provided they meet the basic principles.

### 3.6. **BONY FISH/ELASMOBRANCHS**

In 2010, Natural England and JNCC held a workshop to assess the potential for fish (including bony fish and elasmobranchs) in Secretary of State Waters[3] to benefit from protection through MCZs. The workshop discussions were informed by a backing paper commissioned by Natural England to provide evidence for discussion at the workshop. A summary of the findings of the workshop and associated backing paper is available from the JNCC website[4]. The assessment focused on species Features of Conservation Importance (FOCI) drawn from the OSPAR list of Threatened and/or Declining Species and Habitats and from the UK list of Priority Species and Habitats in the UK Biodiversity Action Plan.

Thirty-eight species (21 bony fish and 17 elasmobranchs) were identified as FOCI. The results of the assessment carried out during the workshop are presented in Table 3 in terms of the potential of each species to benefit from conservation within MCZs in English Waters and Northern Irish Offshore Waters. The assessment considered factors including the availability of information on the ecology and behaviour of species, as well as the extent of information on distribution and site fidelity in Secretary of State Waters, particularly during key stages in the species life history. Where relevant, it also considered whether existing management instruments were better placed to deliver conservation benefit.

Following the assessment (results presented in Table 3) Undulate ray *Raja undulata*, European eel *Anguilla anguilla* and smelt *Osmerus eperlanus* were all considered appropriate for site-based management and were initially included as species FOCI in the MCZ process. Since the work by JNCC and Natural England was undertaken, we completed a further review of the relevance of MCZs for species FOCI (JNCC and Natural England, 2016). JNCC and Natural England concluded that European eel should be removed from the MCZ FOCI list, whilst still recognising the need for wider conservation measures for this species. European eel displays a lack of site fidelity and it was considered that MCZs would be unlikely to provide any additional conservation for the population beyond those conservation mechanisms available through The Eels (England and Wales) Regulations 2009[5] and the Eel Management Plans for the UK[6]. Smelt was also removed as a potential species FOCI for offshore sites as there is no evidence to suggest any element of their life cycle is dependent on the offshore region, nor any particular area offshore (JNCC & Natural England, 2016).

The MCZ FOCI review was unable to conclude on the appropriateness of MCZs for the conservation of Sea trout or Atlantic salmon as additional features. However, Atlantic salmon is only protected in streams and rivers through the EC Habitats Directive and so

[3] English Waters and Welsh and Northern Irish Offshore Waters (beyond 12 nautical miles from the coast)

[4] A record of the workshop discussions and associated backing paper can be found here http://jncc.defra.gov.uk/page-4527

[5] The Eels (England and Wales) Regulations 2009. Available at: http://www.legislation.gov.uk/uksi/2009/3344/made

[6] Eel Management Plans for the United Kingdom: Overview for England and Wales. Defra, March 2010. Available at: http://archive.defra.gov.uk/foodfarm/fisheries/documents/fisheries/emp/overview.pdf

evidence may exist to support spatial protection in the marine environment. If appropriate evidence becomes available, the potential for designating a SAC for Atlantic salmon would be considered before an area is considered a MCZ.

Although many of the species listed in Table 3 are not considered suitable for MCZs (primarily due to data deficiency), there may be value in spatial protection measures should additional information become available on important areas to the life history of a given species (e.g. Ellis *et al.*, 2010). JNCC and Natural England will consider proposals brought forward for any bony fish/elasmobranch where new information now exists that may support the case for designation.

**Table 3** JNCC and Natural England's assessment of the 'in-principle' suitability of MCZs for bony fish and elasmobranch FOCI in English Waters and Northern Irish Offshore Waters

| **Common Name** | **Species name**[7] | **Suitability of MCZs in** English Waters and Northern Irish Offshore Waters |
|---|---|---|
| Black scabbardfish | *Aphanopus carbo* | **Unknown** – Insufficient knowledge or evidence on species ecology or behaviour to assess the suitability of MCZs as a conservation measure. |
| Gulper shark | *Centrophorus granulosus* | |
| Leafscale gulper shark | *Centrophorus squamosus* | |
| Portuguese dogfish | *Centroscymnus coelolepsis* | |
| Roundnose grenadier | *Coryphaenoides rupestris* | |
| Kitefin shark | *Dalatias licha* | |
| Tope | *Galeorhinus galeus* | |
| Atlantic halibut | *Hippoglossus hippoglossus* | |
| Shortfin mako | *Isurus oxyrinchus* | |
| Sandy ray | *Leucoraja circularis* | |
| Anglerfish | *Lophius piscatorius* | |
| European hake | *Merluccius merluccius* | |
| Ling | *Molva molva* | |
| Greenland halibut | *Reinhardtius hippoglossoides* | |
| White/Bottlenosed skate | *Rostroraja alba* | |
| Spiny dogfish | *Squalus acanthias* | |
| Angel shark | *Squatina squatina* | **Unlikely -** Insufficient knowledge or evidence to demonstrate that MCZs in English Waters and Northern Irish Offshore Waters are an appropriate conservation measure.(e.g. highly migratory pelagic species/no longer occurs in UK waters) |
| Porbeagle | *Lamna nasus* | |
| Whiting | *Merlangius merlangus* | |
| Blue whiting | *Micromesistius poutassou* | |
| Blue shark | *Prionace glauca* | |
| Atlantic mackerel | *Scomber scombrus* | |
| Horse mackerel | *Trachurus trachurus* | |
| Bluefin tuna | *Thunnus thynnus* | |

