

# Identification of Marine Special Protection Areas (SPAs)

## The challenge of the marine environment

Identifying important sites for birds in the marine environment is challenging. It is difficult to collect good quality information on the ecology of birds at sea, due to the logistical and financial implications of collecting data within the vast extent of UK waters.

Marine bird distributions often show strong associations with habitat features, such as the distribution of their prey, other birds and/or marine mammals, as well as physical and/or biological processes and features. Habitat boundaries are often not visible, may be much more dynamic, both spatially and temporally, than those on land, and may extend across small to very large scales.

Consequently, it can be difficult to define discrete sites, to estimate bird numbers within them, and thereby assess their relative or absolute importance to bird populations. JNCC is working with the other Statutory Nature Conservation Bodies to find the best approaches for overcoming these issues and to ensure that common standards are adopted throughout the UK.

## How are SPAs selected: the site selection guidelines

In the UK, the [UK SPA site selection guidelines](#) specify a site selection process which involves two stages: The first stage selects areas where there is evidence that they regularly hold important numbers of birds. The second stage uses one or more ecological criteria, such as species range and multi-species areas, to select the most suitable areas from all sites identified in the first stage.

In accordance with the Birds Directive, JNCC's advice on the selection of marine SPAs is founded upon ornithological criteria only - socioeconomic, management, or political considerations are not applied.

### Further reading:

- [EC guidelines for the establishment of the Natura 2000 network in the marine environment](#)
- [Marine Natura 2000 - process for consideration of Offshore SACs and for SPAs and SACs which cross the 12 nautical mile boundary](#) (Joint Committee paper JNCC 04 P09)
- [Marine Natura 2000](#) - update on progress (Joint Committee paper JNCC 04 P05)

## How were the data collected and analysed?

There are [44 marine bird species](#) in UK waters for which SPA protection can be considered. These species differ in their ecologies, behaviour, distribution and abundance and occur in UK waters at different times of the year. To facilitate the data collection and analysis, seven strands of work were identified which would capture the most important seasons for the relevant species:

- [Marine extensions to existing seabird breeding colony SPAs.](#)
- [Inshore wintering waterbird aggregations.](#)
- [Seabird aggregations.](#)
- [Foraging areas for breeding larger terns.](#)
- [Foraging areas for breeding little terns.](#)
- [Foraging areas for breeding red-throated divers.](#)
- [European shags.](#)

The survey and analysis methods used by JNCC are summarised very briefly below, but are described in full detail in publications from the [JNCC report series](#). General summaries of the methods can also be found in documents which can be accessed from the relevant paragraphs below.



seabird colony © Ilka Win



visual aerial survey © Kerstin Kober



attaching radio tags to red-throated divers © Ben Dean

## 1. Marine extensions to existing seabird breeding colony SPAs

Some seabird species aggregate in marine waters close to their colonies to resting or to engage in other maintenance activities. Many of these species breeding in the UK have their breeding sites protected via breeding colony SPAs, but the protection is largely limited to land above mean low water (or mean low water springs in Scotland). To identify those areas at sea adjacent to breeding colonies that are important for essential resting and maintenance activities, JNCC carried out a spatial analyses of survey data collected around selected seabird colonies. This allowed JNCC to make recommendations for generic marine extensions that could be applied for six species.

### Species covered:

- common guillemot *Uria aalge*,
- Atlantic puffin *Fratercula arctica*,
- razorbill *Alca torda*,
- northern gannet *Morus bassanus*,
- Manx shearwater *Puffinus puffinus*.

