



Seabird populations in the identification of marine SPAs

Joint Nature Conservation Committee
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1. Background and SPA selection guidelines

In 1979 the European Commission adopted the [Birds Directive](#) which, amongst other conservation measures, requires Member States to classify [Special Protection Areas](#) (SPAs) for birds listed on Annex I to the Directive and for regularly occurring migratory species. As part of the UK's work to identify important marine areas, an [analysis of seabirds in UK waters](#) was undertaken.

The UK has produced a set of [UK SPA site selection guidelines](#) to aid in selection of sites which qualify for SPA designation. Under Stage 1 of the selection guidelines areas are identified that are likely to qualify for SPA designation based on the following criteria:

1.1 An area is used regularly by 1% or more of the Great Britain population (or in Northern Ireland, the all-Ireland population) of a species listed in Annex I to the Birds Directive (2009/147/EC) in any season.

1.2. An area is used regularly by 1% or more of the biogeographical population of a regularly occurring migratory species (other than those listed in Annex I) in any season.

1.3. An area is used regularly by an assemblage of over 20,000 waterbirds (waterbirds as defined by the Ramsar Convention) or 20,000 seabirds in any season.

If Stages 1.1 – 1.3 did not yield sufficient suitable areas, Stage 1.4 can be applied.

1.4. An area which meets the requirements of one or more of the Stage 2 guidelines in any season, where the application of Stage 1 guidelines 1, 2 or 3 for a species does not identify an adequate suite of most suitable sites for the conservation of that species.

Stage 2 re-assesses the areas identified under Stage 1 to select from these the most suitable territories in number and size for SPA classification, based on the following ecological criteria:

2.1. Population size. Areas holding or supporting more birds than others and/or holding or supporting birds at higher concentrations are favoured for selection.

2.2. Species range. Areas selected for a given species provide as wide a geographic coverage across the species' range as possible.

2.3. Breeding success. Areas of higher breeding success than others are favoured for selection.

2.4. History of occupancy. Areas known to have a longer history of occupation or use by the relevant species are favoured for selection.

2.5. Multi-species areas. Areas holding or supporting the larger number of qualifying species under Article 4 of the Directive are favoured for selection.

2.6. Naturalness. Areas comprising natural or semi-natural habitat are favoured for selection over those which do not.

2.7. Severe weather refuges. Areas used at least once a decade by significant proportions of the biogeographic population of a species in periods of severe weather in any season, and which are vital to the survival of a viable population, are favoured for selection.

Under guidelines 1.1 and 1.2, areas are identified because they are significant for the overall population – they are used by at least 1% of the relevant population of that species. This document provides information on how we determined the relevant population sizes for each species based on the most up-to date population estimates.

2. Seabird populations

2.1 Relevant population

The use of the 'relevant' population refers to the correct use of either the Great Britain population for the species listed in Annex 1 of the Birds Directive, or the biogeographic population for regularly occurring migratory species. For some migratory species only part of the biogeographic population actually uses British waters, with for example birds from the west Atlantic not necessarily crossing to the east Atlantic to use British waters. In these cases the relevant population will only refer to the part of the population occurring in British waters, and this will be described as additional information in Table 1.

For a few species the relevant population size is unknown, because they do not breed in Britain and the size of the population migrating into British waters is unknown (e.g. little gull). For these species, a minimum of 50 individuals is required to qualify for SPA status.

2.2 Season

For some species, the size of the relevant population will differ between seasons as individuals migrate in and out of the relevant area between breeding and wintering seasons. For example some Annex 1 species might migrate into British waters to breed, but move out of British waters to winter in warmer climates. In general we have more knowledge of population sizes during the breeding season than during the non-breeding season, because the breeding birds can be counted in their colonies on land. In winter however the birds are mainly distributed at sea and counting them is much more difficult, if not impossible. Consequently, we usually have a population estimate for the breeding season, but not always for winter. For species for which we do not have a winter population estimate, the breeding population estimate was taken as the best available population estimate around the year in Great Britain.

2.3 Pairs and individuals

Traditionally, breeding populations of seabirds in their colonies on land (including colony SPAs) are provided as *breeding pairs*, because that is how they are counted.