[7] Since publication of the Ecological Network Guidance, European Eel (*Anguilla anguilla*) has been removed as an ENG FOCI since it has been concluded that wider conservation measures are more appropriate for the conservation of this species.

| **Common Name** | **Species name**[7] | **Suitability of MCZs in** English Waters and Northern Irish Offshore Waters |
|---|---|---|
| Lesser sandeel | *Ammodytes marinus* | **Unlikely -** Sufficient knowledge or evidence of distribution/life-history to assess potential for spatial management but MCZs not considered an appropriate conservation measure.<br><br>e.g. difficult to identify important spawning or nursery areas/ more appropriate species management measures already in place |
| Basking shark | *Cetorhinus maximus* | |
| Herring | *Clupea harengus* | |
| Common skate | *Dipturus batis* | |
| Atlantic cod | *Gadus morhua* | |
| Thornback skate / ray | *Raja clavata* | |
| Orange roughy | *Hoplostethus atlanticus* | |
| Blue ling | *Molva dypterygia* | |
| Spotted Ray | *Raja montagui* | |
| European plaice | *Pleuronectes platessa* | |
| Dover sole | *Solea solea* | |
| Smelt | *Osmerus eperlanus*[8] | **Possibly** |
| Undulate ray | *Raja undulata* | |
| Atlantic salmon | *Salmo salmar* | |
| Sea trout | *Salmo trutta* | |

## 4. What information should proposals contain?

Defra will only accept a proposal for a MCZ to conserve a mobile species using the submission template provided in Table 4, completed in full. This requirement will enable a complete and consistent evaluation across all third-party proposals (please see Section 5 for how this evaluation will be undertaken).

[8] Territorial waters only

**Table 4** Third-party submission template for highly mobile species MCZ proposals

| **GENERAL INFORMATION** | |
|---|---|
| *Contact Details* | Postal address, email address and phone number for lead contact person regarding the proposal |
| *Suggested Name of proposal* | xxxxx draft MCZ |
| *Description of Site* | Provide a brief overview of the characteristics of the site, e.g. location, ecology of the area, importance of the species being considered for spatial protection. |
| *Proposed highly mobile species protected feature(s)* | • Bulleted list of common (and scientific name) |
| *Other supporting habitats, geology/geomorphology, oceanographic processes or species where they are ecologically linked to the proposed highly mobile species protected feature(s)* | Bulleted list with an indication of how supporting habitats, geology/geomorphology, oceanographic processes or species are ecologically *linked to the proposed highly mobile species protected feature(s)*. If not relevant, enter 'N/A'. |
| *Proposed aims of the Marine Conservation Zone* | The proposal should be realistic about what the MCZ is likely to achieve in terms of contributing to the conservation of the species, and demonstrate an understanding of the degree to which existing spatial (e.g. SACs, SPAs, SSSIs) and wider seas measures already afford protection to the proposed highly mobile species. |
| **ASSESSMENT AGAINST HIGHLY MOBILE SPECIES MCZ PRINCIPLES** | |
| *Principle 1 – What evidence is there that the proposed MCZ is considered to be of ecological significance to the life history of the proposed highly mobile species protected features and how will proposal(s) deliver effective conservation* | When selecting MCZs for highly mobile species, particular attention should be given to including important areas for key life cycle stages of species and areas important for key behaviours.<br><br>Provide a synopsis of available evidence that supports the ecological significance of the proposed MCZ for each proposed highly mobile species protected feature in comparison to surrounding waters. Please include citations and references (see final row of the submission template for an entry space for references) and include hyperlinks to where these references can be accessed. If |

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| *benefits for the proposed highly mobile species protected feature(s)?* | references are not freely available, a copy of these should be included as an addendum to your submission package. Any unpublished material used to support a proposal must be accompanied with a description of the quality process used to verify the data, its analysis and conclusions.<br><br>You should also provide an overview of the scale at which the proposal (or proposals) has been considered (e.g. at the bio-geographic or UK level) and how this particular proposal (or group of proposals if multiple sites are being considered) will benefit the conservation of the given species.<br><br>As mentioned above, it is important to demonstrate an understanding of the degree to which existing spatial (e.g. SACs, SPAs) and wider seas measures already afford sufficient protection to the proposed highly mobile species protected feature(s), e.g. considering aspects such as connectivity between proposed and existing sites and what the proposed MCZ will contribute above existing protection. |
| *Principle 2 – What evidence is there that numbers of the proposed protected features persist over time (allowing for natural seasonal and inter-annual variation) and occur at higher densities in contrast to the surrounding sea area?* | For highly mobile species, it is essential to demonstrate that the area being considered for an MCZ proposal includes greater numbers of individuals than elsewhere; either in the local vicinity, surrounding region or across English Waters and Northern Irish Offshore Waters. In addition, it is also important to demonstrate that an elevated number of individuals in the area being considered for an MCZ are not short-term, ephemeral events but occur on either a permanent or on a regular (e.g. seasonal) basis and have done so for a number of years.<br><br>You should refer to the detail contained within Annex II of this paper for best-practice examples in considering persistence of species in the context of identifying MPAs. For each proposed protected highly mobile species, you should provide:<br><br>• An overview of current species distribution in a wider geographic context such as UK and/or English Waters and Northern Irish Offshore Waters including appropriate information sources for each proposed highly mobile species protected feature;<br><br>• An overview of numbers of individuals for each proposed highly mobile species protected feature within the proposed MCZ relative to the wider area (whether that be locally, regionally or nationally);<br><br>• An overview of evidence in support of the permanency or regularity of the occurrence of |

