Northern Ireland Seabird Report 2023

BTO Birds Science People

Northern Ireland Seabird Steering Group

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This report is the published outcome of the work of the Northern Ireland Seabird Network – a network of volunteers, researchers and organisations – coordinated by the BTO Seabird Coordinator, and funded by NIEA.

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Contents

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Editorial

Katherine Booth Jones & Hala El Haddad

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Sandwich Tern, by Liz Cutting / BTO

This is the 11th edition of the *Northern Ireland Seabird Report*, covering the 2023 breeding season. This report is the published outcome of the work of the Northern Ireland Seabird Network of participants, overseen by the British Trust for Ornithology (BTO) on behalf of the Northern Ireland Environment Agency (NIEA). As always, at the core of the Seabird Network in Northern Ireland is our surveyors. Some work for government bodies such as NIEA, and others on behalf of Non-Government Organisations (NGOs) such as Royal Society for the Protection of Birds (RSPB), Ulster Wildlife and the National Trust. All are important contributors through the provision of data for 2023 and previous years and provide advice and guidance from their expert staff. We are grateful for their co-operation and assistance. Many other surveyors are volunteers who give their time freely to help. The amount and quality of work undertaken by volunteers in Northern Ireland is exemplary, and we are fortunate that many enthusiastic and talented people are part of the Northern Ireland Seabird Network. We would like to thank everyone who has contributed to this report. Huge thanks also go to NIEA for their continued financial support for both the Seabird Coordinator role and for the production of this annual report.

This 2023 report on breeding seabirds in Northern Ireland follows the format of the preceding reports. In 2022, there was an outbreak of Highly Pathogenic Avian Influenza (HPAI) across the UK and Ireland. Thankfully in terms of both seabird health and welfare in Northern Ireland, and from a monitoring perspective, HPAI appeared to arrive fairly late in the 2022 breeding season compared to colonies affected elsewhere in the UK. Unfortunately, the impact of HPAI was more severe on Northern Ireland's seabird colonies in 2023. You can read more about the impacts of HPAI in Northern Ireland on page 64 of this report.

It is important that this report represents a summary of current species knowledge, and that reference to other, earlier, reports is not necessary. In this we are taking a similar stance to the past NI Seabird reports, available via the BTO website.

As in previous years, several articles have been submitted for inclusion in the Northern Ireland Seabird Report. These articles provide further detail on seabird-related topics and highlight some of the exciting seabird research being undertaken in Northern Ireland and further afield. We are very grateful to the authors for giving their time to produce these articles.

Naturally this summary does not report on all data, but all records collected are of real value in understanding Northern Ireland's seabirds. A report such as this is only as robust as the data that we can collect and submit, so if you have additional seabird population data, either recent or historic, then please submit them online to the SMP database (www.bto.org/smp) or discuss this with the Northern Ireland Seabird Coordinator (Hala El Haddad, hala.haddad@bto.org) or the SMP Organiser, Sarah Harris (smp@bto.org), for the benefit of seabirds in Northern Ireland. Although the national census period has closed, we would encourage volunteers to continue to monitor their seabirds sites, as long-term, annual data collection is exceedingly valuable in tracing the health of our marine ecosystems. In particular, breeding success and survival data are rare in Northern Ireland, and therefore we would love to hear from anyone interested in contributing to productivity monitoring or seabird ringing and survival monitoring (for example via BTO's Retrapping Adults for Survival project).

There have been some changes in data analysis methods used in 2023 to previous years so caution is advised when comparing results to previous NI seabird reports. We hope you enjoy the 2023 report!

Seabird monitoring overview

Puffins, by Sarah Kelman, BTO

Seabird colony censuses in Britain and Ireland

There have been four national seabird censuses covering the UK and Ireland. The first, Operation Seafarer, was conducted in 1969 and 1970 by the then recently formed Seabird Group. More than 1,000 surveyors took part. The results were summarised in Cramp et al. (1974) *The Seabirds of Britain and Ireland*. Operation Seafarer was a major achievement and provided the first comprehensive and detailed account of the abundance and distribution of breeding seabirds in the UK and Ireland. However, Operation Seafarer also highlighted major problems in accurately counting some species, namely Storm Petrels *Hydrobates pelagicus*, Leach's Storm Petrels *Oceanodroma leucorhoa*, Manx Shearwaters *Puffinus puffinus*, Razorbills *Alca torda*, Guillemots *Uria aalge*, Black Guillemots *Cepphus grylle* and Atlantic Puffins *Fratercula arctica*.

The second census, known as the Seabird Colony Register (SCR), was instigated by the then Nature Conservancy Council and The Seabird Group. Most fieldwork was carried out from 1985 to 1988. The results were published in Lloyd et al. (1991) *The Status of Seabirds in Britain and Ireland*. The SCR provided the first assessment of nationwide trends through comparison with results from Operation Seafarer. Recently developed survey techniques provided more reliable baseline estimates for Common Guillemot, Razorbill and Black Guillemot and served as the foundation for future monitoring of seabird populations. Crucially it also allowed the national importance of individual colonies to be compared, and for sites to be designated as Special Protection Areas (SPAs) under the EC 'Birds Directive'. A legacy of the Seabird Colony Register was the establishment of the Seabird Monitoring Programme (SMP, see below).

The third national census was Seabird 2000. It was co-ordinated by the Joint Nature Conservation Committee (JNCC) in partnership with other organisations: Scottish Natural Heritage, Countryside Council for Wales, English Nature, NIEA, RSPB, The Seabird Group, Shetland Oil Terminal Environmental Advisory Group (SOTEAG), BirdWatch Ireland, and National Parks and Wildlife Service (Dept. of Environment, Heritage and Local Government, Republic of Ireland). Fieldwork was carried out from 1998 to 2002. Seabird 2000 provided population information on the 24 species of seabird which regularly breed in the UK and Ireland, estimating that over eight million seabirds breed in Britain and Ireland each year. Coverage was as comprehensive as possible and included, for the first time, counts of inland colonies. The updated population estimates allowed the identification of new, and the continued monitoring of existing SPAs, and provided updated national trends. Seabird 2000 used recently developed playback techniques for the first time, providing reliable baseline estimates for petrel and shearwater populations. The results were published in Mitchell et al. (2004) *Seabird Populations of Britain and Ireland* and demonstrated that the seabird assemblage that breeds here is of extraordinary international importance.

The fourth national census, Seabirds Count (**https://jncc.gov.uk/our-work/breeding-seabird-national-censuses/**), was developed by the SMP Partnership and was coordinated by JNCC. Data collection for the census was undertaken between 2015 and 2021, after delays caused by the COVID-19 pandemic required an extension from 2020. On top of the professional coverage required to survey challenging colonies, the continued support of the volunteer Northern Ireland Seabird Network who contribute to this report annually has played a vital role in filling monitoring gaps for the recent census. The results of the Seabirds Count census were published in Burnell et al. (2023) *Seabirds Count A census of breeding seabirds in Britain and Ireland (2015–2021)*.

The Seabird Monitoring Programme (SMP)

Since 1986, seabird populations in the UK and Ireland have been monitored through the SMP (www.bto.org/smp) coordinated on behalf of 19 partnership organisations by JNCC until July 2022. In July 2022, a new agreement was signed, and a new Partnership formed: the Seabird Monitoring Programme is now jointly funded by BTO and JNCC, in association with RSPB. An Advisory Group of 24 organisations (those who formed the previous Partnership, including the new Partners and organisations undertaking integrated population monitoring at four 'Key Sites') was also formed to help steer the programme going forward.

Annual data on breeding abundance and breeding success of seabirds are collected from a large network of sites, both regionally and nationally, to enable species' conservation status to be assessed. To examine trends at individual colonies, at country level and across the whole UK, it is essential that individual sites can be monitored consistently for many years.

Data on breeding abundance – the number of breeding pairs or individuals – provide a medium to long term measure of how populations are faring. Data on breeding success/productivity – the number of chicks fledged per breeding pair – are regarded as a short term or more immediate measure of changes in the wider environment (Parsons et al. 2008).

Studies at the four SMP Key Sites (Isle of May, Canna, Fair Isle and Skomer) provide extra information on adult survival, diet and phenology for selected species, which in conjunction with data on breeding success are used to help to diagnose the changes in abundance. Additional data on survival rates at other sites are collected through the BTO's Retrapping Adults for Survival (RAS) scheme (Horswill et al. 2015), although there are only two current RAS sites for seabirds in Northern Ireland.

The SMP generates annual indices of abundance and breeding success from these data, which were reported on the JNCC website up to 2019 (JNCC, 2021: https://jncc.gov.uk/our-work/smp-report-1986-2019) and will be published on the BTO website for the 2021 breeding season onwards. Where possible trends are given at the scale of the UK- or country-level, but where coverage is only possible at individual sites, the indices are shown at the site level. The SMP is a vital programme for monitoring seabird population trends between the full national censuses.

Why monitor seabirds?

The SMP enables its partners to monitor the health of the marine environment and inform seabird conservation issues. Monitoring seabirds is important for several reasons:

- seabirds are an important component of marine biodiversity in the UK.
- seabirds are top predators and a useful indicator of the state of marine ecosystems.
- human activities impact upon seabirds, both positively and negatively and these effects should be monitored.
- the UK is internationally important for seabirds.
- seabirds are protected by law and the UK has obligations to monitor and protect populations.
- monitoring provides data which underpin targeted conservation policy development and action.

The Northern Ireland Seabird Coordinator role

In 2013, NIEA initiated funding for a 'Northern Ireland Seabird Coordinator' post at the BTO. The main aim of the Seabird Coordinator is to facilitate an increase in annual seabird monitoring across Northern Ireland. Critical to this is the active support and engagement of volunteer seabird monitors (the Northern Ireland Seabird Network), who collect much of the seabird data in Northern Ireland. The Coordinator works closely with SMP partners to ensure that all monitoring data collected by volunteers feeds into the SMP online database (accessible at https://app.bto.org/seabirds/public/index.jsp), which has included the creation of a definitive register of Northern Ireland sites (see below). The role also includes the compilation of an annual report on the state of seabird populations (this report), with input from the Northern Ireland Seabird Steering Group, consisting of independent experts, the RSPB, the National Trust, Ulster Wildlife, the Marine and Fisheries Division (DAERA) and NIEA (DAERA). The Steering Group also advises on the programme of activities for the Coordinator and the evolution of the Northern Ireland Seabird Network. Additionally, the Coordinator acts as an advisor and representative of the Northern Ireland Seabird Steering Group and volunteer network on the Northern Ireland Seabird Conservation Strategy Steering Group, led by the Marine and Fisheries Division. The Northern Ireland Seabird Coordinator role is now included in the duties of the BTO Senior Research Ecologist for Northern Ireland. This role is unique and provides an exemplar for better support and co-ordination of annual monitoring of seabirds in Britain and Ireland.

Strategies for seabird monitoring and conservation in Northern Ireland

In 2013, a strategy for seabird monitoring in Northern Ireland was developed (Northern Ireland Seabird Data Collection Strategy 2014–19, *unpublished report to NIEA*). The strategy provided the context and set minimum requirements for the annual monitoring of breeding seabirds in Northern Ireland to facilitate effective management of this natural resource. It focused on the monitoring of populations and productivity in Northern Ireland while also facilitating further detailed studies of those populations. The main objectives were:

- to identify priorities for seabird monitoring in Northern Ireland.
- to identify priorities for seabird research in Northern Ireland.
- to gather data which will assist NIEA and conservation NGOs in managing protected seabird species and habitats.
- to increase the number of seabird breeding sites monitored annually.
- to increase the number of people involved in seabird monitoring in Northern Ireland.

The objectives of this strategy continue to be kept under review by the NI Seabird Steering Group, and new focus will be added through the development of a Northern Ireland Seabird Conservation Strategy (NISCS) in 2024. The NISCS is being developed by DAERA, with the advice and feedback from an Advisory Group, in tandem with conservation strategies in each of the Devolved Administrations. The NISCS will review and report on the current status of seabird populations and identify and assess their sensitivity to threats and pressures, informing management recommendations to maintain and improve conservation status. Following a public consultation, the Strategy will be published in summer 2024.

The objectives of the NISCS are to:

- Collate existing evidence from all seabird monitoring efforts in Northern Ireland.
- Review the current data and distributions of seabirds in the Northern Ireland marine area and at their breeding sites.
- Understand the impact of threats and pressures on seabirds at sea and at their breeding habitats, through vulnerability assessments to inform future management and decision making.
- Ensure effective protection and management of the marine ecosystem is developed around the Northern Irish coast to aid the recovery of seabirds and wider natural interest, through targeted recommendations and action plans.
- Identify the knowledge gaps to enhance the evidence base and data availability of seabird distribution and populations which will target future research and monitoring goals.
- Bring the department, stakeholders and public together to implement the recommendations and actions identified, and to raise awareness of the importance of seabirds in Northern Ireland.
- Conduct a review of the strategy every six years, with the ability to change species scope to reflect environmental change and species where appropriate.

The Northern Ireland sites register

During 2013 a full register of all known, possible or potential seabird nesting sites, consistent with the SMP site register, was created by the Northern Ireland Seabird Coordinator, and which provided definitive spatial boundaries for each site. This means that every part of the Northern Ireland coastline now has a recording section for data entry in the SMP online database. All known inland sites are also listed. Sites are grouped by general area into 'Master Sites'. Master Sites usually can contain a number of different sites, for example along stretch of coastline or in a large lough, or they might contain just one site, for example a small, isolated lough. Due to legacy issues from historical record keeping and the way data are held in the SMP online database, a separate site register is maintained for Black Guillemot.

Breeding seabirds in Northern Ireland in 2023

Katherine Booth Jones

BTO NI Senior Research Ecologist and Seabird Coordinator

Fulmar, by Edmund Fellowes / BTO

The following species accounts summarise the known status of each breeding seabird species in Northern Ireland (see Table 1). The accounts also provide a summary of population trends at the main breeding sites, where data exist. These data were collected by many participants across Northern Ireland and a list of those contributors is given at the end of this report. Many other people have contributed records from the 1960s onwards, when concerted monitoring began for some species. Without that recording we would not be able to generate these population graphs and tables.

Table 1: Seabird species breeding in Northern Ireland

Species	NI Priority[1]	BoCCI4 Status[2]	UK BoCC5[3]	IUCN Red List[4] (Europe)
Fulmar	N	AMBER	AMBER	Vulnerable
Manx Shearwater	N	AMBER	AMBER	Least Concern
Storm Petrel**	N	AMBER	AMBER	Least Concern
Cormorant	N	AMBER	GREEN	Least Concern
Shag	Y	AMBER	RED	Least Concern
Great Skua	Y	AMBER	AMBER	Least Concern
Kittiwake	Y	RED	RED	Vulnerable
Black-headed Gull	Y	AMBER	AMBER	Least Concern
Mediterranean Gull	Y	AMBER	AMBER	Least Concern
Common Gull	N	AMBER	AMBER	Least Concern
Lesser Black-backed Gull	N	AMBER	AMBER	Least Concern
Herring Gull	Y	AMBER	RED	Least Concern
Great Black-backed Gull	N	GREEN	AMBER	Least Concern
Little Tern**	N	AMBER	AMBER	Least Concern
Sandwich Tern	N	AMBER	AMBER	Least Concern
Common Tern	N	AMBER	AMBER	Least Concern
Roseate Tern	Y	AMBER	RED	Least Concern
Arctic Tern	N	AMBER	AMBER	Least Concern
Guillemot	N	AMBER	AMBER	Least Concern
Razorbill	Y	RED	AMBER	Least Concern
Black Guillemot	Y	AMBER	AMBER	Least Concern
Puffin	Y	RED	RED	Endangered

[1] Northern Ireland Priority species are those identified during the preparation of the Northern Ireland Biodiversity Strategy (2002) and subsequently, using criteria set out by stakeholders (www.habitas.org.uk/priority/). An updated list was published by DAERA on 2 March 2023 (www.daera-ni.gov.uk/publications/list-northern-ireland-priority-species-2023). [2] Birds of Conservation Concern in Ireland 4 (Gilbert et al. 2021).
[3] UK Birds of Conservation Concern 5 (Stanbury et al. 2021). Due to the delay in completion of Seabirds Count census surveys due to the COVID-19 pandemic, seabird status has not been revised for the BoCC5. [4] International Union for Conservation of Nature's Red List of Threatened Species (IUCN, 2024).
* Added to the 2023 Northern Ireland Priority Species List. ** Not currently breeding, historical records only.

In Northern Ireland, the Birds of Conservation Concern Ireland (BoCCI) list is used for flagging species conservation issues (Gilbert et al. 2021). Following the 2021 reassessment, three species were moved from the Amber list to the Red list in Ireland due to their conservation importance at the European level: Kittiwake (Vulnerable, IUCN), Puffin (Endangered, IUCN) and Razorbill (Near Threatened, IUCN), although since this assessment Razorbill has been reclassed by IUCN as Least Concern (IUCN, 2023). Since the last assessment in 2013 (Colhoun & Cummins, 2013), declines were less severe for Herring Gull and Black-headed Gull populations, resulting in these moving from Red to Amber, and Great Black-backed Gulls moved from Amber to Green listed. The UK list, BoCC5, was also updated in 2021 but, because the new seabird census results were not available, assessments of the status of seabird species were not updated (Stanbury et al. 2021).

There are some notable differences between the All-Ireland BoCCI list and the UK Birds of Conservation Concern (Stanbury et al. 2021). In particular, Shag, Herring Gull and Roseate Tern are Red on the UK list, while Amber on the Ireland list. Although data were lacking from important colonies at Rathlin Island and the Maidens in recent years, Shags appeared to stable in Northern Ireland, and likewise while Kittiwakes remained relatively stable or declined at a lower rate than the rest of the UK (Leonard 2016a), their increased global conservation status has resulted in their move to the Red List in the BoCCI4 (Gilbert et al. 2021). The Roseate Tern is not Red-listed on the island of Ireland as it is in the UK, since it supports the largest European colony for the species at Rockabill in Dublin (Leonard & Wolsey, 2016). Despite this, the Roseate Tern remains a precarious breeding species in Northern Ireland. Cormorants are Amber in the Ireland list compared Green on the UK list due to the localised breeding criteria (more than 50% of the breeding population was found at 10 or fewer sites), and Razorbill are Red on the Ireland list compared to Amber on the UK list, again due to their increased global conservation status (Birdlife International, 2015) at the time this assessment was made.

Seabird surveys of abundance and breeding success in the UK and Ireland are undertaken using standard survey guidelines for each species (Walsh et al. 1995). Tables 2 and 3 briefly outline the survey units and methods used for estimating the numbers of each species under consideration in Northern Ireland.

Table 2: Units for surveys of seabird numbers/abundance.