**Season covered:** breeding season.

### Further reading:

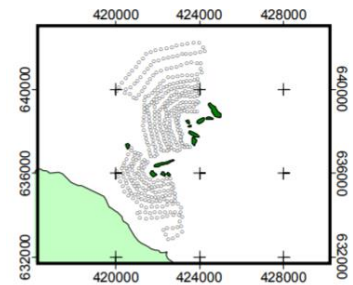
- General summary of the method: [Generic maintenance extensions around seabird breeding colonies.](#)
- Technical details: JNCC reports [329](#) and [406](#).



common guillemot © Ben Dean



northern gannet © Neil Golding



survey map, JNCC Report 329 © JNCC

## 2. Inshore wintering waterbird aggregations

During winter, many waterbirds aggregate at specific UK coastal areas such as bays, firths and estuaries. To focus survey effort, the JNCC and the other UK Statutory Nature Conservation Bodies identified from literature and existing survey data areas that could potentially contain qualifying aggregations of waterfowl in winter, the so called 'Areas of Search' (see also [Marine Natura 2000 SPA network paper](#)). Within these Areas of Search, an extensive programme of visual aerial surveys with support from shore-based and boat counts has been undertaken within these Areas of Search around the UK to identify the most important of these aggregations.

### Species covered:

A total of 17 species of divers, seaducks and grebes wintering in the UK.

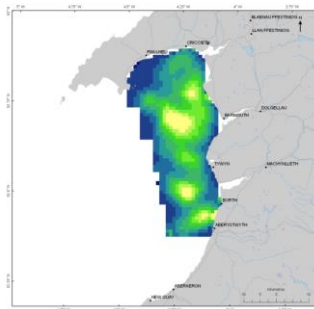
**Season covered:** non-breeding.

### Further reading:

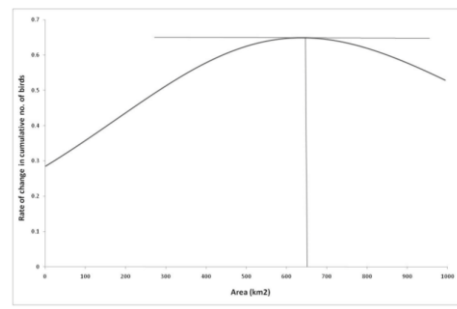
- General summary of the method: [Identification of important marine areas for inshore wintering waterbirds](#).
- Technical details: JNCC reports [374](#), [388](#), [498](#), [555](#), [567](#), [574](#), [575](#) and [576](#).



common eider © Ben Dean



density map, JNCC Report 555 © JNCC



maximum curvature graph, Report 555 © JNCC

### 3. Seabird aggregations

Seabirds are present in UK waters all year around, although their distributions change between seasons. This strand of work used the extensive European Seabirds at Sea (ESAS) database to identify areas in UK waters with regular occurring seabird aggregations during key stages of the birds' annual cycle, e.g. during the breeding season or during winter. The ESAS database stores observations of seabirds at sea collected from boat or aircraft in seas across Europe and it was used to generate distribution maps of all seabird species at different parts of the year throughout UK waters.

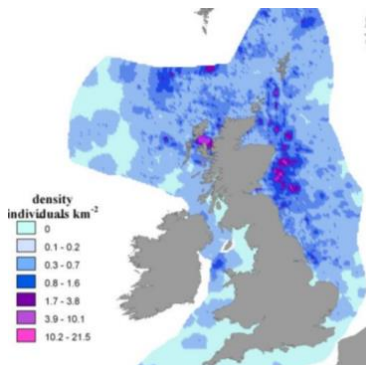
**Species covered:**

A total of 31 seabird species present in the UK.

**Season covered:** key seasons throughout the year.

**Further reading:**

- General summary of the method: [Identification of possible marine SPAs for seabirds.](#)
- Technical details: JNCC reports [431](#), [461](#) and [537](#).
- [Seabirds at Sea data and the ESAS database.](#)
- Technical details of the standard ESAS methods: [Tasker et al 1984](#) and [Camphuysen et al 2004](#).



## 4. Foraging areas for breeding larger terns

Terns are seabirds and as such were analysed as part of the [ESAS analysis](#). However insufficient data was available in the ESAS database because these birds are small and difficult to identify to species level when surveyed by aircraft or from boat. Therefore, JNCC collected visual tracking data as a means to identify the most important at-sea foraging areas around important tern breeding colonies.