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| | significant aggregations of each proposed highly mobile species protected feature within the proposed MCZ,<br><br>In each case, commentary should be provided on the source and age of the underpinning evidence, how it has been collected, how it has been processed (e.g. effort-corrected, statistical analysis/modelling routines etc.) and the number of years data spans. Information on any uncertainties regarding the data or levels of confidence in it must also be provided.<br><br>The evidence supporting proposals is expected to be the best available and appropriate for the intended purpose of the proposed MCZ with respect to the species concerned. For example, an area being proposed as an MCZ due to its importance as a calving area for a species of cetacean should include adult: young ratio and demonstrate the increased value of the area in comparison to the surrounding waters.<br><br>Data should be supplied on a species by species basis. Aggregated species data will not be considered in the evaluation of proposals. However, where a site is demonstrated to be important for more than one species that should be made clear and supporting evidence provided for each species.<br><br>Any overlap of evidence from different data sources in suggested areas of importance should be presented wherever possible when identifying sites.<br><br>Population data must be effort-corrected (as a minimum) on a species by species basis to mitigate the risk of analysis being biased by a concentration of survey effort in a particular location. It is equally important to know where a species does not occur in high densities. |
| *Principle 3 – How have you ensured that the scale of the proposed MCZ is appropriate for the conservation of the proposed protected features?* | To ensure any proposed MCZs for highly mobile species are viable, a rationale on the appropriateness of the size of the proposed MCZ must be given. Any evidence to show there is a clear functional link between species distribution and supporting habitats, oceanographic processes or other species etc. must be provided if such proxies are used for boundary delineation of the proposed MCZ.<br><br>Additional guidelines developed for the identification of Harbour Porpoise SACs may also be relevant for other highly mobile species, especially where a modelled approach is used, leaving |

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| | blocky or gridded outputs. For example:<br>• The 'coastal' edge of sites should be defined by the Mean Low Water (MLW) tide line;<br>• Site boundaries should be aligned with the UK EEZ boundary where the outer boundary of a proposed MCZ comes close to the UK EEZ; and<br>• Modifications of the boundary to align to the criteria (e.g. reducing the no. of lines), should not alter the total area of the site by more than approximately 5%.<br>*Note MCZs for highly mobile species should following the MCZ boundary setting principles outlined in Natural England and JNCC, 2010; i.e. ensuring a minimum number of straight lines, ensuring compact shapes tightly aligned to features (including an appropriate margin if considered necessary to achieve conservation of the features), combining adjoining discrete locations.* |
| *Principle 4 – How have you considered management requirements to best ensure the conservation objectives of the proposed protected features are met?* | Consideration should be given to the value of site-based versus wider (possibly already existing) protection measures to offer greatest conservation benefit to the species. Site-based measures may be particularly useful where localised threats are present. Evidence should demonstrate that an MCZ and associated localised management measures will clearly add additional conservation benefit to the species at a population or sub-population level, beyond that of any other existing measures.<br>The proposal should also include options for managing the threats to which the proposed highly mobile species protected features are sensitive, taking account of legal responsibilities. If possible, a review of new economic and social uses that may be affected if the proposal is accepted should be provided. |
| **SUPPORTING MAPS** | |
| Include map(s) of the proposed MCZ boundary, and records of highly mobile species proposed for protection. It would be helpful if data source and age were also easily discernible from the map(s). In some cases, it may be appropriate to show multiple mapping outputs, e.g. where annual or seasonal abundance trends need to be shown or to display the data at various stages of processing (such as raw data, effort corrected data, modelling outputs etc...) to help the assessors follow the rationale behind any proposal being considered.<br>*If printed copies of maps are submitted for consideration, they must be accompanied by an electronic file listing the coordinates of main boundary lines for the proposed MCZ. If an electronic version of maps is being submitted please also include a GIS package with all supporting* | |

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| *data and the proposed MCZ boundary in your submission. Ideally, GIS files should be provided with INSPIRE compliant metadata (e.g. the INSPIRE metadata template available in ESRI ArcGIS entered through ArcCatalog).* | |
| **REFERENCES** | List all references to support the proposal. If possible, include hyperlinks to where the supporting cited literature is available online. |

## 5. How will proposals be assessed by JNCC and Natural England?

Defra have asked JNCC and Natural England to assess each proposal from an ecological perspective against the assessment protocol outlined in Table 5 below. Our findings will then be provided to Defra for their consideration as to whether the site is suitable for designation as a MCZ. Proposed MCZs would then be subject to public consultation and an assessment of their potential socio-economic impact prior to any final decision to designate a MCZ.

JNCC and Natural England will review the information provided though the proforma together with any supporting data (maps etc) against the criteria in Table 5. We will not explore the evidence in detail, rather we will rely on the quality assurance provided to determine whether such evidence has sufficient quality to support the designation of a MCZ.