In contrast, marine SPAs will provide protection for all individual birds present within the SPA; breeding individuals as well as non-breeding individuals, such as failed breeders or

individuals too young to breed. Therefore, when assessing the numbers of individuals within a marine SPA, we are interested in the number of *individuals* rather than the number of *breeding pairs*. Hence, to enable an assessment of a marine SPA using the SPA selection guidelines, the sizes of the relevant populations in individuals is required. Where the population estimates are published in breeding pairs, a conversion factor was used to convert the breeding pairs into a population estimate of individuals. The conversion factor is based on the assumption that the population consists of 2/3 breeding individuals and 1/3 non-breeders: the total number of individuals is therefore obtained by multiplying the number of breeding pairs (which consists of two breeding individuals) by a factor of three to provide an estimate of the population size which allows for the non-breeding element of the population (AEWA 2012).

2.4 Rounding

Population estimates and 1% thresholds are usually provided as rounded figures. The rounding convention to be applied here was proposed by Stroud *et al.* (2001): 1,000–10,000 to the nearest 100, 10,000–100,000 to the nearest 1,000, 100,000–1,000,000 to the nearest 10,000, etc.

Many of the sources of information used for obtaining population estimates had already been rounded and not always according to the rounding convention proposed above. In such cases the population estimates which were already used and approved for terrestrial SPAs (rounded populations of pairs) were multiplied by three to achieve populations of individuals without further rounding. In some sources of information, ranges of population sizes are given, rather than a single number. In these cases a midpoint of the range was used.

Table 1 and Table 2 provide the relevant populations used for the selection of possible marine SPAs. The populations reflect the most up-to-date information available at the time of the selection of the areas.

Table 1. Relevant (Great Britain) population estimates for Annex 1 species. Where different population sizes were estimated for breeding and winter, they are indicated by (B) and (W), respectively.

species	Great Britain population (individuals)	source	additional information
Cory's Shearwater <i>Calonectris diomedea</i>	unknown		
European storm-petrel <i>Hydrobates pelagicus</i>	78,000 (B)	(Mitchell <i>et al.</i> 2004)	¹
Leach's storm-petrel <i>Oceanodroma leucorhoa</i>	144,000 (B)	(Mitchell <i>et al.</i> 2004)	¹
little gull <i>Larus minutus</i>	unknown		
Mediterranean gull <i>Larus melanocephalus</i>	1,800 (B)	(Holling and the Rare Breeding Birds Panel 2012)	^{1, 2}
	1,800 (W)	(Musgrove <i>et al.</i> 2011)	
Sandwich tern <i>Sterna sandvicensis</i>	33,000 (B)	(Mitchell <i>et al.</i> 2004)	¹
common tern <i>Sterna hirundo</i>	30,000 (B)	(Mitchell <i>et al.</i> 2004)	¹
Arctic tern <i>Sterna paradisaea</i>	159,000 (B)	(Mitchell <i>et al.</i> 2004)	¹

1: the population was provided as breeding pairs and had to be converted to (breeding plus non-breeding) individuals.
2: midpoint of range used.

Table 2. Relevant (biogeographic) population estimates for regularly occurring migratory species. Where different population sizes were estimated for breeding and winter, they are indicated by (B) and (W), respectively.