Unit	Abbreviation	Description
Apparently Occupied Nest	AON	An active nest occupied by a bird, pair of birds, or with eggs or chicks present.
Apparently Occupied Territory	AOT	When nests cannot be discerned (e.g. for Great Skua), the presence of a nest may be inferred at the time of year when nests are likely to be complete or eggs are newly hatched by the presence of an incubating adult, or adult displaying territorial behaviour.
Apparently Occupied Site	AOS	An active site occupied by a bird, pair of birds, or with eggs or chicks present. Used for species without obvious nests such as Fulmar.
Apparently Occupied Burrow	AOB	An apparently active and occupied burrow which may have a nest.
Individuals	IND	Individual birds.

Table 3: For consistency and for convenience to volunteers in Northern Ireland we recommend following the methods and the timings outlined below for recording seabird abundance. The methods listed here are derived from Walsh et al. (1995) where more detailed descriptions and comparisons of all survey methods can also be found, in addition to methods for measuring breeding success. For an explanation of units, see Table 2.

Species	Unit	Notes
Fulmar	AOS	Count between 09.00 and 17.30, late May to early July. Apparently Occupied Sites are those ledges suitable for nesting with a bird present (Population monitoring method 1).
Manx Shearwater	AOB	Late May to early June. Survey using tape playback between 09.00 and 17.00 (Population monitoring method 2).
Cormorant	AON	Local knowledge of timing of breeding useful, but generally early to mid June (Population monitoring method 1).
Shag	AON	Local knowledge of timing of breeding useful, but generally late May or multiple counts between May and June (Walsh et al. 1995).
Great Skua	AOT	Count period late May to mid June.
Kittiwake	AON	Count late May to mid June. Only count completed nests with at least one adult attending.
All gull species (excluding Kittiwake)	AON IND	Count late May to mid June. Counts of adults on nests, or transects to count nests. Alternatively, flush counts of individual adults (Population monitoring method 1, 3, or 5).
All tern species	AON IND	Count period between mid May and late June (especially late May and early June). Counts of adults on nests or transects to count nests. Alternatively, flush counts of individual adults (Population monitoring method 1, 2 or 3).
Guillemot	IND	Count between 08.00 and 16.00, made in the first three weeks of June, with ~5 repeats if possible. Birds on tidal rocks or sea excluded.
Razorbill	IND	Count between 08.00 and 16.00, made in the first three weeks of June, with ~5 repeats if possible. Birds on tidal rocks or sea excluded.
Black Guillemot	IND	Count any birds seen within c. 300 m of the shore and any on land, between 05.00 and 09.00, during the first three weeks in April.
Puffin	IND	Ideally, AOS/AOB should be counted, following methods described in Walsh et al. 1995. For small colonies, as may be present in Norther Ireland (outside of Rathlin Island), count individuals above ground, flying over the colony and birds within 200 m of the shore in April (Census method 3). Evening or early morning visits will produce highest counts.
Storm Petrel	AOB	Storm Petrels are not currently known to breed in Northern Ireland, therefore no recommendations are specifically made here.

Species accounts are structured as follows:

Overview – conservation status, a brief description of the species characteristics, population size estimates from censuses and SMP trends for abundance and breeding success for the UK as a whole and for Northern Ireland (JNCC 2021: **https://jncc.gov.uk/our-work/smp-report-1986-2019**).

Abundance – a summary of the latest data available on breeding numbers (abundance) in Northern Ireland, with historical trends where data are available. In most cases, graphs show population trends, and, unless otherwise stated, gaps in graphs mean no count was carried out during that year. Where data are available for all years, a smoothed trend curve is fitted through the data points using a local polynomial regression fitting method ('loess') in the R package 'ggplot2', version 3.4.4 (R version 4.2.2). The curve is presented with a standard error 95% confidence interval at around the smoothed curve. For abundance data which represent the entire population of Northern Ireland (or near-to), for example, for Mediterranean Gulls and tern species, cumulative plots are given.

Breeding success – a summary of the latest data available on breeding success in Northern Ireland. For species with sufficient data for visualisation, productivity is plotted per year across all sites where productivity was measured. In these plots, a trend curve is fitted through the data points using the methods described for breeding numbers above. However, it should be noted that these trends are based on small sample sizes and are not weighted for sample size per site and are therefore best used as a quick visual representation only and should be interpreted with caution.

A table detailing specific counts of breeding numbers at defined SMP Master Sites in Northern Ireland between 2015 and 2023 can be found in Table 6 in the Appendix on page 86. Additional data collected on seabirds and other bird species at the UK-level, such as range change, seasonality, movement and biometrics and can be found on the BTO BirdFacts pages: **www.bto.org/birdfacts**.

Priority gaps in 2023 and onwards

There will always be sites that require professional effort or additional equipment to fully survey. Each year the Northern Ireland Seabird Steering Group meets to review coverage and the table below outlines sites and species of particular priority. This meeting was not held in 2023 but will be held in 2024.

Table 4: Key seabird monitoring gaps identified by the Northern Ireland Seabird Steering Group in 2022.

Site	Difficulties and gaps	Planned coverage
Mew Island and Big Copeland, the Copeland Islands, Co. Down	Access requires landowner permissions and a boat. Big Copeland is a large island and requires experienced survey effort. The important gull and tern colonies on Mew and Big Copeland have not been surveyed in recent times.	No
The Gobbins, Co. Antrim	Boat-based surveys are essential and previously good annual coverage was achieved, providing both abundance and breeding success data.	No
The Skerries, Co. Antrim	Access is difficult, requires a boat and permission from the owner via NIEA.	Coverage achieved in 2021, and by drone in 2022 for Cormorant, but the islands would benefit from regular monitoring. This site may also host an unmonitored population of Black Guillemot.
Sheep Island, Co. Antrim	Access to the island itself is dangerous and surveying requires a boat. Views of breeding seabirds are limited from boat-based surveys. The full island is best surveyed using a drone.	Coverage achieved by drone in 2021 but the island would benefit from regular monitoring and more comprehensive coverage.
North and South Rock, Outer Ards, Co. Down	Small islands requiring a boat to observe nesting Cormorants and gulls.	No
The Maidens	Access by boat is difficult as the islands are surrounded by strong tides and there is no safe landing area. This site is important for Shag in Northern Ireland.	Good annual coverage for Black Guillemot, but no coverage for Shag.
Strangford Lough, Co. Down.	The complex system of islands in Strangford Lough may hold breeding Black Guillemots, however surveying these requires a boat.	No
Rathlin Island, The Skerries and Sheep Island	While mostly considered to be absent as breeding seabirds in Northern Ireland, Storm Petrels are difficult to survey and may be present on islands such as Rathlin Island, The Skerries and Sheep Island. Playback equipment and access to a boat are necessary to survey Storm Petrels.	No

Abundance data are the most commonly collected data in Northern Ireland and provide the most important measure of how our seabirds are faring through time. However, monitoring breeding success and adult survival provides the context by which potential environmental drivers such as climate change, prey availability and predation can be linked to population changes. In Northern Ireland, however, these data are sparse or non-existent for many species. There are great examples of volunteer-led breeding success monitoring currently underway in Northern Ireland, for example at Portrush and Maggy's Leap for Kittiwake and for Black-Guillemot at Annalong, while RSPB, National Trust and Ulster Wildlife provide invaluable breeding success information for the islands they monitor, particularly for terns. Despite these efforts, breeding success data have nevertheless not been collected recently for many other species. Now that the Seabirds Count census period is complete, the Northern Ireland Seabird Coordinator aims to increase support for volunteers wishing to collect these vital data. Monitoring adult survival is achieved through general metal ringing and colour-ringing studies (such as Retrapping Adults for Survival, RAS: **https://www.bto.org/our-science/projects/ringing/surveys/ras**), activities that are also rare in Northern Ireland.

BTO is currently running two seabird grants: **Grants for ringing groups** to provide additional places on ringing trips for new participants, and **Grants for individuals seeking seabird experience** for holders of a BTO ringing permit (trainees, C- or A-, or S-permit holders) who are 18 years and over. The grant for groups was used by the Copeland Bird Observatory in 2023 and was opened for applications in January 2024. The call for the grants for individuals opened in February 2024. These grants were possible thanks to the donations to BTO's Seabird Appeal (**https://www.bto.org/how-you-can-help/help-fund-our-work/appeals/our-lost-seabirds**). To report sightings of ringed birds go to: (**https://app.bto.org/euring/lang/pages/rings.jsp**).

Get involved!

If you are interested in seabird monitoring in Northern Ireland, please get in touch with the Seabird Coordinator (**hala.haddad@bto.org**) to be added to the Northern Ireland Seabird Network. You can also find some simple introductions to monitoring common species in Northern Ireland in the following Google Drive online: **https://bit.ly/NI_Seabird_Guidance**, which are also available on request from the Seabird Coordinator.

You can see an **interactive, zoomable version of the coverage maps** online by following this link: **https://bit.ly/NI_Seabird_Sites**. The online maps are coloured by coverage and split between sites for 'all-seabirds' and for Black Guillemots, reflecting the division of the SMP database by these categories. If you 'click' on a site of interest it will be highlighted, showing the extent of the site, its name and information on whether it is currently assigned to a volunteer. Please explore these online maps if you are interested in contributing seabird monitoring data in Northern Ireland. If you would like help viewing these maps or would like to discuss coverage of any of the sites, please email the Seabird Coordinator.

Species accounts

Arctic Tern, by Edmund Fellowes / BTO

Fulmar

Fulmarus glacialis

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in BoCC5 (2021), EC Birds Directive – migratory species, Vulnerable – IUCN Red List Europe (BirdLife International, 2021).

Fulmar, by Edmund Fellowes / BTO

Overview

Synopsis: Northern Fulmars (Fulmars) are tube-nosed seabirds around the size of a small gull that nest in loose cliff-based colonies. They can use relatively small cliff faces, sometimes several miles inland. They are non-migratory and can be seen all year round. The name Fulmar means 'foul gull'.

UK population size, abundance and breeding success trends: Fulmars are very common in northern Britain. The UK population of Fulmar increased between the 1969–70 and 1985–88 censuses (from ~291,000 to 517,000 pairs) but remained stable between 1985–88 and 1998–2002 when 501,609 pairs were recorded. The latest UK breeding population estimate is 319,508 AOS a 37% decline from the Seabird 2000 numbers 350,000 (195,000–680,000) (Mitchell et al. 2004, Woodward et al. 2020, Burnell et al. 2023). An increase in the use of commercial discards has been cited as one of the reasons for a massive increase in breeding range and population size across the North Atlantic in the 20th Century (Phillips et al. 1999, Mitchell et al. 2004), and that changes in legislation around fisheries discards may be partly responsible for Fulmar declines (Bicknell et al. 2013). The SMP Report highlights that the population index for 2019 was 37% below the 1986 baseline (JNCC 2021). Fulmar have been upgraded from Green-listed to Amber-listed in the latest Birds of Conservation Concern Ireland due to an increase in their priority status across Europe (Gilbert et al. 2021).

At the UK level, the annual productivity index for Fulmar has been variable but generally increasing since 2006 and in 2019 was 0.39 chicks/AOS (JNCC, 2021), but the overall fall in productivity observed since 1986 may have contributed to their population decline. The most recent Seabird Census results show a decline in Northern Fulmar between 1998 and 2021 (Burnell et al. 2023).

Northern Ireland population size, abundance and breeding success trends: In Northern Ireland, Fulmars are a widespread breeding species, with the most important site being at Rathlin Island. Other notable sites are Downhill and Binevenagh on the north coast, although numbers here have declined, and The Gobbins and Muck Island on the east coast. Small numbers are scattered around the coast where suitable cliff habitat occurs. Between the 1985–88 and 1998–2002 censuses Fulmar numbers increased in Northern Ireland from 3,540 to 5,992 breeding pairs (Mitchell et al. 2004, JNCC 2021). Since Seabird 2000, annual monitoring indicates that numbers in Northern Ireland have generally decreased, following the trend for the UK as a whole (JNCC 2021). Specifically, according to Seabirds Count, there were 2,566 AOS in Northern Ireland, a decline of 57 from Seabird 2000 (Burnell et al. 2023).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC, 2021).

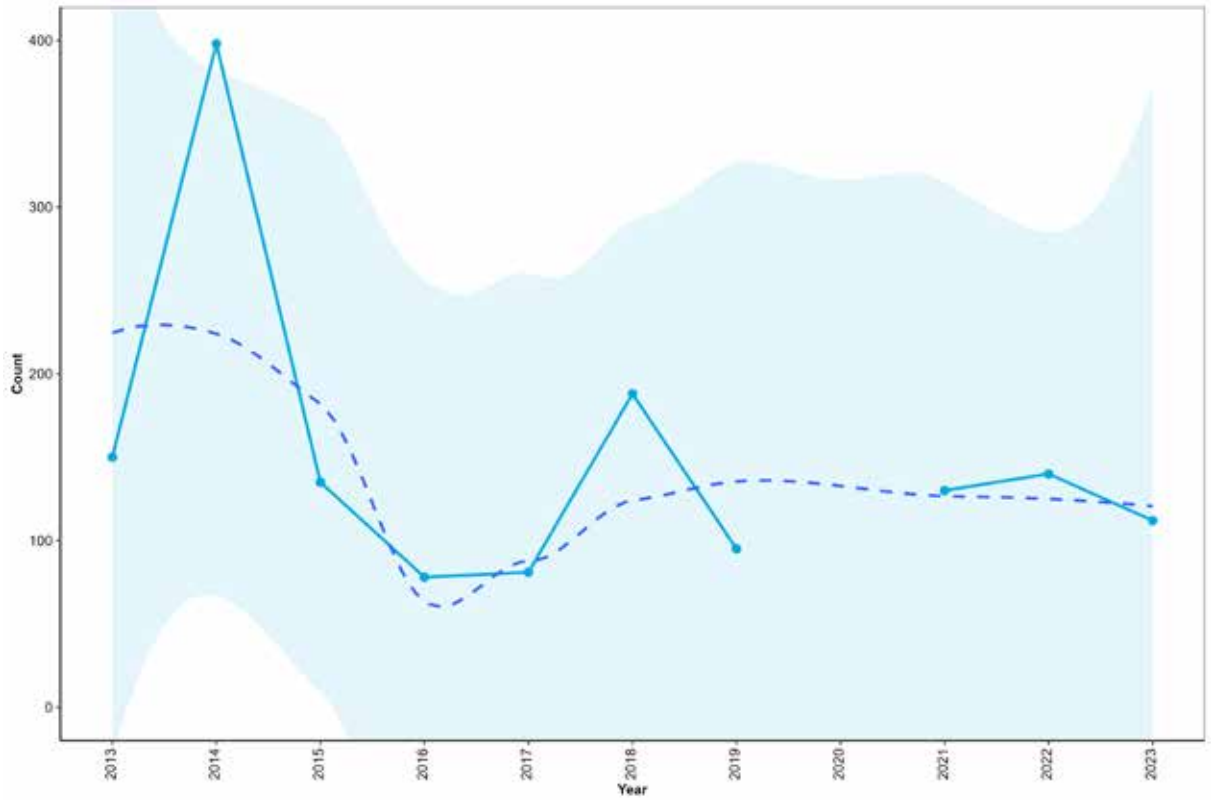
Abundance in 2023

Fulmar continue to be at a low ebb in Northern Ireland (Table 6, Appendix), with numbers at most sites monitored this year mostly stable or declining slightly. In Co. Londonderry, Fulmar appear to be stable with only 112 AOS recorded at Downhill in 2023 following 140 AOS in 2022. Numbers of breeding Fulmar at Downhill during the census period (2015–21) have fluctuated (mean count 101 AOS, 95% CI: 75–127 AOS), but the peak count in this period (135 AOS in 2016) is well below the Seabird 2000 count of 995 AOS (86% decline). The particular cause of the losses of Fulmar in Downhill and neighbouring Binevenagh (9 AOS

in 2023, down from a high of 217 in 2000) is unclear; given the particular steep declines here compared to other sites, it may be that local conditions are a factor.

Elsewhere, coverage was relatively low with data only collected at six sites. No data were submitted for Muck Island, East Antrim Coast or the Causeway Coast among others. The population at the six surveyed sites was stable relative to recent years, if declining slightly.

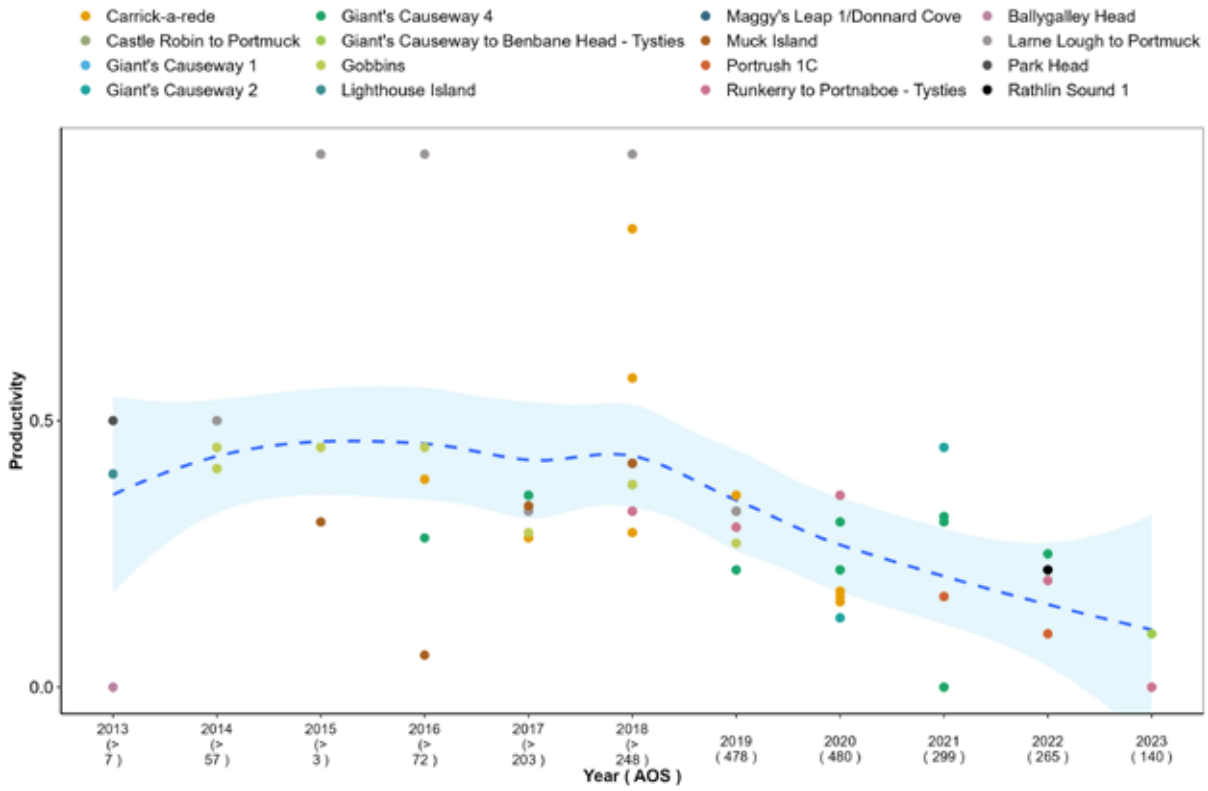
Figure 1: Fulmar counts (AOS) at Downhill, 2013–23. The dashed line represents the Locally Weighted Least Squares Regression trend in Fulmar numbers over time. The shaded region represents the 95% confidence interval around the trend.