Defra require assurance that the quantity and quality of the evidence provided for a proposed MCZ with highly mobile species features is equivalent to the evidence used to date to designate sites for habitats and species in the first and second tranches of MCZs.

**Table 5** Assessment criteria used to evaluate third-party highly mobile species MCZ proposals

| Assessment area | Scoring criteria |
|---|---|
| **Principle 1**<br><br>**Ecological significance**<br><br>*Assess what evidence is provided to show the proposed MCZ is considered to have ecological significance to the life history of the proposed highly mobile species features* | **High** – There is a significant body of reliable, empirically-based evidence supporting the conclusion that the area has clear ecological significance to the life-histories of the species for designation as a feature of an MCZ. This evidence is based on at least one high quality source of data, ideally derived from more than one independent source of information. There is a convincing case that for each feature, the proposed MCZ makes a significant contribution to the life cycle of the species due to its role in providing supporting habitats or processes and it makes a contribution to the representivity, replication and / or connectivity of sites within the MPA network, and to the adequacy of the network as a whole.<br><br>**Moderate** – Evidence that the area is of ecological significance to the life-histories of the species for designation as a feature of an MCZ based on one or more data sources, the reliability of which may be open to question due to e.g. lack of corroborative information, lack of confidence in the analysis, and in some cases the age of the underlying data. The case that the proposed site makes a significant contribution to supporting the life cycle of each feature and contributes to the MPA network is less compelling. For example, the case would be less compelling if the criteria being proposed are fulfilled to a high degree by existing contributions to the MPA network.<br><br>**Low** – Evidence that the area has ecological significance to the life-histories of the species is based only on data sources of unknown quality or low reliability or of greater age (with no recent data), or is predominantly based on expert judgement/inference without independent corroboration. The proposed site makes a significant |

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| | contribution to the life history of each feature, or enhances the MPA network as a whole is not compelling. For example, the proposed conservation benefit is already fulfilled by existing sites in the MPA network, or by wider conservation measures.<br><br>**Not met** – No suitable evidence is provided that the area has ecological significance to the life-histories of the species or the evidence is insufficient to allow such a conclusion to be reached. The case supporting each feature is not made at all or is insufficient. |
| **Principle 2**<br><br>**Persistence**<br><br>*Assess what evidence is provided to show the densities/ abundance estimates of the proposed species features persistence over time (allowing for natural seasonal and inter-annual variation) and occur at higher densities in contrast to the surrounding sea area* | *Please see Annex II for best-practice approaches to considering the principle of persistence.*<br><br>**High** – There is a significant body of reliable, empirically-based evidence (and/or where appropriate modelled) to support the conclusion that the area is likely to have persistent presence at higher densities of the species proposed as a protected feature of an MCZ than the surrounding waters; the justification should show the data within the proposed MCZ in its wider context. Such evidence is based on at least one high quality source of data, but ideally is derived from more than one independent source of information.<br><br>Underlying data are considered high quality; they have large and representative sample sizes (accounting for inter-annual and seasonal variation) and were collected over an adequate period of time (refer to Annex II for species specific detail). Data are appropriately collected and analysed according to best practice, (e.g. effort-corrected sightings data, robust modelling approaches) and yields outputs that have low levels of uncertainty. Data provided are appropriate to the ecological scale of the species population or sub-population and are supplied on a species-by-species basis<br><br>**Moderate** – There is some evidence that the area supports the persistent presence of the feature at higher densities than the surrounding waters (by placing data within the proposed MCZ in its wider context) for a suitable period of time (see Annex II). The proposal is based on a data source or sources whose reliability may be open to question due to issues such as a shorter time span of data, lack of corroborative information, a higher proportion of older data, lack of quality review or evidence of quality assurance and/or inter- and annual seasonal variation reducing confidence. Elevated densities are demonstrated in the majority of years.<br><br>Underlying data are considered to have only moderate quality. That is, they have moderate sample sizes, elevated densities are demonstrated only in the majority of years with consideration of inter-annual and seasonal variation, data are appropriately collected and analysed according to best practice (e.g. effort-corrected sightings data, robust modelling approaches) but may yield outputs that have moderate levels of uncertainty. |

