The use of bird data in marine planning and licensing

Razorbills at Bempton Cliffs. Steve Race

RSPB 2019

Contents

1. Introduction

1.1 The RSPB

The RSPB champions the cause of biodiversity conservation within the wider debate on sustainable development. We are the largest wildlife conservation organisation in Europe with over one million members, and we own and manage over 200 nature reserves where wildlife can thrive and people can be inspired. We are active across the UK at national, regional and local levels and play an active part in marine planning discussions across the devolved administrations and at an individual plan level.

1.2 The aim of this guidance

Marine Spatial Planning is a powerful tool, which, when implemented effectively, will guide the use of increasingly busy marine space in a way that respects environmental limits and reduces conflict between competing activities at sea. In accordance with the UK High Level Marine Objectives (HLMOs), marine planning must be underpinned by sound evidence and monitoring. This guidance seeks to enable those developing, implementing and utilising marine plans, to understand the value of incorporating seabird data into this process. It is also intended to be applicable across the UK in the devolved administrations and for use by statutory organisations, local authorities, developers and other marine and coastal user groups.

1.3 Marine plans

The Marine Policy Statement (MPS)[1] sets out the policy framework for the development of marine plans and ensures that marine resources are used sustainably. The MPS states that marine planning must follow an **ecosystem-based approach** to the management of human activities. This means an approach that ensures the collective pressure of human activities does not compromise or negatively affect marine ecosystems. The MPS sets out requirements for marine planning to:

- *Take account of the regime for Marine Protected Areas and comply with obligations imposed in respect of them.* (Section 3.1.8)
- *Ensure that development does not result in a significant adverse effect on the conservation of habitats or the populations of species of conservation concern. (Section 2.6.1.6)*

And ensure that:

- *Appropriate weight is attached to designated sites; to protected species; habitats and other species of principal importance for the conservation of biodiversity; and to geological interests within the wider environment.* (Section 2.6.1.5).

Marine plans support the UK's goal of achieving 'Good Environmental Status' (GES) by 2020 as outlined in the UK Marine Strategy[2]. The health of seabird populations is a key part of the targets for achieving GES and marine planning is an important tool for achieving GES outside of protected areas.

[1] https://www.gov.uk/government/publications/uk-marine-policy-statement

[2] https://moat.cefas.co.uk/introduction-to-uk-marine-strategy/

2. Introduction to seabirds

2.1 The UK – an important home for seabirds

Every year, around eight million seabirds of more than 20 species, travel across oceans to nest on the shores of the British Isles. The UK and Ireland support a large proportion of the world's breeding populations of a number of seabird species, including more than half the world's great skuas and northern gannets and 90% of the world's Manx shearwaters (Mitchell *et al*, 2004[3]). As well as breeding seabirds, nationally and internationally important numbers of waders, gulls, divers, geese and seaducks winter in and around our coasts and estuaries. The global significance of the UK's sea and waterbird populations is reflected in a range of nationally and internationally important protected areas.

2.2 Seabird declines

Seabirds are sensitive to changes and pressures in the marine environment (see section 3.2 for examples), to which their fortunes are inextricably linked. They are indicators of the health of our seas and data on their numbers, movements and distribution is a valuable tool for informing and reporting on actions to protect and restore the UK's waters.

The 2019 consultation on the assessment of progress towards the delivery of Good Environmental Status (GES)[4] for our seas clearly shows that seabirds are suffering continued declines, despite protection at nest sites on land and some protection at sea. The UK seabird indicator stands at 22% below the 1986 baseline, with most of this decline occurring since the mid-2000s[5].These substantial losses reflect a wider range of pressures on the marine environment than ever before, including climate change, overfishing and seabird bycatch, pollution, poorly sited coastal and offshore development, habitat loss, and disturbance.

Marine planning offers a significant opportunity for delivery, both in terms of the policies informing sustainable use of UK waters, but also in the evidence base upon which this spatial system and the policies are developed.

2.3 Tourism and the economic value of seabirds

Marine and coastal birds, and the habitats which support them, are the focus of many leisure activities. The RSPB is one of a range of organisations offering people a chance to experience the sights and sounds of such wildlife and habitats at its many reserves and viewing schemes. These places bring significant local economic benefits through direct employment, reserve expenditure and visitor income. For instance, the RSPB UK reserve network brought an estimated £66 million to local communities in 2009 and supported 1,872 local jobs[6]. More specifically, the annual local spend attributable directly to the RSPB's Bempton Cliffs reserve alone was around £1.8 million in 2009.

Ensuring the protection of seabirds and their habitats through effective marine planning is therefore not only important for environmental reasons, there are also far-reaching environmental and socio-economic benefits.