Breeding success in 2023

Over the past 10 years, Fulmar productivity has been highly variable between Northern Irish colonies and breeding seasons (Figure 2), although has generally remained below 0.50 chicks per pair. In 2023, Fulmar productivity was monitored at seven sites along the north Co. Antrim coast. Figure 2 shows an overall decline in productivity among Fulmar colonies in Northern Ireland since 2013, with an average productivity in 2023 of 0.05 chicks per pair. The site with the highest productivity this year was the Amphitheatre (Giant's Causeway 2) at the Giant's Causeway, with 0.15 chicks per pair. The lack of data from other sites around Northern Ireland in 2023 limits the inference that can be made for productivity at the country-level.

Figure 2: Productivity (chicks/AOS) for Fulmar 2013–23 across 17 sites in Northern Ireland. The dashed line represents the Locally Weighted Least Squares Regression trend in productivity over time. The shaded region represents the 95% confidence interval around the trend. Sites measured for Fulmar productivity between 2013 and 2023 include: Rathlin Island, Ballygalley Head, Lighthouse Island, Maggy's Leap, Muck Island, Portmuck, The Gobbins, sections of the North Coast master site, Park Head and Portnaboe. The total number of AOS monitored per year is included in brackets under the year.



Manx Shearwater

Puffinus puffinus

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in BoCC5 (2021), EC Birds Directive – migratory species, Least Concern – IUCN Red List List Europe (BirdLife International 2021).

Manx Shearwater, by Liz Cutting / BTO

Overview

Synopsis: Manx Shearwaters are burrow-nesting, tube-nosed seabirds. They are highly pelagic, spending most of the year at sea and only coming ashore during the breeding season, under the cover of darkness to avoid avian predators. They are also the longest-living seabird recorded in the UK, with one recorded as more than 50 years old (BTO, 2023).

UK population size, abundance and breeding success trends: Most of the world's population of Manx Shearwaters breeds in Britain and Ireland (Hamer & Hill 1997, Mitchell et al. 2004). At the time of the Seabird 2000 census, an estimated 299,678 AOB were counted in the UK (Mitchell et al. 2004, Woodward et al. 2020). However, the secretive, burrow-nesting lifestyle of Manx Shearwaters makes them a difficult species to survey, and the breeding population of Manx Shearwater was only comprehensively surveyed for the first time during Seabird 2000 (1998–2002, Mitchell et al. 2004). Annual changes in breeding abundance are not reported by the SMP, while changes in survey methods over time have meant that population trends from the censuses across the UK are not reliable. The largest colony in the world is on the island of Skomer in Wales. Recent surveys of strongholds in Wales and in Scotland suggest that the population of these islands may have increased by 50% to around 600,000 AOB since the last 1988–2002 census (JNCC 2021). The Seabirds Count confirms this with more than 638,557 AOB in Wales and Scotland alone (Burnell et al. 2023).

Due to the difficulty in surveying Manx Shearwater burrows, few sites in the UK are monitored for productivity. Among these, average Manx Shearwater productivity was 0.65 chicks per pair per year between 1986 and 2019, and there is little year-to-year variation (JNCC 2021)

Northern Ireland population size, abundance and breeding success trends: The only confirmed extant colony in Northern Ireland is on the Copeland Islands, where there are birds on Lighthouse Island and Big Copeland. The Copeland Islands were surveyed in 2021, but figures are not yet available. During the previous survey in 2007 (Stewart & Leonard 2007), there were approximately 3,444 AOB (95% CI: 2,620–4,269) on Lighthouse Island and 1,406 AOB (95% CI: 612–1,432) on Big Copeland. There was an apparent 5.3% increase on the previous survey in 2000, although the former survey result was within the confidence limits of the 2007 population estimate. The presence of Rabbits (*Oryctolagus cuniculus*) on Mew for the last 15 years may have facilitated colonisation by breeding Manx Shearwaters due to the creation of suitable nesting burrows (Rhodes 2017). The Seabirds Count census did not contain any data on Manx Shearwater in Northern Ireland from the 2015–21 survey period however it used estimates from 2007 for Rathlin Island and the Copeland Islands (Burnell et al. 2023).

Rathlin Island formerly held a colony of unknown size (Brooke 1990) but the species has not been confirmed breeding for many years (Liam McFaul, RSPB, pers. comm.) and surveys for Seabird 2000 (1998–2002) did not detect any birds. Deane (1954) estimated 150 AOB on Rathlin Island but the Operation Seafarer (1969–70) figure was 1,000–10,000 AOB (Mitchell et al. 2004). The inaccessibility of the cliffs and the cryptic nature of the species make these estimates unreliable. All that is certain is that a huge decline has occurred on the island.

Breeding success was monitored on Lighthouse Island by Copeland Bird Observatory between 2007 and 2013, using study burrows. These consist of modified burrows with a concrete slab placed over the nesting chamber to allow easy access. In the seven years of monitoring, average breeding success on Copeland (0.74 chicks/AOB) was usually a little higher than at other sites in the UK (0.65 chicks/AOS, JNCC 2021), although extremely wet weather in 2007 resulted in a success rate of just 0.38 chicks per pair.

Abundance in 2023

There is no annual surveying of Manx Shearwaters in Northern Ireland, but a census of the Copeland Islands was made as part of the MarPAMM project in 2021, with results still to be reported.

Breeding success in 2023

Breeding success data are not routinely collected for Manx Shearwater in Northern Ireland. In 2018, a sample of study burrows on Lighthouse Island was monitored by the Oxford Navigation Group (**https://www.oxnav.org/**) with the support of the Copeland Bird Observatory. Of the 117 burrows checked, 39 contained eggs and were shallow enough to follow to the chick rearing phase. In August, 30 of these study burrows contained chicks. If it is assumed that chick presence in August is a good (if slightly inflated) indicator of the number of fledged young, the productivity of the sample of occupied nests in 2018 was 0.77 chicks per pair. Methods may not have been consistent with previous years monitoring; therefore, this estimated productivity has not been included in Table 5 for comparison

Table 5: Manx Shearwater productivity at Copeland Bird Observatory.

Year	Nests sampled	Chicks hatched per pair	Chicks fledged per pair
2007	71	Not recorded	0.38
2008	67	0.70	0.67
2009	76	0.83	0.82
2010	65	0.88	0.88
2011	60	0.86	0.86
2012	50	0.78	0.76
2013	54	0.82	0.80

Storm Petrel

Hydrobates pelagicus

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in BoCC5 (2021), EC Birds Directive – listed in Annex 1 and as a migratory species, Least concern – IUCN Red List Europe (BirdLife International 2021).

Storm Petrel, by Joe Pender

Overview

Synopsis: Storm Petrels are sparrow-sized tube-nosed seabirds. They are highly pelagic, only returning to land to breed. They eat mostly plankton and small fish on the surface of the sea without alighting, almost appearing to walk on water, pattering across the water's surface (Robinson 2005).

UK population size, abundance and breeding success trends: The UK breeding population of Storm Petrel was only comprehensively surveyed for the first time during Seabird 2000 (1998–2002) using a standard playback method (Ratcliffe et al. 1998, Mitchell et al. 2004), when ~25,700 pairs were estimated. Surveys for Storm Petrels are intensive and costly, and therefore rare, however recent surveys of Scottish islands suggest an increase in population size since the 1998–2002 census (JNCC 2021). The Seabirds Count numbers show higher concentrations of Storm Petrels in Co. Kerry in Ireland and in the Shetlands in Scotland (Burnell et al. 2023). While new monitoring techniques such as passive infra-red and endoscopes are being tested for their usefulness in monitoring storm petrels, these methods are still costly in terms of fieldwork effort and equipment (Perkins et al. 2017). For similar reasons, there is a lack of annual data collected on productivity.

Northern Ireland population size, abundance and breeding success trends: The species has no known breeding sites in Northern Ireland. In their review of the birds of Ireland, Ussher & Warren (1900) stated that "*two small islands off the north coast of Antrim*" were reported to have populations of storm petrels. The only small islands which they could realistically have been referring to are Sheep Island, Antrim and one of The Skerries. A volunteer visit to The Skerries in 2021 reported that there were few areas of suitable nesting habitat available on the islands for Storm Petrels, and that the large gull population on Large Skerries where Rabbit burrows could provide some nesting habitat may deter Storm Petrels from breeding here. Deane (1954) reported up to a dozen pairs on Sheep Island, but the species is considered unlikely to be still there. It may be present on Rathlin Island but no surveys have yet been conducted. The nearest colony is on Sanda Island, Scotland which is just 37 km to the east.

Cormorant

Phalacrocorax carbo

Conservation status: Amber-listed in the BoCCI4 (2020–26), Green-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021).

Cormorant, by Edmund Fellowes / BTO

Overview

Synopsis: The Cormorant is a widespread breeding species, often found in dense colonies. The characteristic open-winged posture they adopt after fishing is due to the need to dry their feathers, which are not waterproof.

UK population size, abundance and breeding success trends: The UK population estimate from the Seabird 2000 (1998–2002) census was 8,900 AON, an increase of 10% since the previous census (JNCC 2021). The most recent census, Seabirds Count (2015–21), showed that the UK and Ireland population of Cormorant has remained stable (Burnell et al. 2023). The UK breeding abundance index for Cormorants 1986–2019 indicates that the population increased between 1986 and 1995, and while it declined slightly after 2005, the 2019 index was 30% above the baseline (JNCC 2021). The latest UK winter population estimate is 64,500 (Woodward et al. 2020, Frost et al. 2021).

UK productivity remained fairly constant between 1991 and 2019, with nests fledging 1.84 chicks on average (JNCC, 2021).

Northern Ireland population size, abundance and breeding success trends: The increase seen at the UK level between the 1985–88 and 1998–2002 censuses was in contrast to the trend in Northern Ireland, where Cormorant numbers dropped from 736 AON to 663 AON during the same period and down to 561 AON during Seabirds Count (Burnell et al. 2023). There are no inland breeding colonies of the European sub-species (*Phalacrocorax carbo sinensis*) in Northern Ireland. Cormorants have historically principally bred at two sites – Sheep Island (north coast, Co. Antrim) and Bird Island (Strangford Lough). In 2010, the Sheep Island colony split with some birds moving to The Skerries. Smaller numbers are found at The Gobbins and Burial Island on the Outer Ards Peninsula, although the latter site is not monitored annually. The latest Northern Ireland winter population estimate is approximately 2,500 (Frost et al. 2019, Woodward et al. 2020).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC 2021).

Abundance in 2023

There was no new abundance data for Cormorants in Northern Ireland in 2023. Although it is possible counts were made, none were entered into the SMP database. According to the Strangford Lough Report on page 80, 446 AON were counted on the lough, 433 on Bird Island and 13 on West Boretree (Hugh Thurgate 2023).

Long-term annual data dating back to 1986 are available for Bird Island, Strangford Lough, where numbers increased erratically until 2005, to a peak of 490 AON. Since then, numbers have fallen but appeared to be increasing again in recent years. An unusually low count was recorded in 2020, likely due to survey delays caused by COVID-19 restrictions, and therefore the counts of 370 AON in 2021 and 364 in 2022 are more comparable with counts of recent years.

Numbers of Cormorants on Sheep Island declined between 2005 and 2015, before stabilising in more recent years. A full census of Sheep Island was carried out using a drone as part of the MarPAMM project in 2021, finding 139 AON. This was the highest count since 2010 which may be in part due to the better coverage achieved using the vantage of the drone (Booth Jones, et al. 2022). However, a similar drone survey conducted by NIEA found 86 AON on Sheep Island in 2022, confirmed by a simultaneous scoped vantage-point count,

demonstrating that breeding numbers can vary widely year-to-year. This may be due to the prolonged breeding season of Cormorants and a sensitivity to disturbance (Richard Donaghey).

The Skerries has not been surveyed for as long as Sheep Island, and counts have varied substantially between years. It seems probable that the original population of Sheep Island is now spread between the two sites, while exchange with the colony at Inishowen (Co. Donegal) is also thought possible but has not been validated (e.g. by movements of colour ringed birds). In 2022, NIEA conducted a simultaneous drone and vantage point survey of Castle Island (Little Skerrie), counting 193 AON, which was a 135% increase on 2021's boat-based count.

Periodic counts of the numbers at The Gobbins cliffs dating back to 1969 have shown fluctuating numbers in recent years, dropping to as low as two AON in 2007, returning to 33 AON in 2008. Unfortunately, The Gobbins has not been surveyed since 2019.

At Lough Neagh, only counts of individuals are made, as they are thought not to be breeding there (Lough Neagh Partnership). In 2022, 229 individual Cormorants were recorded in the lough.

Breeding success in 2023

Breeding success is not measured for any of the large colonies of Cormorants in Northern Ireland. Due to their breeding asynchrony, many visits are required to colonies through the season to assess the productivity of Cormorants. Historically, NIEA have made single-visit surveys to Sheep Island and The Skerries annually to count numbers of eggs and chicks in the Cormorant colonies, however the multiple visits required to generate true productivity estimates are not made.

Shag

Gulosus aristotelis

Conservation status: Amber-listed in the BoCCI4 (2020–26), Red-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

Shags, by Sam Langlois / BTO

Overview

Synopsis: Slightly smaller than the Cormorant, the European Shag (Shag) is endemic to the north-east Atlantic and the Mediterranean. It is a marine inshore species that is almost never observed out of sight of land (Mitchell et al. 2004). The name of the Shag refers to the tuft of feathers on its head.

UK population size, abundance and breeding success trends: Over a third of the world population breeds in the UK and Ireland (JNCC 2021). The UK population size was estimated to be 26,565 AON at the last census in 1998–2002 (Mitchell et al. 2004). The latest census shows a decline in the UK and Ireland population of European Shag (Burnell et al. 2023). The UK breeding abundance index shows a 49% decline between 1986 and 2019, though this decline has been predominantly in Scotland with populations in England and Wales showing little change (JNCC 2021). Latest estimates put the UK population at 20,209 AON (Burnell et al. 2023), an increase on the Seabird 2000 figure of 17,500 (13,500–20,500) (Woodward et al. 2020). Annual return rates of adults are usually in the order of 80–90% (JNCC, 2021) but Shags are vulnerable to one-off events such as extreme winter storms and the return rate may drop to below 15% because of their impact (Frederiksen et al. 2008, Heubeck et al. 2015). The latest UK winter population estimate is 110,000 (Woodward et al. 2020, Frost et al. 2021).

The shortage of sandeels is thought to have contributed to low productivity in some years. In Scotland, Shag productivity was on average 1.28 chicks per pair between 1986 and 2019 (JNCC 2021). Population Viability Analysis calculations by Cook & Robinson (2010) suggested that if all demographic parameters remained the same (survival, clutch size, etc.) the UK population would decline by 9% over a period of 25 years.

Northern Ireland population size, abundance and breeding success trends: In Northern Ireland, the Shag is mostly restricted to Co. Antrim, with the largest colonies being at The Maidens (offshore from Larne) and Rathlin Island, with other breeding pairs scattered widely around the coast in smaller groups. The Seabird 2000 (1998–2002) census estimated that there were 301 AON in Northern Ireland, and that this was a decrease of 32% since the previous census (JNCC 2021).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC 2021).

Abundance in 2023

While Shags stopped breeding in Strangford Lough in 2007, they have been recorded breeding in small numbers at several new locations in Northern Ireland since 2013 (Table 6, Appendix). The Maidens, a major colony of Shag in Northern Ireland, was last counted in 2022 for an estimated 420 AON, up from an estimated 20 AON recorded in 2018. A full census of Rathlin Island and of the north Antrim coastline between Runkerry and Murlough occurred as part of the MarPAMM project in 2021. On Rathlin, Shag had increased by 28% since the 1998–2002 census to 74 AON. In 2022, RSPB made a reserve count of 42 AON which increased to 48 AON in 2023.

On the north coast, 32 AON were recorded on The Skerries in 2021, a decline of 50% on the last count made in 2015 (although higher than the 11 AON recorded in 2000). In 2023, similar numbers to the 2022 counts were recorded at Downhill (12 AON) and in the Portrush sub-sites (9 AON, Table 6, Appendix).

There were no 2023 numbers for Shag at Muck Island. Numbers at Muck Island increased since 2000, and

reached a peak of 71 AON in 2022, the highest count for the site on record (Andy Crory, Ulster Wildlife). Although not counted in 2020 or 2021, numbers at The Gobbins (Larne Lough to Portmuck) nearby were at their highest recorded in 2018 (Table 6, Appendix), having increased by 11% since Seabird 2000 (1998–2002).

Breeding success in 2023

The only productivity data for the Shag in Northern Ireland were collected by the RSPB Life RAFT team on Rathlin Island at Rue West, where 79 AON had a productivity of 2.08 chick/AON. No data were collected in 2020 or 2021. In 2019, the Muck Island colony produced 44 chicks from 20 AON, a slightly higher figure than in the previous two years (Figure 6, Kerry Leonard, pers. comm.). Productivity data have not been recorded at The Gobbins since 2018. Figure 6 shows the yearly productivity data for Shag at Muck Island, The Gobbins one recording from Maggy's Leap (2014) and one from Rathlin Island (2022), showing that there is considerable variation between years and sites. However, it is worth noting that the number of nests monitored per year is likely to also be variable and, in some cases, (e.g. 2014), very low. Although the trend in productivity appears to be fairly stable in recent years, the trend line has a large 95% confidence interval (blue shading) as a result of the small number of sites being monitored for Shag and records not being available for all years, therefore caution in interpreting this is required.

Great Skua

Catharacta skua

Conservation status: Amber-listed in the BoCCI4 (2020–2026), Amber-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

Great Skua, by Sam Langlois / BTO

Overview

Synopsis: Great Skuas are Herring Gull-sized, heavy-set seabirds, also colloquially known as 'Bonxies', a name that may derive from the old Norse for 'dumpy'. Great Skuas are known for their aggressive behaviour towards human intruders on their territories (Mitchell et al. 2004).