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| | Data provided are appropriate to the ecological scale of the species population or sub-population and are supplied on a species-by-species basis.<br><br>**Low** – The evidence that the area supports the persistent presence of the feature at higher densities than the surrounding waters is based only on a single data source or sources of low or unknown reliability, or which are short-term and/or many years old. Elevated densities are only demonstrated in a minority of years or the evidence does not allow the data within the proposed MCZ to be placed in the wider context at the scale of the features population or sub-population.<br><br>Underlying data are considered low quality; that is they may have insufficient and unrepresentative sampling, have inherent biases, may not be collected over a sufficient period of time, may not be appropriately collected according to best practice, may not be appropriately analysed according to best practice (e.g. not effort-corrected sightings data, questionable modelling approaches) and/or may yield outputs that have a high degree of uncertainty.<br><br>**Not met** – The evidence suggesting the area supports the persistent presence of the feature at higher densities than the surrounding waters is not provided or is insufficient to allow such a conclusion to be reached. The underlying data are not considered to have the appropriate quality with which to demonstrate persistent presence of the species within the proposed MCZ in contrast to surrounding waters. Typically the data are too old or the study has insufficient sampling effort, insufficient duration and/or poor survey design, and there is high uncertainty around population estimates etc. |
| **Principle 3**<br><br>**MPA size and delineation**<br><br>*Test whether the scale of the proposed MCZ is appropriate for the conservation of the proposed species features* | **High** – There is a strong evidence base to demonstrate that the size and shape of the area included within the proposed MCZ boundary is appropriate to that required to ensure the viability of the site; that is, it will most likely maintain the integrity of its features and/or additional features that are ecologically relevant to the species proposed for designation in a MCZ. A significant body of reliable, recent, empirically-based evidence has been used to determine the location of the proposed MCZ boundary. This evidence is based on at least one high quality source of data, but ideally is derived from more than one independent source of information.<br><br>Underlying data are considered to have good quality; (i.e. there are large and representative sample sizes, they account for inter-annual and seasonal variation, they are appropriately collected according to best practice and have been appropriately analysed according to best practice (e.g. effort-corrected sightings data, robust modelling approaches), and yield boundaries that have low levels of uncertainty in their construction. The proposal clearly demonstrates |

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| | that the guidelines regarding boundary setting outlined in the ENG have been adhered to as appropriate.<br><br>**Moderate** - There is a reasonable evidence base to demonstrate that the size and shape of the area included within the proposed MCZ boundary is appropriate to that required to ensure the viability of the site. That is, it will most likely maintain the integrity of its features and/or additional features that are ecologically relevant to the species proposed for designation in a MCZ. An adequate body of reliable, empirically-based evidence has been used to determine the location of the boundary. This evidence is based on a data source or sources whose reliability may be open to question due to issues such as a lack of corroborative information and/or significant age of underlying data.<br><br>Underlying data are considered to have only moderate quality: i.e. they have moderate sample sizes, they account for inter-annual and seasonal variation; they are appropriately collected and have been appropriately analysed (e.g. effort-corrected sightings data, robust modelling approaches) but only yield boundaries that have moderate levels of uncertainty in their construction. The proposal clearly demonstrates that the guidelines regarding boundary setting outlined in the ENG have been adhered to, where appropriate.<br><br>**Low** – The evidence to demonstrate that the size and shape of the area included within the proposed MCZ boundary is not appropriate to that required to ensure the viability of the site; that is, it is questionable how the site will maintain the integrity of its features and/or additional features which are ecologically relevant to the species proposed for designation in a MCZ. The evidence is based on a single data source or sources of unknown or low reliability or of significant age, or is predominantly based on expert judgement/inference for which quality assurance is not provided, or does not allow the data within the proposed MCZ to be placed in a wider context to define a clear boundary.<br><br>Underlying data are considered to have low quality: e.g. there is insufficient and unrepresentative sampling, they may have inherent biases, may not be collected over a sufficient period of time, may not be appropriately collected according to best practice, may not be appropriately analysed according to best practice (e.g. not effort-corrected sightings data, questionable modelling approaches), and yield boundaries that have a high degree of uncertainty in their placement. The proposal does not clearly demonstrate that the guidelines regarding boundary setting outlined in the ENG have been adhered to, where appropriate.<br><br>**Not met** – The evidence is not provided or is insufficient to allow any conclusion to be reached that the size and shape of the area |

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| | included within the proposed MCZ boundary is appropriate to that required to ensure the viability of the site. The underlying data are not considered to have the appropriate quality with which to delineate a boundary between areas of elevated and persistent species presence inside the proposed MCZ in contrast to that in surrounding waters. It is likely the data are too old, and there was insufficient sampling effort, insufficient duration, poor survey design and high uncertainty around population estimates. The proposal does not show the guidelines regarding boundary setting outlined in the ENG have been followed. |
| **Principle 4**<br><br>**Appropriateness of management**<br><br>*Test whether management requirements have been considered to best ensure the conservation objectives of the proposed species features are met* | **High** – The proposal provides a comprehensive account of the range of activities which take place within (or otherwise have an influence within) the proposed MCZ that will have an adverse impact on the status of the species proposed for designation. The evidence demonstrates the levels at which the activities occur, where and when they occur, and describe any existing management measures in place to reduce the effects of those activities on the species, or any additional features that are ecologically relevant to the species proposed for designation in the MCZ.<br><br>Clear evidence is presented that shows:<br>i) there are ongoing activities in the area, or other identified threats, which are likely to give rise to pressures to which the species is known to be highly or moderately sensitive, and are likely to have the potential to impact the conservation status of the species at the population or sub-population level; and,<br>ii) any existing wider measures are not sufficient to address the threats posed to the species within the proposed MCZ.<br><br>Possible management options are clearly identified that are highly likely to reduce the effect of damaging activities on the proposed species features and will enable conservation objectives to be met. These management options are appropriate for MCZ-based protection.<br><br>**Moderate** – The proposal provides a comprehensive account of the range of activities which take place within the proposed MCZ (or otherwise have an influence within it) that will have an adverse impact on the status of the species proposed for designation. The evidence demonstrates the levels at which the activities occur, where and when they occur, and describe any existing management measures in place to reduce their effects on the species, or any additional features that are ecologically relevant to the species proposed for designation.<br><br>Some evidence is presented that shows:<br>i) there are ongoing activities in the area, or other identified threats which are likely to give rise to pressures to which the species may be |