[3] http://jncc.defra.gov.uk/page-3120
[4] https://consult.defra.gov.uk/marine/updated-uk-marine-strategy-part-one/supporting_documents/UKmarinestrategypart1consultdocumentfinal.pdf
[5] *The state of the UK's birds 2017,* Hayhow D.B. *et al.*
[6] RSPB (2011) *RSPB Reserves and Local Economies*, RSPB, Sandy

3.0 Understanding seabirds

Understanding seabird behaviour and ecology is beneficial when determining if a particular type of development or activity could have potential impacts, as well as considering how these impacts may be overcome.

Seabirds need the following things in order to thrive:

- Safe nesting, roosting and resting sites.
- Safe food-rich foraging areas for both the breeding season and outside it.
- Safe flight pathways i.e. unrestricted access between the sites they need.

The highly mobile nature of seabirds means that they move between and across marine plan areas. This could be between inshore and offshore, within a country's plan area, and across country boundaries, both in and outside the UK. The location of birds and the extent to which they travel depends on the species and the time of year.

3.1 Seabird distribution and abundance

Information on foraging seabirds has been gathered by observations from boats, and more recently, advances in technology have enabled scientists to attach GPS trackers to seabirds. These trackers record the distance travelled by seabirds from the nest site and have recorded gannets, guillemots, razorbills, puffins and kittiwakes travelling well in excess of 100km from land. Tracking also records the route taken by seabirds. This data is particularly useful in identifying those areas of sea which are linked to nest sites both in terms of flight pathways and feeding areas.

3.1.1 Movements during the breeding season

During the breeding season, seabirds become tied to a nest site while they raise their young and will move between there and the waters where they feed. Breeding sites are found where the habitat best meets the birds' needs. These often consist of inaccessible cliffs and islands, where they have some protection from ground predators (like foxes, rats or mink). As well as providing suitable places to nest, these terrestrial sites must be located within range of plentiful food supplies.

How far seabirds travel from their breeding site in search of food depends on the species (see Table 1) and is influenced by food availability and the time of year (e.g. parents may travel greater distances later in the breeding season). Where seabirds can travel is influenced by human use of the marine environment. For example, some developments and activities may prevent seabirds from flying through or foraging within an area.

The duration of the breeding season varies slightly between species, and according to environmental conditions, but as a general rule is March to August, peaking between May and July. As well as making trips out to sea in search of food, breeding seabirds use waters near their nest site for maintenance activities such as mating, preening, moulting and resting (i.e. floating on the surface of the sea in groups, known as rafting).

Table 1. *The foraging strategies of four seabird species during the breeding season. Birds only able to carry one fish at a time must make more frequent, shorter trips in search of food. Puffins are able to hold multiple fish in their beak and can retain these whilst hunting for more. Species such as gannet and kittiwake, swallow their prey – keeping it safely stored inside their bodies allows them to continue foraging and travel further from the nest site.*

Species	Gannet 	Kittiwake 	Puffin 	Sandwich Tern 
Carries food	Stored in crop – can catch multiple prey items	Regurgitates – can catch multiple prey items	Carries multiple fish in beak	1 fish at a time
Chicks	1	1	1	2-3
	Less frequent, longer foraging trips further from the nest site			More frequent, shorter foraging trips closer to the nest site

3.1.2 Movements during winter and passage

Once the breeding season has finished (usually in August), seabirds start to leave their nest sites and head out to sea, although some remain, such as shags, cormorants and several gull species. Gannets may also continue to reside on UK cliffs until October and return as early as February the following year.

At times, the UK is also visited by species which do not breed here, for example little gulls and Balearic shearwaters. This period of movement from breeding sites to where seabirds spend their winter is known as ‘passage’. The same term is given to the period when they make the return journey from wintering locations back to their nest site ahead of the breeding season.

Most species do not return to land until the following breeding season, remaining out at sea where they feed and sleep. Out in the open ocean, seabirds are vulnerable to extreme weather conditions. Storms can result in fatalities known as ‘seabird wrecks’, where large numbers of seabirds can be found washed up on UK shores. Adverse weather conditions over winter and passage can result in birds returning to breed in poor condition which may delay egg laying and/or reduce productivity.

3.1.3 Movements of UK waterbirds

‘Waterbirds’ is a catch-all term for waders, geese, seaducks and divers. These birds use the UK’s coasts and waters all year round as they breed, feed, overwinter and migrate. Post-breeding passage and winter are busy times for the UK’s coasts as ducks (e.g. shelduck), geese (e.g. pink footed geese) and waders (e.g. curlew, knot, golden plover) make use of estuaries, mudflats, rocky shores and saltmarshes. Passage movements take place

up and down our coasts, across multiple plan areas. These routes are important migration pathways for birds travelling between protected areas.