UK population size, abundance and breeding success trends: The Seabirds Count (2015–21) show an increase in the UK and Ireland population of Great Skua (Burnell et al. 2023). Unfortunately, the outbreak of HPAI in the last two years has affected the positive trend of the UK's Great Skua population. During the Seabird 2000 (1998–2002) census, the UK held 60% (9,634 AOT) of the world's population of Great Skuas (Mitchell et al. 2004). Orkney and Shetland are the core breeding areas, but the species also spreads through northern Scotland to the Western Isles (JNCC, 2021). RSPB has reported a decline of 76–80% of the most important Great Skua colonies due to HPAI (Tremlett et al. 2024). The UK population increased by 148% between the 1969–70 and 1985–88 censuses, by a further 26% by Seabird 2000 (JNCC 2021), and by another 14% in Seabirds Count (Burnell et al. 2023) but these numbers will probably be impacted by the HPAI outbreak.Therefore, the recent breeding attempts on Rathlin are not surprising. Annual sampling of breeding abundance is insufficient to generate reliable population trends for the UK, country level or at individual sites.

Productivity across the UK has varied between 0.2 and 1.1 chicks per pair between 1986 and 2019 (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: Great Skuas are a rare breeding species on the island of Ireland (Burke et al. 2020). The first occurrence of Great Skuas breeding in Northern Ireland occurred in 2011 on Rathlin Island. This pair has an average breeding success of 1.67 chicks per year since their arrival (JNCC 2021). In the Republic of Ireland, the first breeding occurred in the late 1990s in Co. Mayo (Mitchell et al. 2004) and there are now approximately 15 AOTs, although no complete survey has been undertaken (Steve Newton, pers. comm.). Thirty six AOT were reported in Northern Ireland according to Seabirds Count (Burnell et al. 2023).

Abundance in 2023

No Great Skua records were submitted in 2023. RSPB reported the usual 1 AOT on the RSPB reserve on the island in 2022, while the 2021 MarPAMM surveys recorded a total of 2 AOT for the whole island, with other individuals also present.

Breeding success in 2023

No breeding data were submitted for 2023.

Kittiwake

Rissa tridactyla

Conservation status: Red-listed in the BoCCI4 (2020–26), Red-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Vulnerable – IUCN Red List Europe (BirdLife International 2021), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

Kittiwakes, by Liz Cutting / BTO

Overview

Synopsis: The Kittiwake is the most numerous gull species in the world, and perhaps surprisingly, also the most numerous breeding gull in the UK (Woodward et al. 2020). Unlike the UK's other gull species, the Kittiwake is closely tied to the sea and adapted to nesting on steep sea cliffs, although it has recently taken to nesting on man-made structures (JNCC 2021).

UK population size, abundance and breeding success trends: In Seabirds Count (2015–21), the UK and Ireland Kittiwake population is decreasing (Burnell et al. 2023). In the Seabird 2000 (1998–2002) census, the UK population was estimated to be 378,847 AON, a decline of 25% since the previous census (Mitchell et al. 2004). Annual SMP data indicate that numbers had declined by 52% between 1986 and 2019 (JNCC 2021). The latest estimate of Kittiwake population size in the UK is 205,000 (175,000–255,000) (Woodward et al. 2020).

Kittiwake productivity in the UK has increased since a low point in 2007; between 2014 and 2019 it was 0.62 chicks per pair (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: Relative to the overall UK and Ireland trend since 1986, and its historical status, the Northern Ireland population is still reasonably stable. The largest colony by far in Northern Ireland is on Rathlin Island, the second largest colony at The Gobbins being only approximately 10% the size of the Rathlin Island colony. Other small colonies are dotted around the coast at Muck Island, Maggie's Leap, Castlerock, Carrick-a-rede, Dunluce and The Skerries. Colonies at Gun's Island and Strangford Lough have become extinct in the last 15 years. The last census estimated that Northern Ireland held 13,060 AON. Kittiwake have been upgraded from Amber-listed to Red-listed in the latest Birds of Conservation Concern Ireland due to being classified Globally Vulnerable (Gilbert et al. 2021).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC 2021).

Abundance in 2023

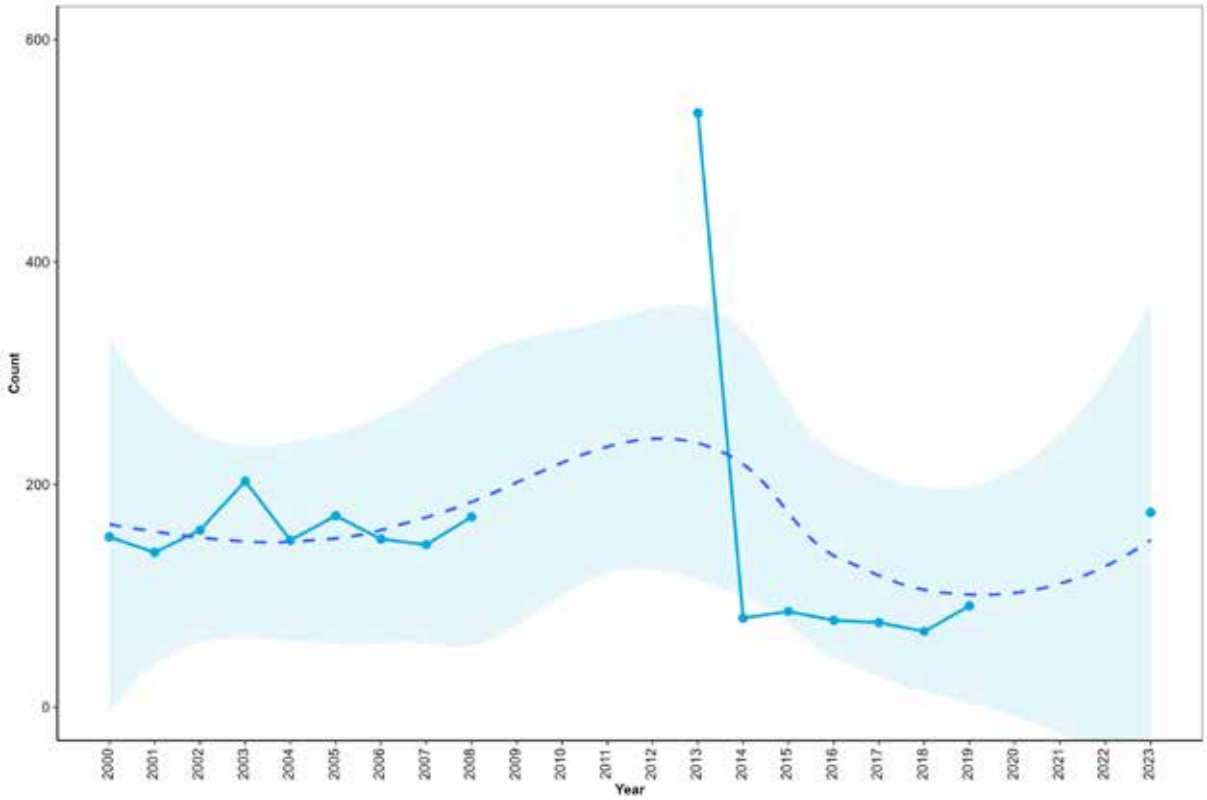
Five sites received coverage for Kittiwake in 2023, all showing decreases on previous records in 2022 or 2021.

The small number of Kittiwake present at the RSPB Rathlin reserve decreased from 74 in 2022 to 62 in 2023 (Table 6, Appendix), while the MarPAMM census of Rathlin in 2021 found that Kittiwake had increased on the island by 38% to 13,706 AON since the 1998–2002 census. MarPAMM surveys of the North Antrim coastline between Runkerry and Murlough in 2021 found that Kittiwake had declined by 10% to 792 AON. In 2023, 366 Kittiwake were reported along the North Antrim coastline.

The colony at Portrush is divided into sub-sites to ease counting, and seven of these seven sites were monitored in 2022 by NIEA. Kittiwake at Portrush appear to have increased annually during the Seabirds Count census period (2015–21) but decreased from 499 AON in 2022 to 366 AON in 2023 (Table 6, Appendix).

No 2023 data were collected for Kittiwake on Muck Island. The population of Kittiwake monitored by Ulster Wildlife on Muck Island increased in 2022 to 711 AON (Figure 3), the highest total counted on the island since the first count for the SCR in 1987 (830 AON). Although there are no records since, in 2019 neighbouring sites at The Gobbins collectively held 1,145 AON, the highest count since 2007 and an increase of 68% compared to 2018 (Table 6, Appendix).

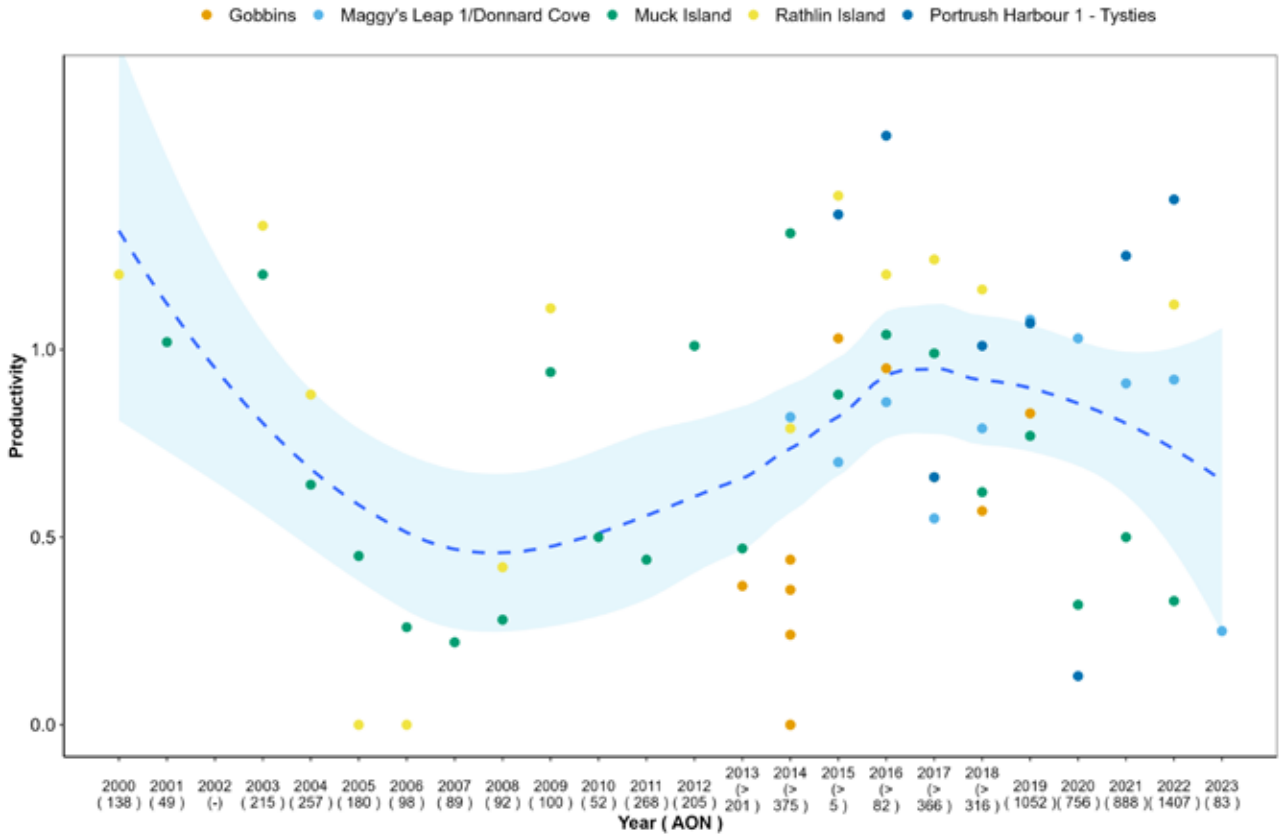
Figure 3: Kittiwake counts (AON) at Maggy's Leap/Donnard Cove, 2000–23. The dashed line represents the Locally Weighted Least Squares Regression trend in Kittiwake numbers over time at Muck Island. The shaded region represents the 95% confidence interval around the trend.



Breeding success in 2023

Two sites were monitored for productivity in 2023: Donnard Cove (Andy Carden) and Portrush (Cliff Henry). The low number of sites monitored in 2023 could explain the decline in productivity from recent years (Figure 4). Since a peak in 2016, productivity has declined gradually, reaching the second lowest productivity figure reported for Portrush and the lowest figure reported for Maggy's Leap in 2023. The average productivity in 2023 is 0.13 chicks/nest but this is only based on the two monitored sites. However, while the total number of nests monitored for productivity in 2022 was excellent (1,407 AON), more certainty around overall Northern Irish trends could be gained by increasing the number of sites monitored. In 2023, breeding success was lowest at Donnard Cove (0.49 chicks/nest) and highest at Portrush (0.25 chicks/nest). The productivity at Donnard Cove was lower than previous years, however counts were made later in the season this year.

Figure 4: Kittiwake productivity (chicks/AON) 2000–23 across five sites in Northern Ireland (Donard Cove, Muck Island, Portrush, Rathlin Island and The Gobbins). No data were available for 2002. The dashed line represents the Locally Weighted Least Squares Regression trend in productivity over time. The shaded region represents the 95% confidence interval around the trend. The total number of AON monitored per year is included in brackets under the year, with unknown numbers denoted by a hyphen (–).



Black-headed Gull

Chroicocephalus ridibundus

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021)
Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

Black-headed Gull, by Mike Toms / BTO

Overview

Synopsis: Black-headed Gulls are small gulls and found throughout the UK, both around the coasts and inland. They are particularly abundant in the winter, when the UK breeding population is joined by migrants from continental Europe (Wernham et al. 2002).

UK population size, abundance and breeding success trends: The Black-headed Gull is a common breeding species in the UK, with 5.6% of the world population recorded during Seabird 2000 (1998–2002), around 140,000 pairs (Mitchell et al. 2004). The Seabirds Count census (2015–21) showed a decline in the UK and Ireland population (Burnell et al. 2023). It is unclear how the population may compare to previous decades because previous UK and Ireland surveys were incomplete, with many inland colonies remaining uncounted. However, the last two censuses, Seabird 2000 and Seabirds Count targeted inland colonies so comparisons can be made more readily. Although Seabird 2000 showed an apparent increase, this was due to more comprehensive surveying that may have masked an actual population decline (JNCC 2021). SMP trends suggest the population has increased by 21% since 1986 (JNCC 2021). The UK is estimated to host nearly 2,200,000 individuals in the winter (Burton et al. 2013, Woodward et al. 2020).

In the UK, productivity fluctuates from 0–1.30 chicks per AON, however the most recent UK productivity average was 0.48 chicks per pair in 2019 (JNCC, 2021).

Northern Ireland population size, abundance and breeding success trends: In Northern Ireland, the Black-headed Gull is a widespread breeding species in relatively few large colonies, with major concentrations at Strangford Lough, Belfast Lough, Larne Lough, Copeland Islands, Lough Neagh and Lower Lough Erne. In the Seabird 2000 (1998–2002) census, 4,037 AON were counted in Northern Ireland, a decline of 12% since the previous census. The winter population of Northern Ireland is estimated to be 44,000 individuals (Burton et al. 2013, Woodward et al. 2020). Black-headed Gull has been downgraded from Red-listed to Amber-listed in the latest Birds of Conservation Concern Ireland due to less-severe declines in recent years (Gilbert et al. 2021).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC, 2021). The potential impact of predators such as American Mink (*Mustela vison*) (Craik, 1997), Otters (*Lutra lutra*) and rats (*Rattus* spp.) on inland colonies in Northern Ireland are largely unstudied. Collecting productivity data for Black-headed Gulls is a high priority.

Abundance in 2023

The MarPAMM census of Rathlin found that Black-headed Gull had almost declined to extinction (-99%) since the 1998–2002 census, with only 5 AON counted on the island in 2021, compared to 383 AON in 1999.

Numbers at Larne Lough grew from just 109 AON in 1987 to a high of 3,201 AON in 2016 (Figure 5; Table 6, Appendix). This was the first time in several years that a completely accurate census was carried out. While the completeness of the 2016 count is likely to have been responsible for some of the increase in recorded numbers, Black-headed Gull populations can fluctuate between years, something which has been previously seen at Larne Lough. In 2022, 2,089 AON were counted, a slight decline on numbers in 2021. In 2023, 5,776 AON were counted at the whole Larne Lough SPA, a 38% increase from the 4178 AON counted in 2022 (Table 6, Appendix).

At RSPB's Belfast Harbour reserve, Black-headed Gull numbers were significantly higher than have previously been recorded at the site, with an estimated 1,500 AON, up 114% on 2021's count. In 2023, this number decreased to 587 AON. Black-headed Gulls have been stable at RSPB's Portmore Lough reserve (part of the Lough Neagh and Lough Beg SPA) over the past few years. Some 107 AON were recorded in 2023, a decrease on the 126 AON counted in 2022. Only the Portmore Lough counts were added for the SPA in 2023 which explains the difference to previous years (Table 6, Appendix).

This year, 1,179 AON were counted by the National Trust and Wildfowl & Wetlands Trust in Strangford Lough (Table 6, Appendix), where the breeding population appears to have mostly stabilised since 2013 after a large decline from the peak seen in the early 1990s (Figure 6). A breakdown of counts across different islands can be found in the Strangford report on page 80. On Cockle Island in Outer Ards, the National Trust counted 255 Black-headed Gull AON.

Unusually, one AON was observed on Lighthouse Island in the Copeland archipelago in 2021, but this was not observed again since then (although monitoring was not comprehensive of all gull species).

There are also inland breeding populations of Black-headed Gulls in Northern Ireland. In Co. Fermanagh, Moorlough Lake supported 93 AOTs in 2018 which decreased to 58 AON in 2022. and was not counted in 2023. Counts were also not conducted at Lower Lough Erne in 2023 but there were 1,255 AON in 2022, the lowest record since 2018 (Table 6, Appendix). As mentioned, only Portmore Lough counts were submitted for 2023, so counts were not collected for the remaining 15 islands in Lough Neagh. The 15 island sites were surveyed three times between May and June 2022 by the Lough Neagh Partnership (excluding Portmore Lough RSPB reserve), from which average counts are reported in Table 6. Together these totalled 4,019 individuals. Abundance data are challenging to collect consistently from the Lough Neagh islands making between-year comparisons difficult, particularly given late counts due to COVID-19 restrictions in 2020, and the relative merits and drawbacks of reporting peak counts or average counts. A count of the main breeding islands gave an estimate of 11,595 individuals in 2016, but numbers have fallen in recent years with approximately 8,120 individuals counted in 2017 and 8,906 in 2018 (Table 6, Appendix; Bob Davidson and Stephen Foster, pers. comm.). Lough Neagh supported 30,000 breeding pairs of Black-headed Gulls on 12 islands in the 1980s; subsequently the gulls have abandoned breeding on Shallow Flat and Coney Island Flat, and have decreased in number on Padian Island, Owen Roe and Scaddy Island (Allen & Mellon 2018).