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| | highly or moderately sensitive, and may have the potential to impact the conservation status of the species at the population or sub-population level; and,<br>ii) any existing wider measures may not be sufficient to address the threats posed to the species within the proposed MCZ boundary.<br><br>Possible management options have been identified that are likely to reduce the effect of damaging activities on the proposed species features and will enable conservation objectives to be met. These management options are appropriate for MCZ-based protection.<br><br>**Low** - The proposal only provides a superficial and/or an unreliable account of the range of activities which take place within the proposed MCZ (or otherwise have an influence within it) that may have an adverse impact on the status of the species proposed for designation. The evidence does not show the levels at which activities occur, nor where and when they occur nor any existing management measures in place to reduce their effects on the species and/or any additional features which are ecologically relevant to the species proposed for designation.<br><br>There is only limited evidence presented that shows:<br>i) there are ongoing activities in the area, or other identified threats that are likely to give rise to pressures to which the species may be highly or moderately sensitive, or only evidence regarding activities yielding pressures to which the feature has low sensitivity, that may have the potential to impact the conservation of the species at the population or sub-population level; and,<br>ii) existing wider measures may not be sufficient to address the threats posed within the proposed MCZ boundary.<br><br>Possible management options have not been identified to reduce the effect of damaging activities on the proposed features to enable conservation objectives to be met. Nevertheless, the evidence indicates an MCZ-based approach appears feasible.<br><br>**Not met** – The proposal only provides a superficial and/or unreliable account of the range of activities which take place within the proposed MCZ (or otherwise have an influence within it) that may have an adverse impact on the status of the species proposed for designation. It does not describe the levels at which activities occur, nor where and when they occur nor any existing management measures in place to reduce the effects of those activities on the species or any additional features that are ecologically relevant to the species proposed for designation.<br><br>No credible evidence is presented that shows:<br>i) there are ongoing activities in the area, or other identified threats that are likely to give rise to pressures to which the proposed highly mobile species protected features has any degree of sensitivity; |

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| | ii) that any activities occurring within or near the proposed MCZ have the potential to affect the conservation of the proposed species at the population or sub-population level; or,<br>iii) that existing wider seas measures are not sufficient for achieving the adequate conservation of the species.<br><br>Possible management options have not been identified to reduce the effect of damaging activities on the proposed species features and enable conservation objectives to be met. It is clear that an MCZ-based management approach is either not feasible or not required. |

## Annex I – JNCC and Natural England interpretation of the ENG principles and further considerations in the context of highly mobile species

ENG Principles

- **Representativity** – This principle relates to identifying MCZs in each MCZ Regional Project Area that each Feature of Conservation Importance (FOCI) occurs within. If there is sufficient information, sites might ideally be selected in each relevant MCZ Regional Project Area.
- **Replication** – This principle relates to ensuring there are a sufficient number of different MCZs for the same feature. If there is sufficient information, sites might ideally be replicated in each relevant biogeographic unit; the Regional MCZ Project Areas broadly reflect biogeographic units within Secretary of State Waters[9]. This principle is important in a network context because it offers some resilience to safeguard the contribution those areas make to the conservation of a species. Replication may also partly be achieved by the protection potentially afforded by existing MPAs (e.g. Special Areas of Conservation, Special Protection Areas and Sites of Special Scientific Interest) and this should be taken into consideration. For cetaceans, where 'Management Units'[10] (IAMMWG, 2015)[11] have been identified, these provide the most appropriate starting point for understanding the scale at which replication might operate.
- **Adequacy** – This principle relates to ensuring sufficient proportions of a given feature are included in the network of MCZs. Adequacy is determined by considering whether replication, connectivity and viability targets have been met and so information presented under those principles are important in the context of highly mobile species.
- **Viability** – Viability targets are not set within the ENG for highly mobile species, but the principle is interpreted as ensuring an individual MCZ is large enough to maintain those functions that support the species in a given location where the site is being considered. This includes ensuring any supporting habitats, oceanographic processes, geological/geomorphological features or species important to the conservation of a given highly mobile species in the same locality are also considered in the context of MCZ size and extent.
- **Connectivity** – Connectivity is interpreted as ensuring critical areas to the life-history of a given highly mobile species population are included within the network.
- **Protection** – For highly mobile species, conservation objectives should result in protection levels which ensure favourable condition of the species. Conservation objectives should be determined by using the best available evidence on i) the current condition of features and/or ii) the pressures to which they are sensitive, making it clear what the site contributes to the conservation of the species.
- **Best available evidence** - In the context of highly mobile species, the use of best available evidence is considered to be highly relevant. All the guidelines under this

[9] English Waters and Welsh and Northern Irish Offshore Waters (beyond 12 nautical miles from the coast)

[10] The Management Units represent population or sub-population ranges and these can be small areas or cross international boundaries.

[11] http://jncc.defra.gov.uk/page-6943

principle as set out in Natural England & JNCC (2010) apply equally to highly mobile species.