3.2 Threats to seabirds

A wide range of activities are undertaken within the marine environment which have the potential to impact seabirds. The scale of impact will depend on the type of activity, time of year, location (e.g. proximity to nest sites, feeding areas, migration routes), duration and frequency of activity and species affected.

Considering how seabirds are affected by human activities is relevant during the development, implementation and review of marine plans. Marine plans should reduce and avoid potential impacts whilst providing opportunities to enhance and restore the marine environment. It is also important to factor in the different phases of development which will occur (e.g. exploration, construction, operation and decommissioning) as they may have different impacts on seabirds. Because seabirds are highly mobile species, it is also important to consider the cumulative impacts of developments, due to the distances the birds travel.

Just some of the pressures on seabirds in the marine environment include:

- Unsustainable fishing
  - Overfishing removing birds' food supply.
  - Bycatch – where birds and other sealife become caught accidentally in fishing gear.
- Habitat loss e.g. dredging, poorly located offshore developments.
- Disturbance/displacement.
- Pollution.
- Warming seas – which leads to a reduction in prey species.

4.0 Using seabird data in marine planning and licensing

Considering a range of bird data to inform the development, implementation and review of marine plans will make the most of this significant opportunity to safeguard seabirds and the wider marine environment.

Marine plans must use the best available data and information regarding how birds use the marine and coastal environment, as well as how birds interact with human uses of the sea. Plans must also recognise the need to apply precaution in planning where there are significant gaps in the existing evidence base. The use of seabird data at an early stage will increase the likelihood of finding pragmatic solutions to promote co-location and avoid ruling out entire areas from development. It will also reduce uncertainty for developers from the start of the process.

In order to address the needs of seabirds in marine planning; data is essential in order to enable marine planners to:

- Identify the most important areas for seabirds, allowing protection and management.
- Highlight important areas for seabirds which are also likely to be in demand for human activities.
- Assess the sensitivity of bird species to human activities in the marine environment (where activities are considered to have a potential negative impact; investigate whether they can take place away from important areas, or whether their impacts can be mitigated).
- Monitor the effectiveness of marine plans against their objectives, especially in relation to marine biodiversity, and review plans as appropriate.

A variety of data sets, covering a wide reporting area (including beyond the plan boundaries), should be used to build up the best picture possible of how seabirds and other species use marine plan areas. This will vary by season as the location of bird species changes throughout the year, according to breeding, passage and wintering, so marine planning must consider these temporal changes.

Data can be compared with current and planned activities in areas of high sensitivity in and around the marine plan area. This will highlight the relative overall vulnerability of the birds and can be used to guide plan activities in areas of lower vulnerability and/or at lower intensities.

4.1 Seabird and waterbird data sets

The most important data sets for seabirds and waterbirds are listed below. This list represents the best available evidence for seabirds as of December 2019, however; knowledge about UK seabirds is continually improving and the most up-to-date data should be sought from relevant expert organisations (e.g. RSPB, JNCC), during all stages of the marine planning and licensing processes.

4.1.1 RSPB Open Data Portal

The Open Data Portal is a website where the public can view and download data from RSPB research work. It displays the data on an interactive map and allows people to download the data in a spreadsheet, or as a GIS layer which can be used in mapping applications. Marine and seabird tracking data categories include hotspots from our seabird tracking work. These show which areas of sea are most important for the birds, in addition to revealing where birds are more likely to be seen. This is useful for planning which areas of sea should be protected and identifying which areas might be suitable for offshore developments.

4.1.2 Seabird tracking data

a) Description: Breeding density, fine-scale tracking, and large-scale modelling reveal the regional distribution of four seabird species (Wakefield *et al*., 2017).

Source: https://esajournals.onlinelibrary.wiley.com/doi/full/10.1002/eap.1591

b) Description: Combining habitat modelling and hotspot analysis to reveal the location of high-density seabird areas across the UK (Ian R. Cleasby, Ellie Owen, Linda J. Wilson & Mark Bolton, 2018).

Source: Technical report here and further information on Open Data Portal, RSPB – https://opendata-rspb.opendata.arcgis.com/

c) Description: Seabird tracking at the Flamborough & Filey Coast: Assessing the impacts of offshore wind turbines (Pilot study, Wischnewski, S., Fox, D.S., McCluskie, A. & Wright, L.J.).

Source: RSPB Centre for Conservation Science – Fieldwork report and recommendations here.

4.1.3 European Seabirds at Sea (ESAS)

Description: Data from a long-running programme of survey and research work on seabirds (including divers and sea ducks) in the north-east Atlantic since 1979, and the south-west Atlantic between 1998 and 2002 (cetacean data collected during this period is also available from JNCC). Shows location and seasonality of important aggregations of offshore seabirds.

Source: JNCC - http://jncc.defra.gov.uk/page-4469.