Figure 5: Black-headed Gull counts (AON) at Larne Lough, 1987–2023. No counts took place 1988–93, 2001–04, 2010, and an incomplete count in 2020. The dashed line represents the Locally Weighted Least Squares Regression trend in Black-headed Gull numbers over time at Larne Lough. The shaded region represents the 95% confidence interval around the trend.

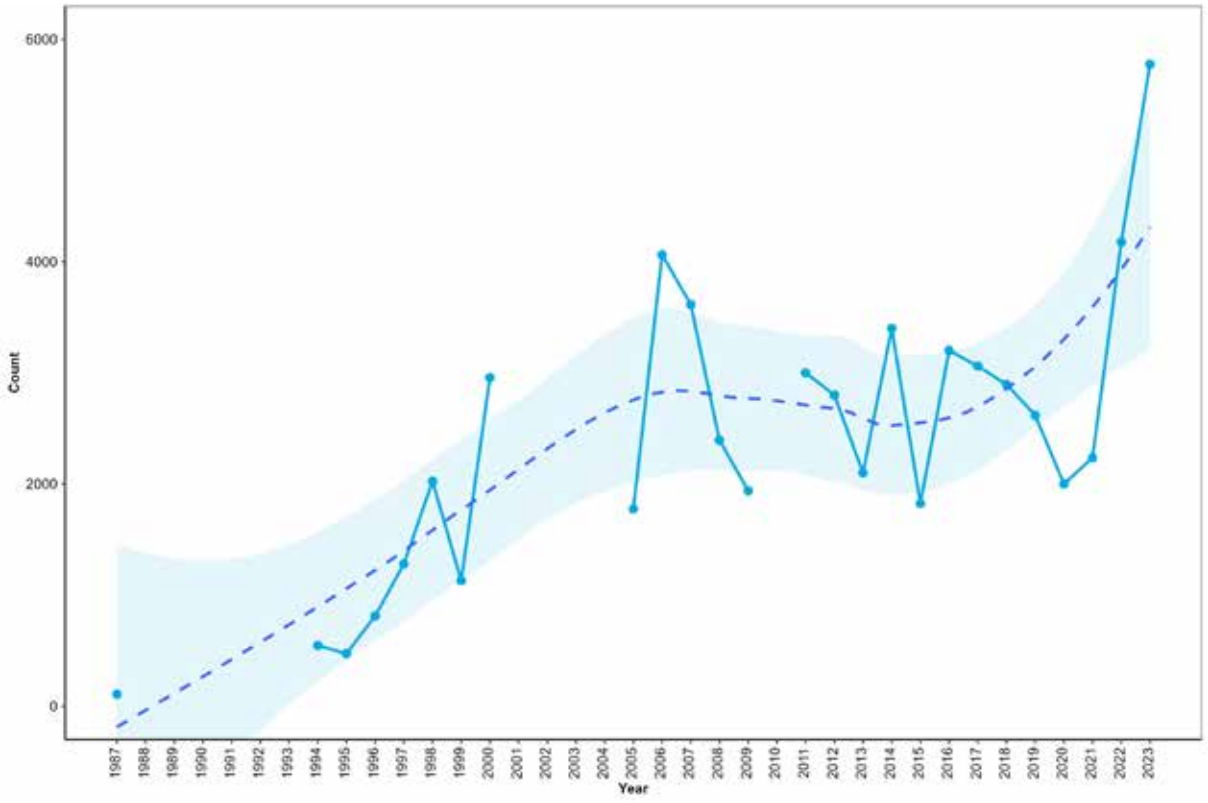
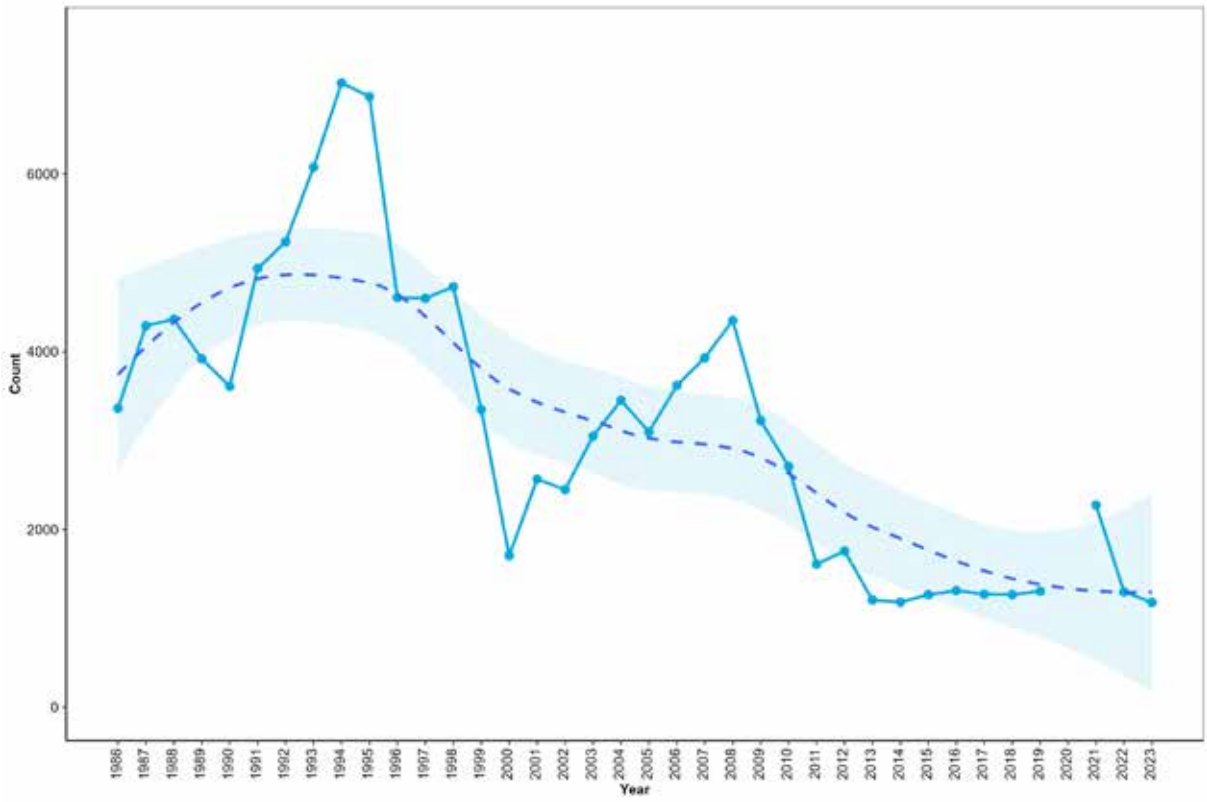


Figure 6: Black-headed Gull counts (AON) at Strangford Lough, 1986–2023. No counts took place in 2020. The dashed line represents the Locally Weighted Least Squares Regression trend in Black-headed Gull numbers over time at Strangford Lough. The shaded region represents the 95% confidence interval around the trend.



Breeding success in 2023

One record was submitted for Black-headed Gull productivity in 2023. Some 587 AOT were reported with 22 fledged chicks at Belfast Lough RSPB. This low productivity (0.03 chicks/AOT) is likely due to this reserve being affected heavily by the HPAI outbreak in 2023. You can read more about the impacts of HPAI in Northern Ireland on page 64 of this report. No productivity data for Black-headed Gulls were collected in 2022. Productivity data from Portmore Lough reserve were impossible to collect in 2022 without major disturbance (RSPB), but in 2021, Black-headed Gulls fledged 125 chicks from 97 pairs (1.29 chicks/AON), higher than the last record made in 2019 at the reserve (1.08 chicks/AON). The last record of breeding success at Larne Lough was in 2019, which was approximately 1.50 chicks/AON (RSPB).

Mediterranean Gull

Ichthyaetus melanocephalus

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – Annex 1 and migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

Mediterranean Gull, by Allan Drewitt / BTO

Overview

Synopsis: Slightly larger and stockier than the Black-headed Gull, and with a stouter bill, the Mediterranean Gull is a relative newcomer to the UK and Ireland's breeding seabird assemblage. Mediterranean Gulls expanded their range and population size from their traditional distribution around the Black Sea and Eastern Mediterranean in the 1950s and 1960s (JNCC 2021), with the first confirmed breeding in the UK occurring in Hampshire in 1968 (Slack 2007).

UK population size, abundance and breeding success trends: From just one pair in the 1985–88 census there were over 100 AON during Seabird 2000 (1998–2002) and it is estimated that the current UK population is somewhere between 1,500 to 2,000 AON (JNCC 2021). The newest census (2015–21) shows that the UK and Ireland population are still increasing (Burnell et al. 2023). Most large colonies are located in south and south-east England, although the species' distribution is expanding northward with smaller colonies becoming established elsewhere. An estimated 4,000 Mediterranean Gulls winter in the UK (Woodward et al. 2020).

Few productivity data are collected for Mediterranean Gulls, and as result productivity at the UK-level is not reported. Productivity at one of the UK's largest colonies, in Langstone Harbour, England, increased from 1.04 to 1.38 chicks per pair between 2015 and 2019 (JNCC 2021).

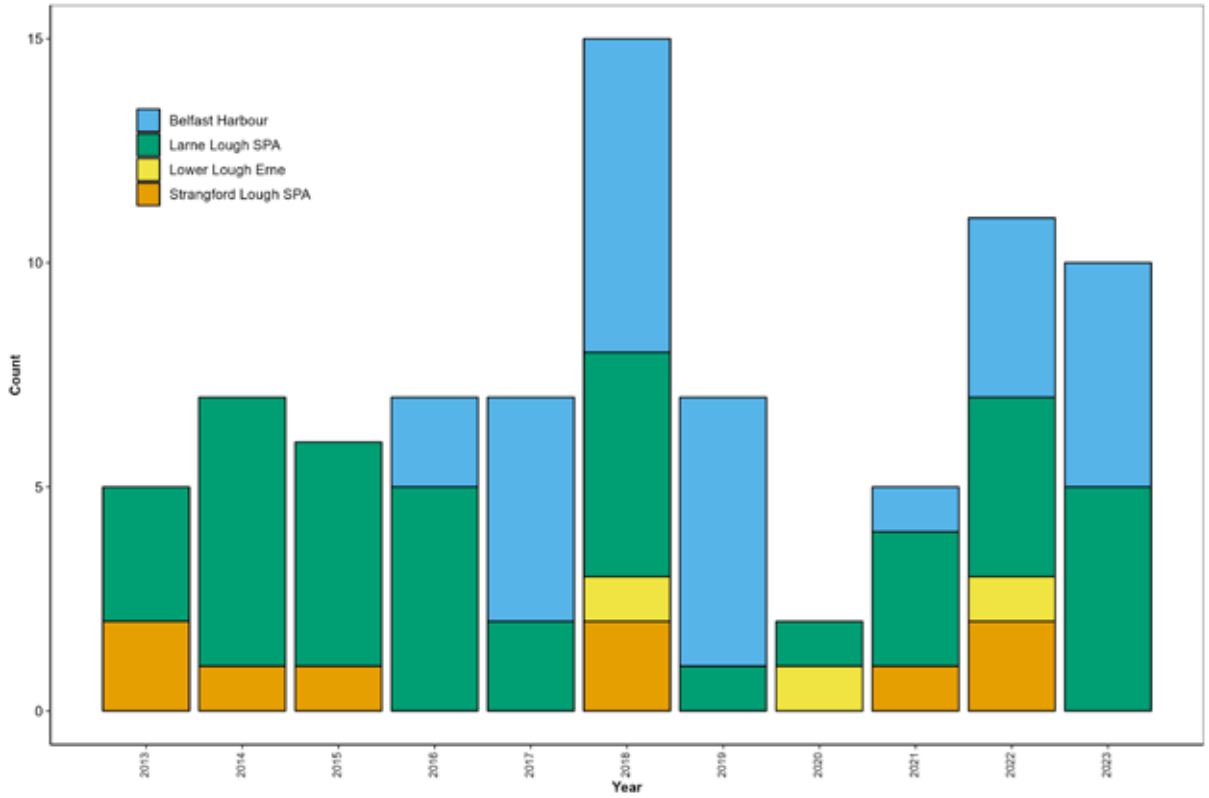
Northern Ireland population size, abundance and breeding success trends: Mediterranean Gull is a rare breeding species on the island of Ireland (Burke et al. 2020). After first breeding in Co. Antrim 1995, initially between one and three AON were recorded annually in Northern Ireland, across three different sites. Numbers have gradually increased, however, particularly since Mediterranean Gulls started breeding at Belfast Lough RSPB reserve in 2016.

The collection of productivity data in Northern Ireland has been limited; therefore, productivity estimates cannot be modelled at the regional-level (JNCC, 2021).

Abundance in 2023

Numbers of breeding Mediterranean Gulls appear to have dropped since the peak in 2018 (14 AON, Table 6, Appendix), although due to COVID-19 fieldwork restrictions, few records were made in 2020. While in 2021, there were only four confirmed breeding pairs, in 2022 numbers had again risen with a total of 10 pairs between Strangford, Larne and Belfast Lough (Figure 7). One male Mediterranean Gull returned to Lower Lough Erne in 2022 and was believed to have incubated two nests, but there was no evidence of successful hatching (RSPB). The overall number of Mediterranean Gulls is relatively stable for 2023 with slight increases at Larne Lough and Belfast Harbour. Numbers were not submitted to the database for Lower Lough Erne and Strangford Lough in 2023 but the numbers for Strangford Lough are in the article on page 80.

Figure 7: Cumulative Mediterranean Gull count (AON) in Northern Ireland, 2013–23. No data were available for 2020 from Belfast Lough or Strangford Lough. The total bar height represents the number of Mediterranean Gull pairs per year, and the colour represents the number in each site.



Breeding success in 2023

Due to the low number of breeding pairs in Northern Ireland, assessment of breeding success is very limited. Only one breeding record was submitted for Mediterranean Gulls in 2023. No chicks were fledged from the five nests recorded at Belfast Lough in 2023. However in 2022, five chicks were fledged from the four nests at Belfast Lough (1.25 chicks/AON) and two from the four nests (0.50 chicks/AON) at Larne Lough (both sites monitored by RSPB), therefore the overall figure for 2022 was 0.88 chicks/AON, similar to 2021 (0.75 chicks/AON).

Common Gull

Larus canus

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021).

Common Gull, by Edmund Fellowes / BTO

Overview

Synopsis: A dainty gull, resembling a small Herring Gull, the Common Gull nests colonially around coasts and inland sites. In North America the species is often referred to as the Mew Gull. The Common Gull can often be seen paddling their feet to encourage worms to surface in grassy areas (Vernon 1972).

UK population size, abundance and breeding success trends: Scotland held 98% of breeding Common Gulls in the UK during Seabird 2000 (1998–2002) (Mitchell et al. 2004), so the rest of the UK is relatively insignificant for this species. Over half (57%) of the breeding Common Gulls in Seabird 2000 bred inland (Mitchell et al. 2004). In the Seabird 2000 census, there were an estimated 48,714 AON in the UK but because inland colonies were not counted in previous censuses, a comprehensive estimate of Common Gull population change is not available. Inland colonies were counted in the Seabirds Count census, and should provide insight into Common Gull population changes (Burnell et al. 2023). Due to its importance in the UK context, the Scottish trend can be used cautiously to represent the UK-level trend and shows a 75% decline in coastal breeding Common Gulls between the last census (1988–2002) and 2019 (JNCC, 2021). The winter population of Common Gull in the UK is estimated to be 710,000 (680,000–730,000) (Burton et al. 2013, Woodward et al. 2020). The results of Seabirds Count (2015–21) show a decline in the UK and Ireland population of Common Gulls (Burnell et al. 2023).

Common Gull productivity is not well studied at the UK-scale, but a long-term study on the impact of American Mink predation on gulls and terns in western Scotland found that between 1989 and 2019 average productivity was 0.38 chicks per pair (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: Historically the Common Gull was a scarce breeding species in Northern Ireland, belying its name. However, coastal-nesting Common Gulls had increased in their population size from 192 to 383 AON between the 1985–88 and 1998–2002 censuses, and small numbers have appeared at several locations, although unfortunately not formally monitored (Kerry Leonard, pers. comm.). Seabirds Count reported an increase in Common Gulls in Northern Ireland (Burnell et al. 2023). For example, one such new colony was discovered in late July 2013 at Torr Head, Co. Antrim. By far the largest concentrations are on the Copeland Islands and at Strangford Lough, and inland at Lower Lough Erne. Approximately 10,000 Common Gulls visit Northern Ireland in the winter (Burton et al. 2013, Woodward et al. 2020).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC 2021).

Abundance in 2023

Four areas around Northern Ireland have been regularly monitored for Common Gull in recent years: Strangford Lough, Larne Lough, Outer Ards and Lower Lough Erne (Table 6, Appendix). At these sites Common Gulls have generally increased over time. Numbers of Common Gulls grew steadily in Strangford Lough in the 1990s but since have been less stable, with a huge increase in the 2000s followed by a decline in the early 2010s. In 2022, the count was 449 AON, the highest since the peak in 2010 (Hugh Thurgate, National Trust). In 2023, the count decreased to 329 AON according to the Strangford report on page 80.