### Species covered:

- Arctic tern *Sterna paradisaea*,
- common tern *Sterna hirundo*,
- roseate tern *Sterna dougallii*,
- Sandwich tern *Thalasseus sandvicensis*.

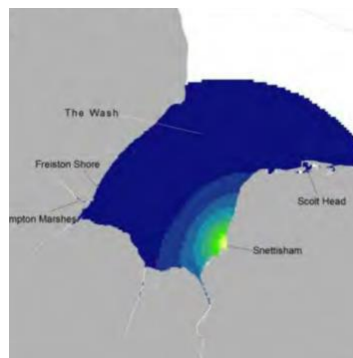
**Season covered:** breeding season.

### Further reading:

- General summary of the method: [Tern marine SPA identification](#).
- Technical details: JNCC report [500](#).



data coverage, JNCC Report 500 @ JNCC



predicted usage map, Report 500 @ JNCC



common tern © Andy Webb

## 5. Foraging areas for breeding little terns

Evidence from available literature suggests that little terns do not forage far from their breeding colonies and do not travel more than 5km out to sea. JNCC undertook shore-based and boat surveys to assess the rate at which little terns were found at increasing distances along the shore and out to sea from the colony.

**Species covered:** little tern *Sternula albifrons*.

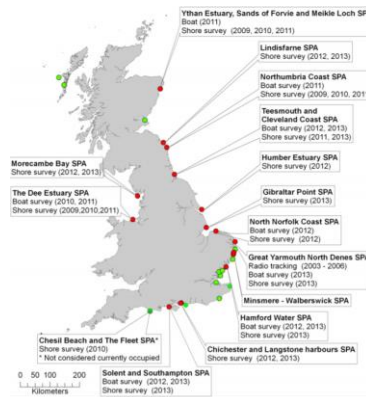
**Season covered:** breeding season.

**Further reading:**

- General summary of the method: [Identification of important marine areas for little terns around breeding colony SPAs.](#)
- Technical details: JNCC report [548](#).



little tern, JNCC Report 500 © Mike Powell



areas of search, Report 548 © JNCC

## 6. Foraging areas for breeding red-throated divers

Red-throated divers breed close to small lochans around Scotland's coastal areas and islands. During this time, they forage in inshore waters with limited foraging ranges. During boat-based surveys data were collected to identify the most important at-sea foraging areas around important red-throated diver breeding sites.

**Species covered:** red-throated diver *Gavia stellata*.

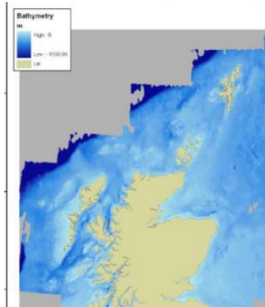
**Season covered:** breeding season.

**Further reading:**

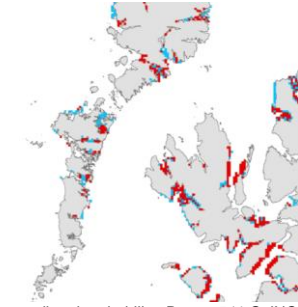
- General summary of the method: [Red-throated diver marine SPA identification](#).
- Technical details: JNCC report [541](#).



red-throated diver © Jakob.Sigurðsson



bathymetrie, Report 541 © JNCC



predicted probability, Report 541 © JNCC



## 7. European shags

European shag feed relatively close inshore both during the breeding season and non-breeding seasons. They are therefore not sufficiently detected by offshore boat surveys conducted as part of [ESAS](#) surveys. The approach taken for shag was to identify important areas based on existing data from a variety of sources. Areas have been identified based on the seabird aggregations analysis described above (where surveys were undertaken sufficiently close to the shore), visual aerial survey where observers were able to identify the species, and tracking data collected by the Centre for Ecology and Hydrology (CEH).

**Species covered:** European shag *Phalacrocorax aristotelis*.

**Season covered:** breeding season.

### Further reading:

- General summary of the method: [Shag marine SPA identification](#).
- Technical details: JNCC report [556](#).



European shag © Anja Lieder