species	biogeographic population (individuals)	source	additional information
northern fulmar <i>Fulmarus glacialis</i>	10,200,000	(Mitchell <i>et al.</i> 2004)	^{1, 2} , ssp. <i>glacialis</i> from the north Atlantic.
great shearwater <i>Puffinus gravis</i>	18,000,000	(Rowland 2006; Woods and Woods 1997)	^{1, 2} , population of Tristan da Cunha (including Gough Island), with added population of Falkland Islands.
sooty shearwater <i>Puffinus griseus</i>	20,000,000	(Brook 2004)	
Manx shearwater <i>Puffinus puffinus</i>	1,110,000	(Mitchell <i>et al.</i> 2004)	^{1, 2}
northern gannet <i>Morus bassanus</i>	967,000	(AEWA 2012)	only from northeast Atlantic, excluding the individuals from the northwest Atlantic, as there is no indication of exchange.
great cormorant <i>Phalacrocorax carbo</i>	120,000	(AEWA 2012)	ssp. <i>carbo</i> , from NW Europe
European shag <i>Phalacrocorax aristotelis</i>	210,000	(Mitchell <i>et al.</i> 2004)	^{1, 2} , ssp. <i>aristotelis</i> from the northeast Atlantic. The audit trail of an alternative population estimate from Wetlands International (2014) is unclear, hence Mitchell <i>et al.</i> was used due to the clearer audit trail.
Pomarine skua <i>Stercorarius pomarinus</i>	30,000	Furness (1996)	
Arctic skua <i>Stercorarius parasiticus</i>	75,000	(Mitchell <i>et al.</i> 2004)	^{1, 2} , from northeast Atlantic
Long-tailed skua <i>Stercorarius longicaudus</i>	512,500	(AEWA 2012)	²
great skua <i>Stercorarius skua</i>	48,000	(AEWA 2012)	¹
black-legged kittiwake <i>Rissa tridactyla</i>	6,600,000	(AEWA 2012)	ssp. <i>tridactyla</i> , from northwest and northeast Atlantic, as there is evidence that individuals cross the Atlantic.
black-headed gull <i>Chroicocephalus ridibundus</i>	4,250,000	(AEWA 2012)	² , from western Europe, western Mediterranean and western Africa

common gull <i>Larus canus</i>	1,725,000	(AEWA 2012)	² , ssp. <i>canus</i> from northwest and central Europe, Atlantic coast and the Mediterranean
lesser black-backed gull <i>Larus fuscus</i>	550,000	(AEWA 2012)	² , ssp. <i>graelisii</i> from western Europe, the Mediterranean and western Africa
herring gull <i>Larus argentatus</i>	1,020,000	(AEWA 2012)	² , ssp. <i>argenteus</i> , as this ssp. breeds in Britain. Currently, there is a lack of a clear audit trail how AEWA has reached this estimate. But other sources of data do not support any better estimate as no clear differentiation in nationwide counts between the ssp <i>argenteus</i> and <i>argentatus</i> are available.
Iceland gull <i>Larus glaucooides</i>	195,000	(AEWA 2012)	² , ssp. <i>glaucooides</i> from Greenland, Iceland and northwest Europe
glaucous gull <i>Larus hyperboreus</i>	247,500	(AEWA 2012)	² , ssp. <i>hyperboreus</i> from Svalbard and northern Russia
great black-backed gull <i>Larus marinus</i>	435,000	(AEWA 2012)	² , from northeast Atlantic
common guillemot <i>Uria aalge</i>	6,330,000	Third SPA Review	¹ , ² , ssp. <i>aalge</i> from northeast Atlantic, the northwest Atlantic is excluded, as there is no evidence that individuals cross the Atlantic. Population estimate derived from sum of national totals ³ . However, there is some uncertainty if there is a mixing with ssp. <i>albionis</i> during winter.
Razorbill <i>Alca torda</i>	1,380,000	(AEWA 2012)	ssp. <i>islandica</i> from Iceland, Faeroes, Britain, Ireland, Helgoland and northwest France.
little auk <i>Alle alle</i>	125,000,000	(AEWA 2012)	² , ssp. <i>alle</i> from the high Arctic, Baffin Island to Novaya Zemlya
Atlantic puffin <i>Fratercula arctica</i>	29,000,000	(AEWA 2012)	² , <i>Fratercula arctica sensu lat.</i> - the combined population of ssp. <i>arctica</i> (15,500,000) and ssp. <i>grabae</i> (13,500,000) - as currently all evidence points towards no differentiation between the two ssp.

1: the population was provided as breeding pairs and had to be converted to (breeding and non-breeding) individuals

2: midpoint of range used.

3: sum of national totals from *Uria aalge aalge* is estimated by the Third SPA review as the national totals of north-, west- and east Scotland, England (Northumbria), Sweden, Denmark, Finland, Faeroes, Iceland, Norway, Bear Island, Jan Mayen, Spitzbergen and Russia, obtained from Harris and Wanless (2007) and Mitchell et al. (2004).

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