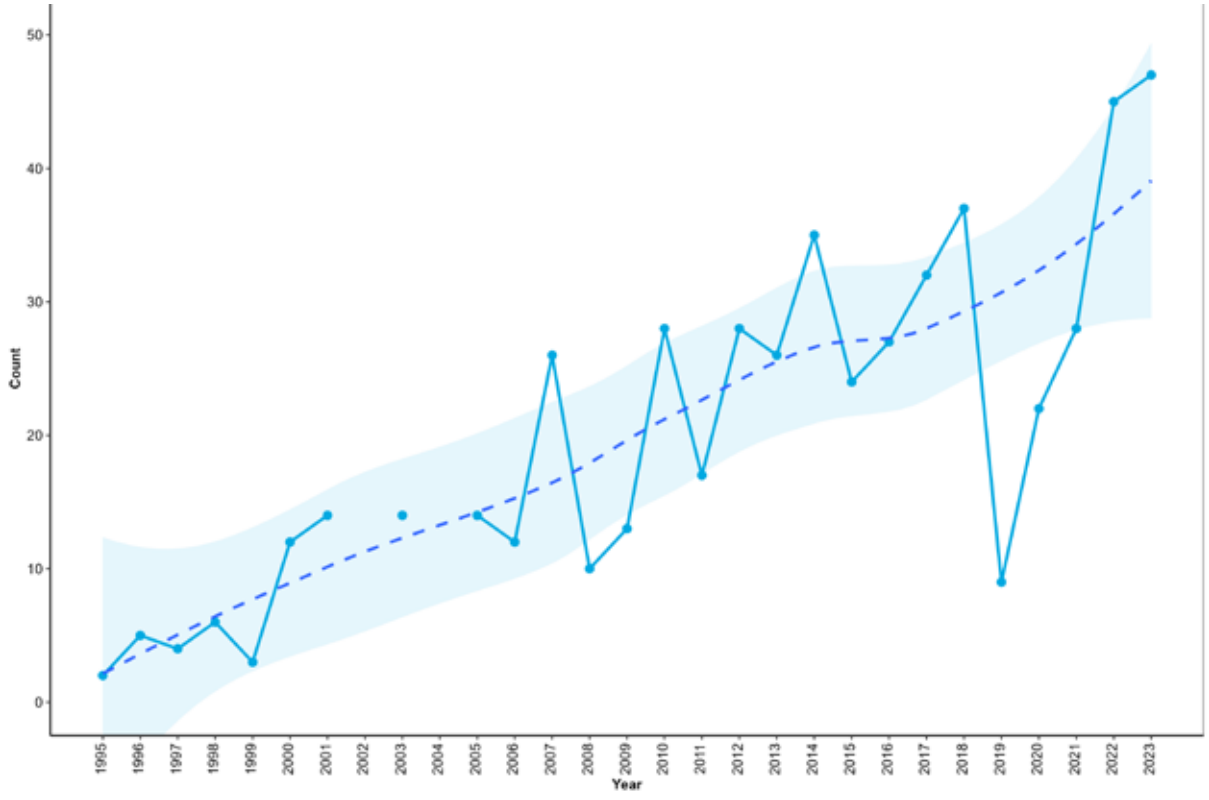
The next largest colony is in Lower Lough Erne (Table 6, Appendix), where an estimated 238 were counted in 2022, which was very similar to 2021's count of 249 AON. While counts were not carried out in 2020, in 2019 it was not possible to count one important colony at Lower Lough Erne, so although the count of 337 AON was the highest on record (Table 6, Appendix), this was probably an underestimate (Brad Robson, RSPB, pers. comm.). No 2023 count data were submitted for Lower Lough Erne.

Numbers of Common Gull at the smaller Larne Lough colony have been variable in recent years but in 2022 saw their greatest count on record of 45 AON, a 61% increase on 2021. This number increased to 47 AON in 2023 (Figure 8). Up to 9 AON have been recorded annually in Cockle Island (Outer Ards SPA) since 1986, 5 AON were recorded in 2022, and 7 AON were recorded in 2023. (Table 6, Appendix).

Outside regularly monitored areas, other aggregations of Common Gull exist primarily on the Copeland Islands and on Rathlin Island. On the Copeland Islands, although numbers have dropped, birds have spread out from a few large sub-colonies to form new satellite sub-colonies around the shore of all three islands. The Copeland Islands have not been completely surveyed since 2012 when there were 452 AON, down from a peak of 830 AON in 2009. In 2018, 15 AON were recorded on Lighthouse Island. 15 AON were also recorded in 2022 but no numbers were recorded for 2023. The MarPAMM census of Rathlin Island found that the Rathlin population has stayed fairly stable since the 1998–2002 census, at 69 AON (an 8% increase), and in 2022, RSPB recorded 42 AON on their island reserve. In 2023, 37 AON were recorded on Rathlin Island.

A few Common Gulls breed at Carlingford Lough, and in 2021 there were only 7 AON (Table 6, Appendix).

Figure 8: Common Gull counts (AON) at Larne Lough, 1995–2023. No counts were made in 2002 or 2004. The dashed line represents the Locally Weighted Least Squares Regression trend in Common Gull numbers over time. The shaded region represents the 95% confidence interval around the trend.



Breeding success in 2023

In 2023, two breeding records were submitted by the RSPB: one for Larne Lough and one for Rathlin Island. The productivity at Larne Lough was 0.92 chicks/AON and the productivity at Rathlin Island was 0.27 chicks/AON. The only breeding season data to be collected in 2022 were at Larne Lough by the RSPB, where 45 AON produced 51 chicks (1.13 chicks/AON), an improvement on previous years' productivity (2021, 0.57; 2020, 0.59). Common Gull's productivity in 2023 therefore declined slightly from the previous year.

Lesser Black-backed Gull

Larus fuscus

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021).

Lesser Black-bcked Gull, by Gary Clewley / BTO

Overview

Synopsis: Lesser Black-backed Gulls nest colonially often with other gull species, particularly Herring Gulls (Mitchell et al. 2004). However, unlike Herring Gulls, many Lesser Black-backed Gulls from the UK migrate to the Iberian Peninsula or North Africa during the non-breeding period (Rock 2002, Mitchell et al. 2004).

UK population size, abundance and breeding success trends: During Seabird 2000 (1998–2002) the UK held 38% of the estimated world population. At this time, the breeding population was estimated at 111,960 AON, an increase of 40% over the previous census period (JNCC 2021). However, with the species' spread to inland urban sites, it is likely that some colonies remained uncounted. As a result, the downwards trend in the Lesser Black-backed Gull abundance index over the last 20 years is based only on natural-nesting gulls and may not be representative of the UK whole (JNCC 2021). The Seabirds Count census (2015–21) has utilised a new methodology to count the urban-nesting Lesser Black-backed Gulls across the UK and Ireland and has a more accurate count of the population (Burnell et al. 2023). Although many of the UK's breeding Lesser Black-backed Gulls migrate during the winter, the winter population is estimated to be 130,000 (120,000–130,000) (Burton et al. 2013, Woodward et al. 2020), boosted by an influx of birds from Iceland and Scandinavia.

At the UK-level, productivity measured at natural-nesting colonies (defined as moors, cliffs, marshes, beaches and other areas of semi-natural habitat, i.e. non-urban) was 0.52 chick per pair between 1989 and 2019 (JNCC, 2021). The factors causing low productivity in Lesser Black-backed Gulls are not fully understood but include predation at some colonies. There is a lack of equivalent productivity estimates for urban sites.

Northern Ireland population size, abundance and breeding success trends: The Lesser Black-backed Gull is a widespread breeding species in Northern Ireland, mainly in a few large colonies at Strangford Lough, Copeland Islands, and inland at Lower Lough Erne and Lough Neagh. There are smaller numbers at Rathlin Island, The Skerries and Muck Island. Across Northern Ireland as a whole, numbers of coastal-nesting Lesser Black-backed Gulls doubled between the 1969–70 and 1985–88 censuses, and increased further to 131% by 1998–2002, when 1,033 AON were counted. Inland colonies were only censused for the first time in Seabird 2000 (940 AON), so trends are unavailable for these sites (JNCC 2021). Central Belfast was the only urban colony to be surveyed in Seabird 2000, with 63 AON recorded (Mitchell et al. 2004), but the full extent of urban nesting Lesser Black-backed Gulls is unknown in Northern Ireland. Around 550 Lesser Black-backed Gulls may occur in Northern Ireland in the winter (Burton et al. 2013, Woodward et al. 2020).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC 2021).

Abundance in 2023

Lower Lough Erne supports a large proportion of the Lesser Black-backed Gulls in Northern Ireland, but in 2023 no Lower Lough Erne counts were submitted. In 2022 this population was estimated to be 1,653 AON, the maximum on record for the site. However, this count includes the 2019 record of 765 AON at Rabbit Island, as this particular colony could not be visited in 2022 (RSPB). Another large concentration is found in Strangford Lough where, with the exception of a dip in the late 1990s and early 2000s, the population has risen since the records began in 1987. In 2022, 339 AON were recorded, 23% below the highest-ever count made in 2021. In

2023, this number decreased further to 293 AON. A breakdown of counts across different islands can be found in the Strangford report on page 80.

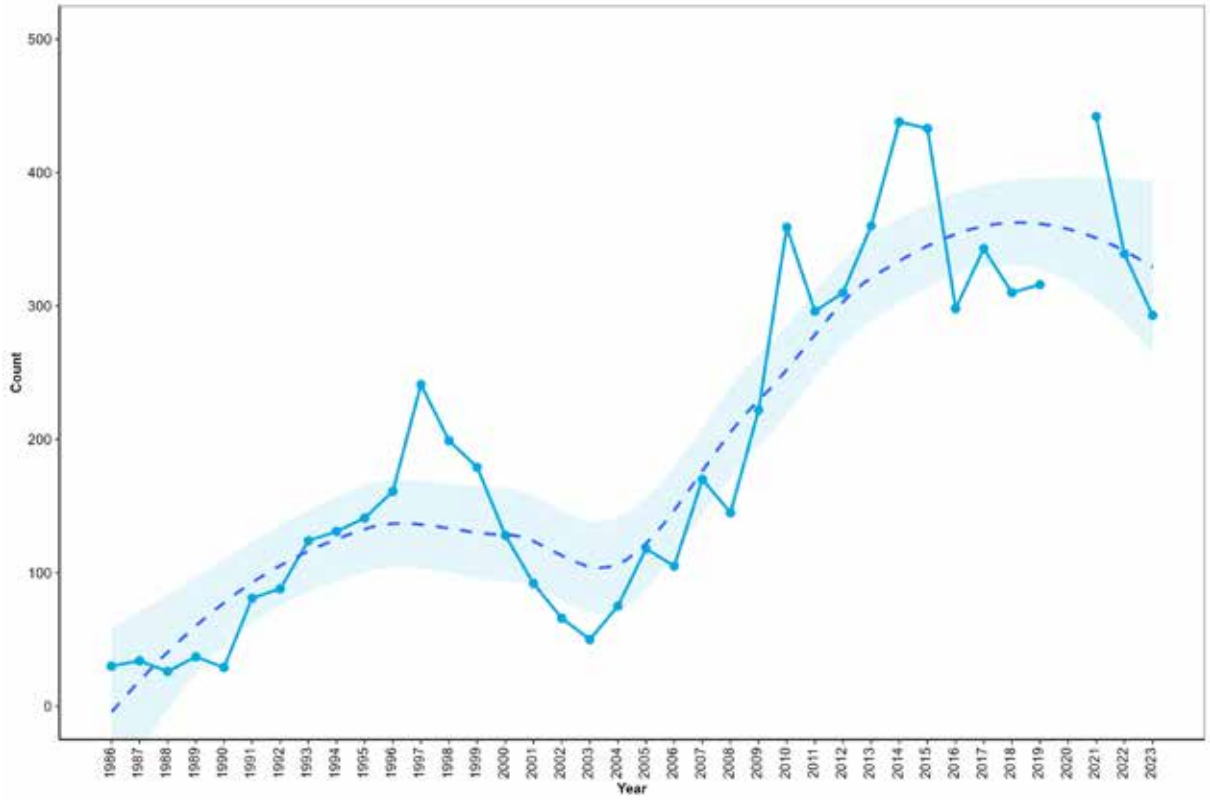
No records were submitted for Lough Neagh in 2023. Fifteen island sites were surveyed three times between May and June 2022 by the Lough Neagh Partnership (excluding Portmore Lough RSPB reserve), from which average counts are reported in Table 6. Together these totalled 1,543 individuals. Abundance data are challenging to collect consistently from the Lough Neagh islands making between-year comparisons difficult.

While the loughs are generally well covered for Lesser Black-backed Gulls, coastal colonies are less regularly counted, or coverage is incomplete. Addressing part of this gap, the MarPAMM census of Rathlin in 2021 found that Lesser Black-backed Gulls had increased on the island by 309% to 519 AON since the 1998–2002 census, while between Runkerry and Murlough, they increased by 1,200% to 91 AOT/AON. Additionally, a volunteer survey of The Skerries counted 537 AON in 2021, a significant and under-recorded population. No counts were submitted for those coastal colonies in 2023.

A volunteer team led by the Copeland Bird Observatory surveyed large gulls on Lighthouse Island in 2018, 2019, 2021 and 2022. The estimated count in 2023 was 683 AON, the highest count since 1992 making Lesser Black-backed Gulls nearly as common on Lighthouse Island as Herring Gulls this year (Table 6, Appendix). Gulls nesting on Big Copeland and Mew Island remain uncounted.

True numbers of urban-nesting gulls remain difficult to quantify, however in 2018 and 2019 NIEA-funded surveys of central Belfast recorded a peak of 221 AON (Booth Jones et al. 2022). While much higher than the last record made for the 1998–2002 census (63 AON), this is still likely to be an underestimate due to the complexity of the roofscape in the survey area. Urban nesting appears to be an increasing phenomenon in Northern Ireland, and records of roof nesters from volunteers would be welcome.

Figure 9: Lesser Black-backed Gull counts (AON) in Strangford Lough, 1986–2023. No data were collected in 2020. The dashed line represents the Locally Weighted Least Squares Regression trend in Lesser Black-backed Gull numbers over time. The shaded region represents the 95% confidence interval around the trend.



Breeding success in 2023

No colonies were monitored for breeding success in 2023.

Herring Gull

Larus argentatus

Conservation status: Amber-listed in the BoCCI4 (2020–26); Red-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Near Threatened – IUCN Red List (Europe). Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

Herring Gull, by Edmund Fellowes / BTO

Overview

Synopsis: The Herring Gull is slightly larger than the Lesser Black-backed Gull. It was historically widespread in Britain and Ireland and is largely resident (Mitchell et al. 2004). It nests in a range of habitats, from rocky coastlines to rooftops, but is less widespread inland compared to the Lesser Black-backed Gull. Although quite common on roofs now, this behaviour was first observed in the 1920s in the south-west of England (Robinson 2005).

UK population size, abundance and breeding success trends: Herring Gulls suffered a steep decline in the late 1980s, largely due to botulism (Mitchell et al. 2004). Between the 1969–70 and 1985–88 censuses, Herring Gulls declined by 43% and declined a further 13% by 1998-2002, to 130,230 AON (JNCC 2021). However, with the species' spread to inland urban sites, it is likely that some colonies remained uncounted. The Seabirds Count census (2015–21) has utilised a new methodology to count the urban-nesting Herring Gulls across the UK and Ireland and has a more accurate count of the population (Burnell et al. 2023). The SMP report does not produce a combined urban- and natural-nesting abundance index for Herring Gull due to the low sample from urban sites, but the natural-nesting index for 2019 was 56% below the 1986 baseline (JNCC, 2021). Based on existing UK demographic parameters (survival, clutch size, etc.) Cook & Robinson (2010) predicted a 60% decrease in the national population over 25 years. During the winter, visitors from Scandinavia swell the Herring Gull population to around 740,000 (710,000–780,000) (Burton et al. 2013, Woodward et al. 2020).

While in the previous decade productivity was variable with an underlying declining trend, between 2000 and 2010 productivity stabilised at around 0.60 chicks per pair and was 0.57 in 2019 (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: The population in Northern Ireland declined by 96% between the 1985–88 and 1998–2002 censuses to just 709 AON (Cramp et al. 1974, Mitchell et al. 2004, JNCC 2021). Concentrations of Herring Gulls occur on the Copeland Islands and at Strangford Lough. Smaller colonies are on Rathlin Island, Burial Island, Muck Island and The Skerries. The population of Rathlin Island declined from 4,037 AOTs in 1985 to just 19 AOTs in 1999 (Mitchell et al. 2004). A similar decline occurred on the Copeland Islands, from approximately 7,000 AOTs in 1985 to 225 AOTs in 2004. The figures for Strangford Lough mirror this trend, with a large and rapid decline in the mid-1980s, numbers reaching a low point just after the turn of the century. Since 2007, numbers of AOTs at Copeland and Strangford have shown sustained growth. Herring Gull has been downgraded from Red-listed to Amber-listed in the latest Birds of Conservation Concern Ireland due to less severe declines in recent years (Gilbert et al. 2021). As many as 10,000 Herring Gulls may occur in Northern Ireland in the winter (Burton et al. 2013, Woodward et al. 2020).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC 2021).

Abundance in 2023

The primary population of Herring Gulls in Northern Ireland is found in Strangford Lough, where numbers have been steadily increasing after a decline in the late 1980s and 1990s (Figure 15). The 2023 count of 1,920 AON is the largest count since 1986 (2,825 AON). A breakdown of counts across different islands can be found in the Strangford report on page 80.

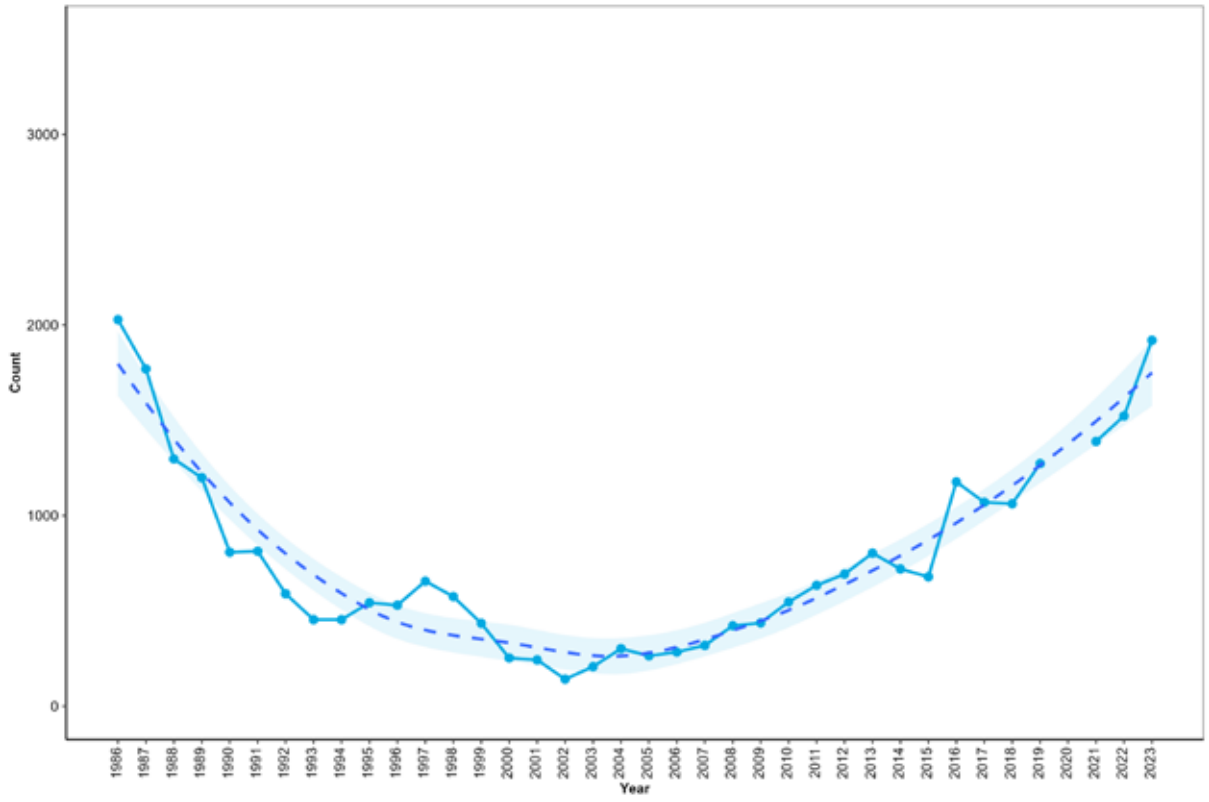
The other major colony spanning the three Copeland Islands has not been completely surveyed since 2012. However, in 2018, 2019, 2021, 2022, and 2023 volunteers from Copeland Bird Observatory conducted a full survey of Lighthouse Island, with 680 AON being estimated in 2022 and 869 in 2023 (Table 6, Appendix). This is the highest count since the first estimate of 3,000 AOT made in 1985. Herring Gulls have been counted annually on Muck Island (2000–10), and the past three years shows that the small population there has increased to 25 AON, although this is an 86% reduction on the highest count (184 AON) made on the island, back in 1995.