ENG Further considerations

- **Areas of additional ecological significance** – This is considered to be important in the context of highly mobile species as it looks towards identifying any spatially definable areas of critical importance to the life history of a given species for behaviours such as foraging and breeding.
- **Impacts and feature vulnerability** – Identifying sites which best contribute to meeting network principles, regardless of current levels of degradation, but with a preference for least degraded areas where there are options of equal benefit.
- **Scientific value** – Considering areas of value for scientific research, e.g. areas already subject to long-term research and areas close to research centres.
- **MCZ boundaries** – Noting that MCZs should be drawn with a minimum number of straight lines, be as compact in shape as possible, incorporate margins (where appropriate) to ensure conservation of the designated features, combining adjoining discrete locations into one MCZ and considering predicted changes in feature extent. Of significant importance to highly mobile species is ensuring that boundaries are drawn around areas of regular/predictable concentrations and that when there is a clear link between species and supporting features, the supporting features can be used as a basis for site delineation.

## Annex II – Examples of species type best-practice approaches to considering persistence of significant aggregations

### Cetacean specific approach

With the exception of the large scale international SCANS surveys, the majority of survey data collected for cetaceans are of a very limited spatial scale. The Joint Cetacean Protocol was established to enable the collation of effort-related data in UK (and some adjacent) waters. A recent project has standardised some of those data. These standardised data have then been used in two modelling analyses. Data are standardised up until 2010. It is recommended that standardised JCP data, where available, along with any more recent data be considered if an MCZ is being proposed for this group.

Concerning persistence, MCZs identified for cetaceans should meet the principles set out below. In particular, they should demonstrate that the site has been persistently important to the species over the long term. For cetaceans, 'over the long term' is related to a suitable proportion of the generation time of the species. In line with recent criteria set for identifying SACs for cetaceans, the following should be considered for Principal 2 (Persistence) whereby the analysis will be rated as:

- **High Confidence**: If the analysis demonstrates that the site has supported the species at a higher density for 10 or more years than the surrounding area. This does not necessarily need 10 years of data, but modelled outputs must demonstrate the value of the proposed site over that time period and be supported by at least 3 years of effort related sightings data (some of which should be recent).
- **Moderate Confidence**: If the analysis demonstrated the site has supported the species at a higher density for 5 to 9 years than surrounding waters. This does not need 9 years of data, but modelled outputs must demonstrate the value of the proposed site over that time period and be supported by at least 3 years of effort related sightings (some of which should be recent).
- **Low Confidence**: If the analysis demonstrates that the site has supported the species at a higher density for less than 5 years than the surrounding waters. This does not need 5 years of data, but the modelled outputs must demonstrate the value of the proposed site over that time period and be supported by at least 3 years of effort related sightings (some of which should be recent).
- **Not met**: The analysis does not meet any of the criteria outlined above.

Good examples of approaches to analyses concerning cetaceans are provided by Paxton *et al* (2014) and Heinänen and Skov (2015). The preferred use of the proposed area over a significant number of years in relation to neighbouring waters also needs to be demonstrated. As suggested above, collating effort-corrected sightings data from a significant number of years without consideration of the temporal scale will not be considered adequate evidence of persistence.

### Bird specific approach

BirdLife International (2010) describe a range of the types of data that could be used to provide evidence of the presence of birds in a given sea area e.g. BirdLife International Seabird Foraging Range Database, tracking data, at sea survey results, habitat modelling

and other miscellaneous data sources. The report also highlights that such disparate data sources should be considered as either primary or supplementary data and that the most compelling case for identification of areas of importance to seabirds can be made in instances where two primary data sources coincide or overlap in the areas identified as being of particular importance. Birdlife International (2010) suggests that in identifying important areas, it is necessary as an absolute minimum for this to be based on a single primary data source of the highest quality. It is considered that application of such standards is likely to be appropriate in considering proposals for MCZs for birds.

*Evidence for higher densities compared to surrounding areas*

The identification of sites of importance to birds in the UK under national legislation (SSSI), European Directives (SPAs) and in fulfilment of obligations under international conventions (Ramsar sites) has typically been based on critical standard principles i.e. identifying sites which hold numbers of birds that exceed some population threshold, typically 1% of regional, national or international populations.

This approach favours and is appropriate when considering the protection of aggregated species. Kober *et al* (2010) applied critical thresholds (1% of the relevant population) in analyses of European Seabirds at Sea (ESAS) data to identify hotspots of offshore usage by seabirds. Application of this criterion to the selected hotspots resulted in 97% of the 2201 hotspots not exceeding the required population threshold. In the case of the many species of seabird which are not listed on Annex I of the Birds Directive, this reflects application of the critical standards approach set out in Stage 1.2 of the UK SPA selection guidelines which requires a site to support at least 1% of the species' biogeographical population. However, the SPA selection guidelines make clear that where an insufficient level of protection is delivered by the identified suite of sites which exceed the critical thresholds, then additional areas can be identified based on the application of a set of ecological criteria and without the need to meet the critical population thresholds. In the light of those guidelines, Kober *et al* (2012) applied just a minimum threshold of 50 individuals. That resulted in a further 29 additional areas being identified for possible protection areas for seabirds, but which would need to meet one or more of the ecological criteria outlined by the Birds Directive.