4.1.4 Seabird Monitoring Programme

Description: National seabird census recording entire seabird population of Britain and Ireland (except gannets), carried out between 1998 and 2002. Seabirds Count, the most recent census, began work in 2015 and is running until 2019. When the data is made available from the latest census, the most recent results should supersede the previous data sets. All the data, along with other colony counts feeds in to the Seabird Colony Register.

Source: JNCC – See Seabird 2000 results http://jncc.defra.gov.uk/page-3120 for an executive summary and to download the full report. Downloadable copies of distribution maps and tables of regional population estimates for each species can be found at http://jncc.defra.gov.uk/page-3176

4.1.5 The Wetland Bird Survey (WeBS) and Non-estuarine Waterbird Survey (NeWS)

Description: An annual scheme of counts at 2,000 coastal and wetland sites between September and March, surveying abundance and distribution of waterbird populations and important coastal and wetland locations. At least 1,100 of these sites are monitored regularly (monthly) during this period and some sites are monitored year-round. NeWS covers non-estuarine coastal habitat, often missed by WeBS surveys.

Source: British Trust for Ornithology, RSPB and JNCC in association with the Wildfowl and Wetlands Trust. WeBS data and annual report available here https://www.bto.org/volunteer-surveys/webs. Latest NeWS (2015/2016) results and information available here https://www.bto.org/our-science/projects/webs/taking-part/non-estuarine-waterbird-survey-iii

4.1.6 Seaduck inshore surveys

Description: Survey of inshore waterbirds (seaduck, divers and grebes) since the winter of 2000/01, primarily using aerial surveys. These data are analysed on an ongoing basis to aid the identification of inshore SPAs for non-breeding aggregations of marine waterbirds.

Source: JNCC. Further information and data available at http://jncc.defra.gov.uk/page-4570.

4.1.7 Stand-alone gannet survey

Description: Regular stand-alone census of all British and Irish gannet colonies every 10 years; the last complete survey was undertaken in 2013/14. Locations and population sizes of key gannet breeding colonies.

Source: JNCC - http://jncc.defra.gov.uk/page-2875

4.1.8 Tern-at-sea distribution

Description: Tern-at-sea distribution data collected by tracking terns in boats around existing SPA tern colonies to inform decisions on possible marine SPAs for terns, as ESAS and aerial survey data are generally poorer for detecting specific species in inshore areas.

Source: JNCC - http://jncc.defra.gov.uk/pdf/JNCC_Report_500_web.pdf

4.1.9 Birds of Conservation Concern (BoCC) report

Description: A review produced by the UK's leading bird conservation organisations based on a variety of data sets. The latest review (BoCC 4, Eaton *et al*, 2015) saw 244 bird species with breeding, passage and wintering populations in the UK assigned to the Red, Amber or Green lists of conservation concern. It records the addition

of kittiwake, shag and puffin to the Red list and also includes four of the UK's seaducks. The BoCC lists are endorsed by all major bird conservation organisations, both governmental and non-governmental. As such, the lists are used to guide the conservation action and setting of priorities for action for birds in the UK.

4.1.10 Other sources

The statutory nature conservation bodies (i.e. Natural England, Scottish Natural Heritage, Northern Ireland Environment Agency and Natural Resources Wales) hold data sets that are used for site designation and condition monitoring.

Source: Contact the relevant body representing the area in question.

The British Trust for Ornithology colour ringing scheme can flag potential evidence of functional linkage between sites for some species, particularly gulls and terns. Using one of a variety of marks, such as lightweight plastic rings, leg flags, neck collars or wing tags, the identity of an individual bird can be established by observation, without the need for recapture.

Source: Contact BTO – info@bto.org

5.0 Summary

All marine plans for the UK's waters must inform and support sustainable development, ensure consideration of seabirds and other marine wildlife, and play a part in meeting the climate and biodiversity crises. To do this they need to accommodate the needs of our marine wildlife and habitats, including seabirds.

There is a clear need to consider seabirds in every stage of marine planning and seabird data is an important part of the evidence base for planning. The best available data should be used to inform marine planning, recognising the need to apply precaution where knowledge gaps exist, with new evidence built into the process as it becomes available. Data sets should be used in conjunction with one another to provide the best picture possible of how seabirds and other species use UK waters. The incorporation of seabird data at an early stage, and throughout application and review, underpins the creation of sustainable policies and provides greater clarity for stakeholders including by reducing uncertainty for developers from the start.

The movement of birds between protected areas and across marine plan areas, along with the impacts of activities potentially affecting multiple plan areas calls for greater connectivity between protected sites. In addition, links between designated sites and areas of sea outside protected areas should be considered.

For the UK to truly deliver thriving and resilient seas, the environment must be embedded into marine plans. Marine plans must prevent further damage to the marine environment by halting loss and ensuring sustainable activities and developments which enhance and restore the UK's seas.