Coastal colonies on the north coast are less well recorded, but addressing part of this gap, the MarPAMM census of Rathlin found that Herring Gulls increased on the island by 493% to 83 AON since the 1998–2002 census, while between Runkerry and Murlough, they increased by 645% to 82 AOT/AON. A volunteer-led survey of The Skerries in 2020 revealed that it hosted an estimated 229 AON.

It is likely that urban-nesting Herring Gulls are on the rise around Northern Ireland, but little data exist outside of central Belfast. An NIEA-funded vantage-point survey from two of the tallest buildings in Belfast found that the very small population of 8 AON recorded in the 1998–2002 census had increased to 39 in 2019 (Booth Jones et al. 2022). Due to the complexity of the roof-scape and the limited number of vantages, observed Herring Gull AONs are likely to be an underestimate of the total number present in central Belfast.

Small numbers have bred inland at Lower Lough Erne since records began in 2000, and only three were recorded in 2022 (Table 6, Appendix).

Figure 10: Herring Gull numbers (AON) at Strangford Lough, 1986–2023. No data were collected in 2020. The dashed line represents the Locally Weighted Least Squares Regression trend in Herring Gull numbers over time. The shaded region represents the 95% confidence interval around the trend.



Breeding success in 2023

No productivity data were collected for Herring Gull in 2023, but in 2021, RSPB monitored 12 AON in Carlingford Lough, which fledged six chicks (0.50 chicks/nest).

Great Black-backed Gull

Larus marinus

Conservation status: Green-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021).

Great Black-backed Gull, by Sam Langlois / BTO

Overview

Synopsis: The Great Black-backed Gull is the largest of the gulls, with an average wing length of around 470 mm and average weight of 1.5 kg (BTO 2023). The species has an extensive breeding range across the north Atlantic. Great Black-backed Gulls are mostly found in open shore habitats during the breeding season (BTO 2023).

UK population size, abundance and breeding success trends: The Outer and Inner Hebrides and the Northern Isles of Scotland are the main strongholds for Great Black-backed Gulls in the UK and Ireland (JNCC 2021). During the 20th century their range and numbers grew on both sides of the Atlantic, rebounding from a period of decline that rendered the species virtually extinct as a breeder in Britain towards the end of the previous century (Mitchell et al. 2004). The UK population has been relatively stable across census periods, and at Seabird 2000 (1998–2002) it was estimated to be 16,735 AON. However, the UK abundance index was 14% below the 1986 baseline in 2019 (JNCC, 2021) and the most recent population estimate is 8,021 AON (Burnell et al. 2023), which is fairly stable compared to the 15,000 (7,200–19,000) pairs reported in Seabird 2000 (Mitchell et al. 2004, Woodward et al. 2020). The most recent census (2015–21) confirms that the UK and Ireland population of Great Black-backed Gulls is decreasing (Burnell et al. 2023). During the winter, numbers of Great Black-backed Gulls increase to 77,000 (72,000–82,000) (Burton et al. 2013, Woodward et al. 2020).

There is no clear trend in the productivity of Great Black-backed Gulls, which has varied between 1.70 and 0.70 chicks per pair since 1986, but monitoring across the UK has shown that productivity has generally increased since the early 2000s (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: The population of Great Black-backed Gulls in Northern Ireland declined by 74% from 240 AON to 71 AON between the 1969–70 and 1998–2002 censuses (JNCC 2021). However, the Northern Irish population appears to have more than doubled between the previous two censuses and numbers have also increased by 38% in the Republic of Ireland (JNCC 2021), resulting in a downgrading from Amber-listed to Green-listed in the latest Birds of Conservation Concern Ireland (Gilbert et al. 2021). Seabirds Count reported 449 AON in Northern Ireland (Burnell et al. 2023). The most important site in Northern Ireland is on Great Minnis's Island, Strangford Lough. The second most important colony is probably now at Burial Island, Outer Ards peninsula. Although this colony has not been completely surveyed since 1998 (when no birds were present), a population has again established itself on the island (Kerry Leonard, pers. comm.). Approximately 1,000 Great Black-backed Gulls occur in Northern Ireland during the winter (Burton et al. 2013, Woodward et al. 2020).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC 2021).

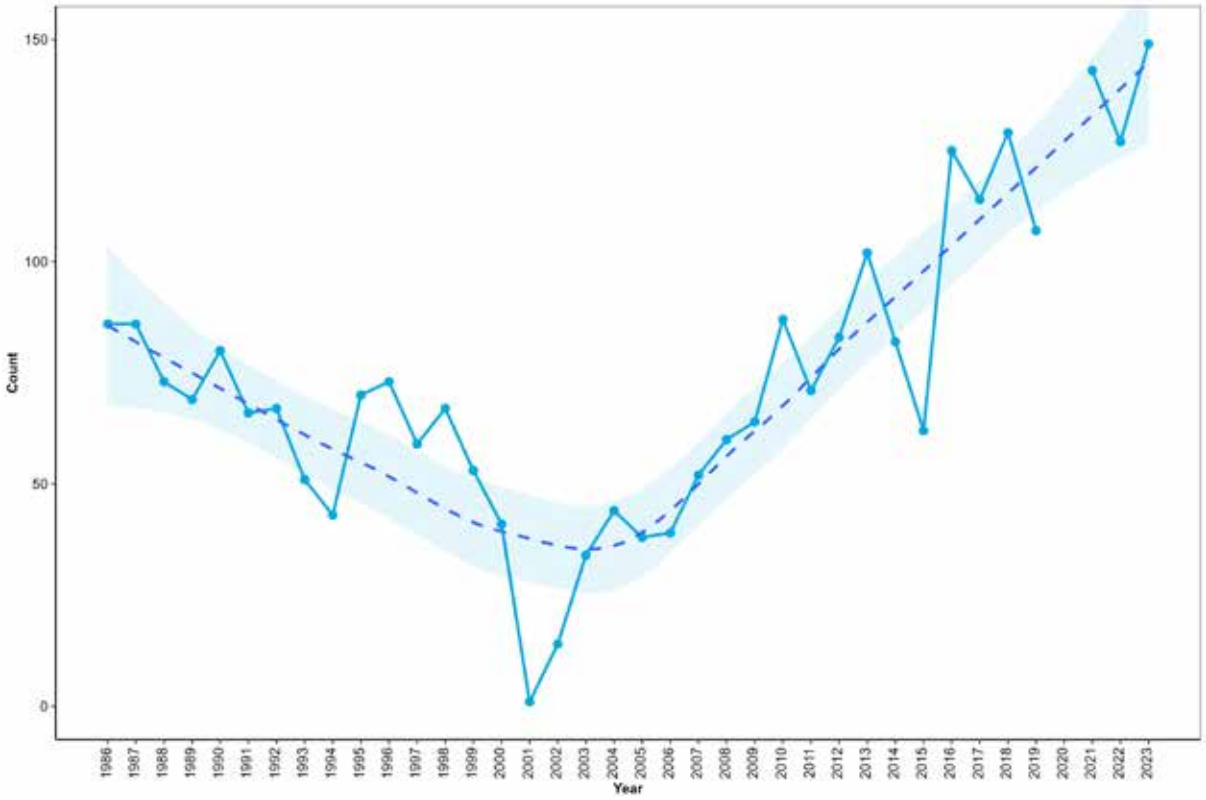
Abundance in 2023

The biggest colony of Great Black-backed Gulls occurs on Strangford Lough, and the largest count of since 1972 was made in 2021, with 143 AON recorded. Numbers fell a little in 2022 to 127 AON but increased again in 2023 to 149 AON (Figure 16). A breakdown of counts across different islands can be found in the Strangford report on page 80. Numbers were not submitted for Muck Island in 2023, but had declined to more typical levels in 2022 (4 AON), after a record high of 11 AON in 2021 (Table 6, Appendix). No Great Black-backed Gulls

were recorded elsewhere in Northern Ireland in 2023. In 2022, 2 AON were counted between Maggy's Leap and Newcastle, while inland at Lough Neagh, 5 IND were observed and there were 2 IND at Lower Lough Erne.

The MarPAMM census of Rathlin in 2021 found that Great Black-backed Gulls had increased on the island by 300% to 12 AON since the 1998–2002 census, while between Runkerry and Murlough, they increased by 17% to 7 AOT/AON.

Figure 11: Great Black-backed Gull counts (AON) at Strangford Lough, 1986–2023. No data were collected in 2020. The dashed line represents the Locally Weighted Least Squares Regression trend in Great Black-backed Gull numbers over time. The shaded region represents the 95% confidence interval around the trend.



Breeding success in 2023

No nests of Great Black-backed Gull were monitored in Northern Ireland in 2023.

Little Tern

Sternula albifrons

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – listed in Annex 1 and as a migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021).

Little Tern, by Philip Croft / BTO

Overview

Synopsis: Little Terns are the UK's smallest breeding tern species. They are exclusively coastal, usually nesting on beaches where their eggs are so well camouflaged they are almost invisible.

UK population size, abundance and breeding success trends: Numbers of Little Tern in the UK declined (-23%) between the 1985–88 census and the 1998–2002 census, and again by -25% between 1998–2002 and the 2015–21 census (Burnell et al., 2023). Although the population of 1,927 AON was higher during Seabird 2000 than during the original census of 1969–70 (JNCC, 2021), recent estimates suggest the population size has reduced to 1,403 AON (Burnell et al. 2023).

The breeding success of Little Terns varies greatly from year to year. At the UK level, breeding success was 0.56 chicks per pair in 2019 (JNCC, 2020).

Northern Ireland population size, abundance and breeding success trends: Little Terns are a rare breeding species on the island of Ireland (Burke et al. 2020), with main breeding concentrations on the east coast. In Northern Ireland they have always been an infrequent breeding species and have not been reported as definitely nesting since 1996.

Abundance in 2023

No breeding attempts were reported in 2023. In 2022 and 2023, 2 IND were observed at Bird Island (Portavogie) during the breeding season. It is possible that these were failed breeders from the Point of Aird colony on the Isle of Man (Hugh Thurgate and Andrew Upton, National Trust, pers. comm.).

Sandwich Tern

Thalasseus sandvicensis

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – Annex 1 and migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021).

Sandwich Tern, by Philip Croft / BTO

Overview

Synopsis: The Sandwich Tern is the largest species of tern breeding in Northern Ireland. It is known for its extremely variable population trends and distribution, caused by the tendency for large numbers of individuals to move between colonies (JNCC 2021). Sandwich Terns almost always nest in shared colonies with Black-headed Gulls, potentially benefitting from the gulls' aggressive nest defence in response to predators (Smith 1975).

UK population size, abundance and breeding success trends: The UK holds approximately 10% of the world population of Sandwich Terns (JNCC 2021). Census data indicate that the UK population increased by 33% between the 1969–70 and 1985–88 censuses, but that numbers then declined by 15% by 1998–2002 (JNCC 2021). According to Seabirds Count (2015–21), the UK and Ireland population of Sandwich Terns is stable (Burnell et al. 2023). Annual SMP data indicate that current numbers are similar to the 1986 baseline, and the most recent population estimate is 14,000 (13,000–15,000) pairs (JNCC 2021, Woodward et al. 2020).

UK productivity averaged 0.66 between 1986 and 2008 (JNCC 2020), but averaged 0.41 chicks per pair in 2019 (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: During Seabird 2000 (1998–2002), the population size of Sandwich Tern in Northern Ireland was 1,954 AON, an 11% decline since the previous census. The Seabird 2000 estimate puts the Northern Ireland population at around 1,500 pairs (Mitchell et al. 2004, Woodward et al. 2020). In Northern Ireland most Sandwich Terns breed in a few large colonies at Strangford Lough, Larne Lough, Lower Lough Erne and Cockle Island, Groomsport. Sandwich Tern has the most complete and consistent monitoring record over the longest period and of any seabird species in Northern Ireland.

The collection of productivity data in Northern Ireland has been limited, but between 1990 and 2019 the mean breeding success was 0.31 chicks per pair per year (JNCC 2021).

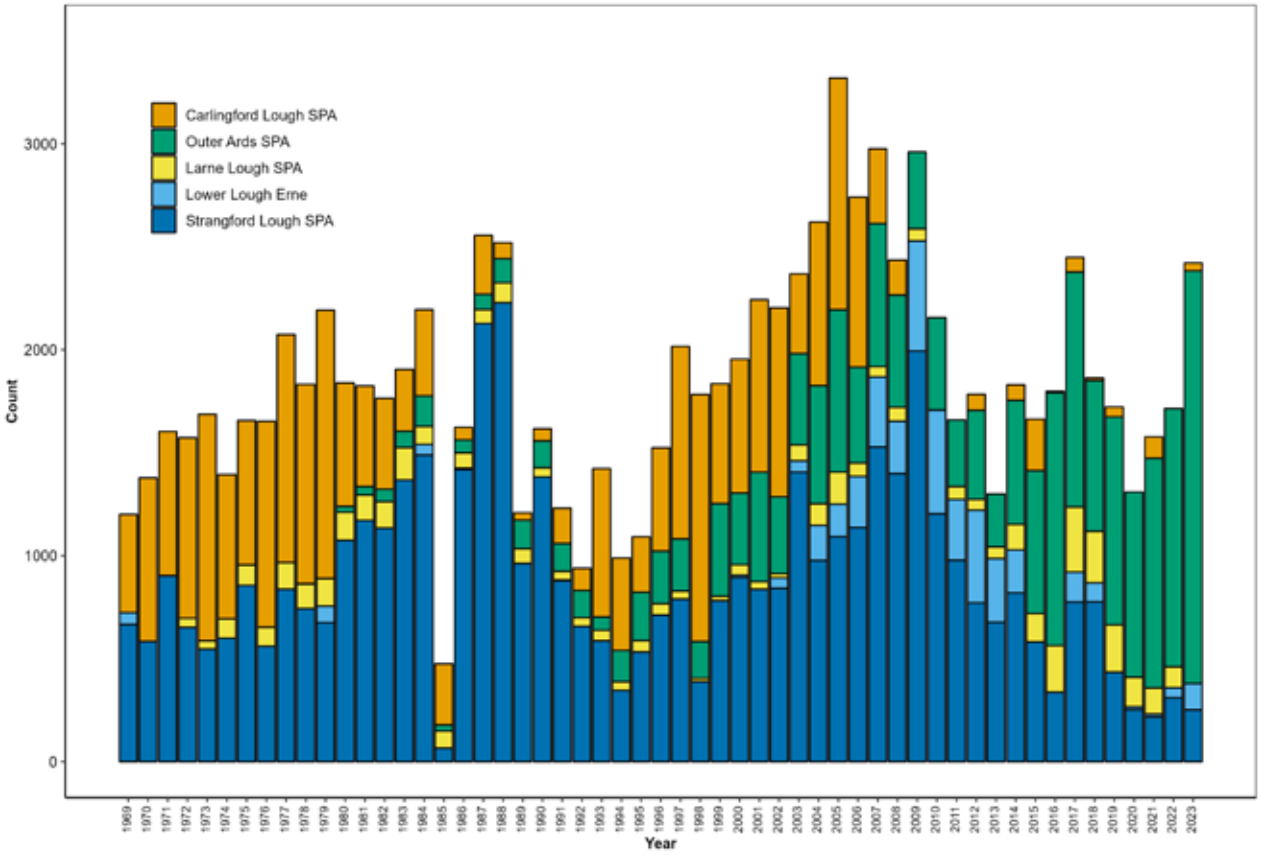
Abundance in 2023

Presenting the total populations for the main coastal colonies together (Figure 13) is advantageous as terns may move colonies from year to year and it allows an overall appraisal of the Northern Ireland population.

The count of Sandwich Terns at Strangford Lough is the longest running population count of seabirds in Northern Ireland, and celebrated its 50th year in 2018 (Hugh Thurgate, pers. comm.). In 2023, the population decreased slightly from last year's 310 AON to 251 AON (see page 80 for Strangford Lough report), while increases were also evident on Cockle Island, Outer Ards, where 128 AON were counted, a 167% increase on 2022 (48 AON). The largest colony of Sandwich Terns in Northern Ireland currently nests in Larne Lough, where 2,004 AON were counted in 2023, which is the highest count since records began in 1975. Numbers of Sandwich Terns have been very small in Carlingford Lough in recent years (Table 6, Appendix), and while 52 AON were recorded in 2021 and none bred here in 2022, 39 AON were recorded in 2023.

Sandwich Terns can also be found inland at Lower Lough Erne although no data was submitted for 2023. Some 102 AON were counted in 2022, continuing a decline from a peak in 2017 of 316 AON.

Figure 12: Cumulative Sandwich Tern counts (AON) at Carlingford Lough SPA, Outer Ards SPA, Larne Lough SPA, Lower Lough Erne and Strangford Lough SPA, 1969–2023. Sandwich Terns were not counted in Carlingford Lough and were an estimate at Larne Lough in 2020. The total bar height represents the number of Sandwich Tern pairs per year, and the colour represents the number in each site.