BirdLife International (2010) discusses the issue of turnover in setting and applying critical thresholds of usage. Turnover recognises that the numbers of seabirds in any area of sea at any one point in time is unlikely to reflect the total numbers that may use that area over a biologically meaningful period of time – e.g. during a breeding season. The need to consider this issue, and the implications this may have for amending the generic % (usually 1%) of populations used to set qualifying thresholds is acknowledged in the context of migratory waterbirds in The African –Eurasian Waterbird Agreement (AEWA). This issue may also be of relevance in deciding upon the critical standards thresholds appropriate when considering seabirds at sea in the context of MCZs.

In light of the above, this guidance does not set a fixed absolute density, abundance or % of population value that must be met in order for an area to be assessed as supporting a sufficient number of individuals to merit consideration as an MCZ. It is likely that such thresholds will be of value in assessing MCZ proposals but the actual values may be specific to each species and their ecology and, as is true in the SPA selection guidelines, other factors may be of relevance where strict application of thresholds significantly constrains site

identification. However, at this stage it is possible to state that it will be necessary to provide evidence that an area proposed as an MCZ for birds is, in terms of the numbers of birds it supports, relatively important in comparison to other areas of sea from which it can be distinguished i.e. that usage within the area proposed should be demonstrably higher on a regular and persistent basis than elsewhere.

*Evidence for persistence of these higher densities areas*

When considering the sufficiency of evidence for persistent use of sites with high quality long-term monitoring data e.g. Seabird Monitoring Programme (SMP),Wetland Birds Survey (WeBS), it is standard practice in the identification of both SSSIs (Drewitt *et al* 2015) and SPAs (Stroud *et al* 2001) to apply definitions of regularity of use used under the Ramsar Convention. This states that a site regularly supports a population of a given size if:

*(a) the requisite number of birds is known to have occurred in two thirds of the seasons for which adequate data are available, the total number of seasons being not less than three; or*

*(b) the mean of the maxima of those seasons in which the site is important, taken over at least five years, amounts to the required level (means based on three or four years maybe quoted in provisional assessments only).*

Drewitt *et al* (2015) note that *"In some instances, however, for species occurring in very remote areas or which are particularly rare, or where there are particular constraints on the capacity to undertake surveys, areas may be considered suitable on the basis of fewer counts. For some countries or sites where there is very little information, single counts can help establish the relative importance of the site for a species."* This recognition of the need to re-assess requirements regarding evidence of persistence of use in the case of areas where gathering necessary data is challenging mirrors the consideration of that issue in the context of the identification of marine SPAs for inshore non-breeding waterbirds (Webb & Reid 2004). This recommended an iterative review of the data available for a given site in which the final iteration "*might retain only best quality aerial or ship-based survey data and ( a site) could be selected ……based on only two years of data, with an additional third year, courtesy of poorer data excluded during a prior iteration, to satisfy the first definition of regular used in the Ramsar site selection criteria*." In anticipation that many proposals for MCZs for birds are likely to be concerned with fully marine areas it may be appropriate to consider this approach.

In the analyses of Kober *et al* (2010, 2012*)* demonstrating regularity of use was considered critical, and analyses were undertaken to reflect the Ramsar definitions of regularity. However, application of this approach resulted in 1999 out of a total of 2201 (ie 91% of hotspots of elevated abundance of seabirds at sea) having insufficient temporal coverage to conduct the test. As noted by Webb & Reid (2004) "*strict application of the Ramsar (type) criteria would result in under-representation of sites*". However, as noted by Webb & Reid (2004) "*Although the Ramsar definition of regular allows further compromise for remote areas, such compromise may be inappropriate in the marine environment, where transient aggregations of prey might lead to irregular occurrences of very large numbers of some inshore birds at a site*. "

Thus, it is not possible at this stage to give an absolute fixed definition of the temporal span of data required to demonstrate persistent use in identification of potential MCZs for birds. Suffice to say that the longer the span of years over which empirical data demonstrating elevated levels of usage (or underpinning models which make predictions of such elevated usage), the greater the degree of confidence in the evidence will be. Consequently the score of any proposals will be higher when judged on this assessment criteria. Wherever it is available, supporting corroborative evidence indicative of persistence of use at higher densities should be provided e.g. proximity of breeding colonies, location of known static habitat features (e.g. shallow offshore reefs and tidal races) etc.

**Bony Fish/Elasmobranch specific approach**

The emphasis for bony fish/elasmobranchs should be on understanding their behaviour. A number of provisional criteria by which the highly mobile species should be considered include:

- Is the species known to demonstrate spatial aggregation behaviour at any time during its life cycle (e.g. nursery grounds, spawning areas)?
- If yes, do the species aggregations occur in predictable locations over a number of years?
- If yes, do we have enough data and information to support the identification of these areas?

Following identification of potential sites, proposals should include a literature review in order to provide background material for any subsequent assessments. The literature review should primarily use peer-reviewed publications but where these aren't available grey literature may be used. For each species, information is required on its range and whether it forms spatially discrete aggregations at specific periods of its lifecycle or to undertake specific behaviours. These may include spawning, nursery, or feeding areas. Modelled data that is not ground-truthed is unlikely to be suitable though it could be used to identify areas to target future work. Nesting data (e.g. black bream), side-scan data, tagging data, discards, scientific survey and peer-reviewed literature are all considered to be relevant data sources.

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