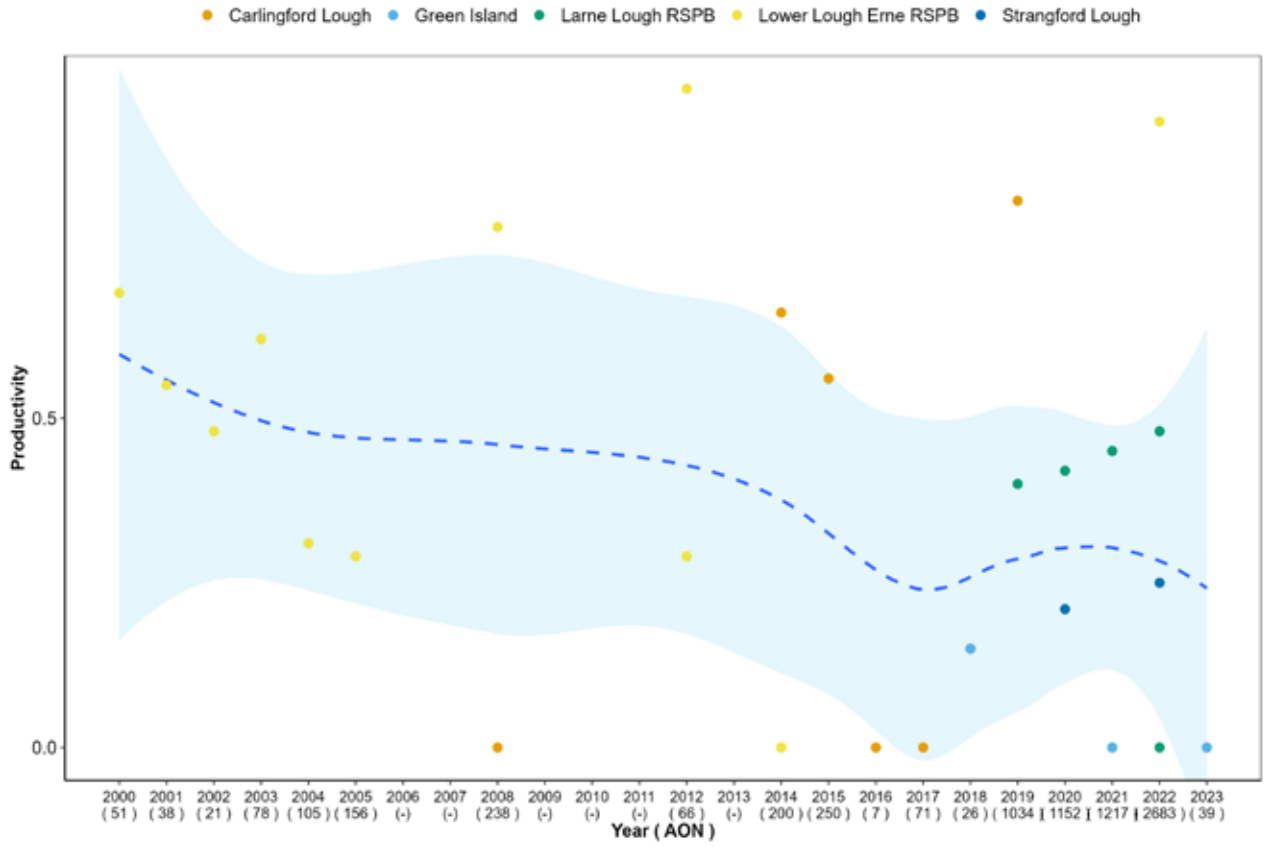


Breeding success in 2023

Sandwich Tern productivity has been measured intermittently at four colonies: Lower Lough Erne (RSPB), Carlingford Lough (RSPB), Larne Lough (RSPB), and Strangford Lough (National Trust) (Figure 14).

Zero Sandwich Tern chicks were fledged in 2023, it is possible this is related to HPAI (see HPAI report on page 64). In 2022, breeding success appeared to be highest in Lower Lough Erne at 0.95 chicks/AON, however this figure was gained from limited visits. Breeding success in Larne Lough and Strangford Lough was low (0.48 and 0.25 chicks/AON, respectively). More details on the Strangford Sandwich Terns can be found on pages 81. Of the 39 Sandwich Tern AON at Carlingford Lough, zero fledged this year. Despite improving breeding success at Carlingford Lough from 2011–15 due to an intensified programme of monitoring and conservation, productivity has been consistently low in recent years, caused by the suspected predation of eggs and young by Otters (Matthew Tickner, RSPB, pers. comm).

Figure 13: Sandwich Tern productivity (chicks/AON) 2000–22 across five sites in Northern Ireland (Lower Lough Erne, Carlingford Lough, Green Island, Larne Lough, and Strangford Lough). No data were available for 2006, 2007, 2009–11, 2013. The dashed line represents the Locally Weighted Least Squares Regression trend in productivity over time. The shaded region represents the 95% confidence interval around the trend. The total number of AON monitored per year is included in brackets under the year, with unknown numbers denoted by a hyphen (-).



Common Tern

Sterna hirundo

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – listed in Annex 1 and as a migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021).

Common Tern, by Allan Drewitt / BTO

Overview

Synopsis: Despite the name, Common Tern is not the most abundant UK tern species, but it is probably the most familiar because its breeding range extends around much of the coastline and inland to lakes and loughs across most of the UK (JNCC 2021).

UK population size, abundance and breeding success trends: Although the UK population rose slightly between the 1969–70 and 1985–88 censuses, numbers fell to 11,838 AON by Seabird 2000 (1998–2002), a similar number as recorded in the first census (JNCC 2021). The most recent census (2015–21) confirms that the UK and Ireland Common Tern population has remained stable (Burnell et al. 2023). Analysis of annual SMP data indicates that the population has decreased by 10% between 1986 and 2019 (JNCC 2021) and the Seabird 2000 UK population estimate is 11,000 AON (Mitchell et al. 2004, Woodward et al. 2020).

Productivity fluctuates between years as it is heavily influenced by weather conditions, predation and foraging success. Between 1986 and 2019, UK breeding success varied between approximately 0.30 and 0.80 chicks per pair per year and in 2019 averaged 0.45 chicks per pair per year (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: Common Tern is the most widespread breeding tern species in Northern Ireland, with both coastal and inland populations. Historical data for the main Northern Ireland colonies are incomplete. In the late 1980s, there was a sudden increase in Common Terns to over 1,000 AON and, by the early 21st century, there were over 2,000 AON. Since this peak the population has again declined and the Seabird 2000 estimate is around 1,400 AON (Mitchell et al. 2004, Woodward et al. 2020). Significant numbers breed at several sites on Lough Neagh but these are patchily monitored. The main coastal sites are Strangford Lough, Larne Lough, Belfast Lough and Carlingford Lough.

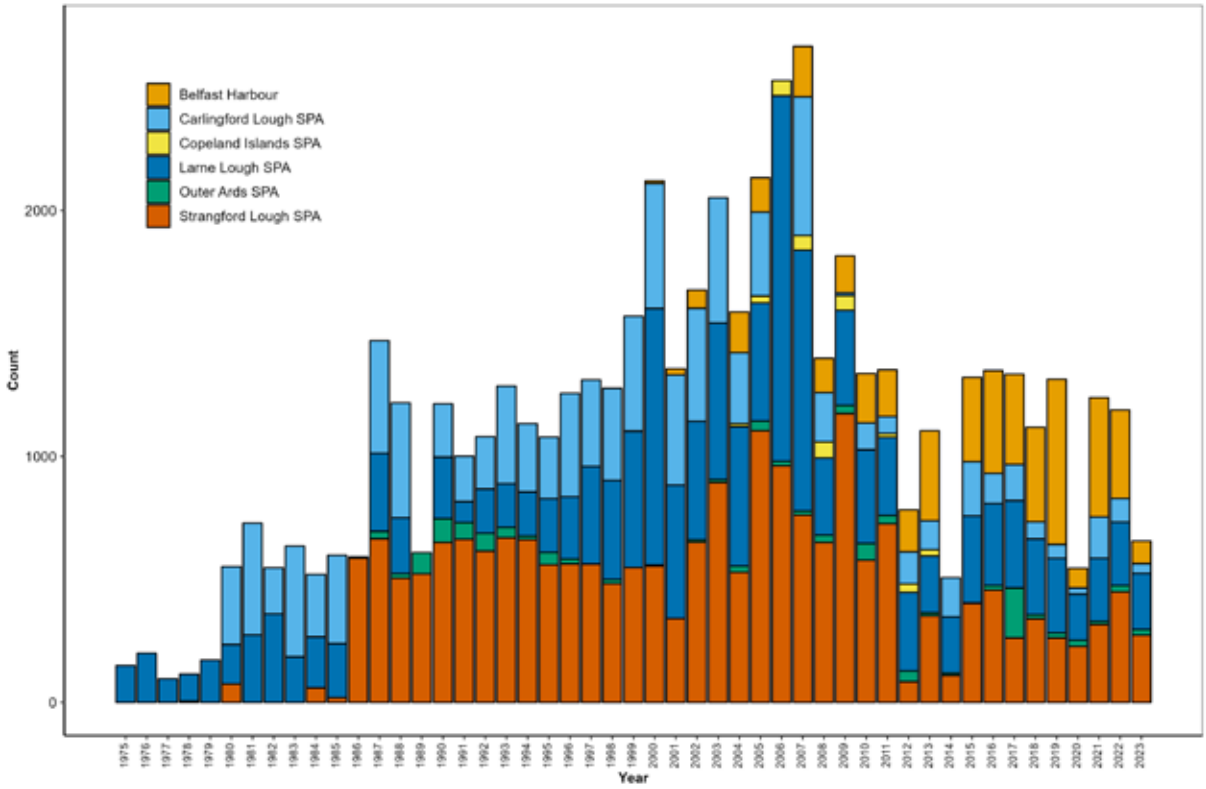
Productivity data for Common Terns in Northern Ireland show they had an average fledging rate of 0.65 chicks per pair per year between 1999 and 2019 (JNCC 2021).

Abundance in 2023

Numbers of Common Terns in 2023 declined again after having two good years in 2021 and 2022. It is possible the low numbers are due to decreases in record submissions rather than actual decreases in Common Tern numbers. In 2020, the total coastal Northern Irish population (including Belfast Lough RSPB, Carlingford Lough, Cockle Island, Larne Lough and Strangford Lough) more than halved from 2019 levels due to losses at Larne and Belfast Loughs (Figure 15, Table 6, Appendix). This decline was thought to be genuine rather than due to the impact of COVID-19 restrictions on surveys since tern monitoring was not affected. Total numbers in 2023 (700 AON) declined heavily from 2022 (1,097 AON), with a 39% decrease at Strangford Lough, a 74% decrease at Belfast Lough, and other smaller coastal colonies decreasing similarly (Table 6, Appendix).

Common Terns can also be found breeding inland, and in 2023 23 AON were recorded at Portmore Lough RSPB reserve. At Lower Lough Erne, 21 AON were recorded in 2023.

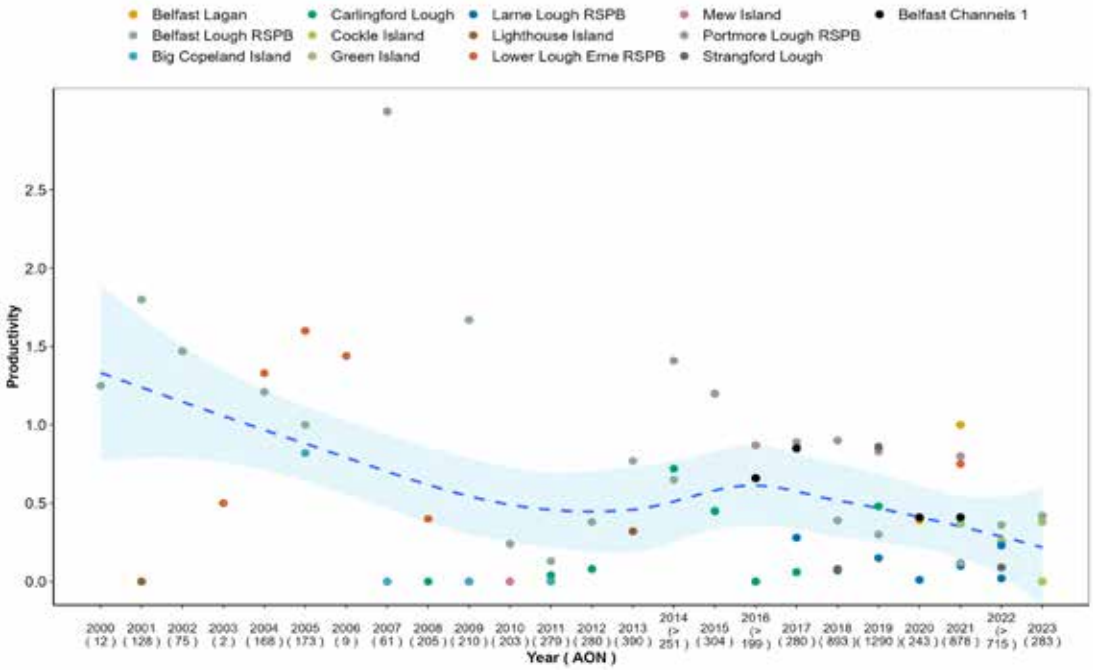
Figure 14: Cumulative Common Tern numbers (AON) at the coastal colonies of Belfast Harbour, Carlingford Lough SPA (count of 'Commic' terns not included for 2022 or 2023), Outer Ards SPA, the Copeland Islands SPA (not counted since 2013), Larne Lough SPA and Strangford Lough SPA, 1975–2023. The total bar height represents the number of Common Tern pairs per year, and the colour represents the number in each site.



Breeding success in 2023

While not all are surveyed every year, 10 sites have received some monitoring effort since 1999, and the overall picture is of a low and declining breeding success (Figure 20). Three sites were monitored for breeding success in 2023, with an average of 0.27 chicks/AON, which was similar overall to 2022 (0.23 chicks/AON) but lower than the average between 2000 and 2022 across all sites (0.58 chicks/AON, 95% CI: 0.42–0.74). In 2023, colonies at Belfast Lough RSPB continued to have a low productivity at only 0.42 chicks/AON (RSPB). Eight colonies were monitored in Strangford Lough in 2023 with a very low productivity of 0.09, due to a combination of exposure to flooding and avian flu (see page 80 for the Strangford Lough Seabird Monitoring Report, National Trust). No records were submitted in 2023, but difficulties viewing the rafts without causing disturbance made monitoring breeding success impossible in 2022 at Portmore Lough despite this colony having the highest breeding success of 2021 at 0.80 chicks/AON (RSPB). Finally, zero chicks were fledged at Cockle Island in 2023 and Green Island in Carlingford Lough had a productivity of 0.375 chicks/AON.

Figure 15: Common Tern productivity (chicks/AON) 2000–23 across 14 sites in Northern Ireland (Belfast Lough RSPB, Big Copeland Island, Carlingford Lough, Belfast Channels, Larne Lough, Lighthouse Island, Lower Lough Erne, Mew Island, Portmore Lough RSPB, Strangford Lough, Cockle Island, Green Island, and Belfast Lagan). The dashed line represents the Locally Weighted Least Squares Regression trend in productivity over time. The shaded region represents the 95% confidence interval around the trend. The total number of AON monitored per year is included in brackets under the year.



Roseate Tern

Sterna dougallii

Conservation status: Amber-listed in the BoCCI4 (2020–26), Red-listed in the BoCC5 (2021), EC Birds Directive – listed in Annex 1 and as a migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

Roseate Tern, by Sam Langlois / BTO

Overview

Synopsis: Roseate Terns are whiter than Common Terns and sometimes have a pinkish tinge, likely obtained from the carotenoid astaxanthin found in their diet (Hays et al. 2006). Roseate Terns were nearly hunted to extinction for the millenary trade in the 19th century; although they did recover in numbers during the 20th century, they are now the most range-restricted tern species in the UK with breeding occurring at only a few colonies (JNCC 2021).

UK population size, abundance and breeding success trends: In the Seabird 2000 (1998–2002) census only 56 AON were recorded, a decline of 83% from the previous census. However, the population is now showing some early signs of recovery and in 2018 there were 120 AON (Eaton et al. 2020). The Seabirds Count census (2015–21) has shown that the UK and Ireland population of Roseate Tern is increasing (Burnell et al. 2023). In Scotland, the main colony at the Firth of Forth appears to have been largely extirpated, partly due to competition for nesting sites with gulls, and now only single pairs appear in mixed tern colonies in Scotland (JNCC, 2021). The only colony in England, on Coquet Island, has had greater success, increasing during the last decade from under 40 AON to over 100 AON (JNCC 2021). It may have benefited from emigration from other sites, as well as the provision of nest sites and protection from predators (JNCC 2021). Declines in Roseate Terns in Wales may have been due to emigration to more suitable breeding sites in the Republic of Ireland, and only a single pair were recorded to have nested in 2018 (Eaton et al. 2020). The stronghold for the species within the British Isles is now in the east of the Republic of Ireland at Rockabill Island and Lady's Island Lake.

The breeding success of Roseate Terns in UK colonies has been moderate to high, probably due to increased conservation efforts. Since 2000, productivity has varied between approximately 0.40 and 0.80 chicks per pair per year (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: Historically Mew Island in the Copeland Group was one of the major sites for Roseate Tern in Ireland (Thompson 1851). However, the species ceased to breed in Northern Ireland around 1880 before apparently re-colonising in the first quarter of the 20th century (Deane 1954) and good numbers were again breeding on Mew by 1941 (Williamson et al. 1941) before rapidly decreasing to extinction on the island in the 1950s. Carlingford Lough formerly held a population of up to 40 AON in 1987. There was also a breeding colony in Strangford Lough up until the 1980s (Andrew Upton, pers. comm). Numbers of Roseate Terns were also highest in the late 1980s in Larne Lough but have clung on as a breeding species there since, albeit in very small numbers. Between the 1985–88 and the 1998–2002 censuses, the number of Roseate Terns in Northern Ireland declined by 94% from 62 to four AON.

Although only a single pair of Roseate Terns has nested in Northern Ireland in recent years. The species productivity in Northern Ireland between 1991 and 2019 was 0.68 chicks fledged per pair per year (JNCC 2021).

Abundance in 2023

In 2023, there was again a single pair at Larne Lough (Table 6, Appendix).

Breeding success in 2023

No breeding records were submitted for 2023. The pair at Larne Lough fledged one chick in 2022 (RSPB).

Arctic Tern

Sterna paradisaea

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – listed in Annex 1 and as a migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021).

Arctic Tern, by Liz Cutting / BTO

Overview

Synopsis: Similar in appearance to the Common Tern, but with a longer tail and without any black on the beak, the Arctic Tern is the commonest tern species in the UK. However, due to its more northerly distribution, it is less familiar to many than the Common Tern (JNCC 2021).

UK population size, abundance and breeding success trends: The UK population has fluctuated greatly since the 1960s. There was an apparent 50% increase in numbers between the 1969–70 and 1985–88 censuses, though there is uncertainty as to the true magnitude of this change due to questions of compatibility of methods between censuses. At the Seabird 2000 census (1998–2002), the population was estimated to be 53,380 AON, a decrease of 31% since 1985–88 (Mitchell et al. 2004). Annual SMP data indicated that 2020 numbers are similar to the 1986 baseline (JNCC 2021). The Seabirds Count census shows that the Arctic Tern population in UK and Ireland is declining (Burnell et al. 2023). Arctic Terns suffer the lowest breeding success of any seabird species in the UK, remaining below 0.30 chicks per pair in most years, potentially linked to prey shortages, extreme weather, and predation (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: In Northern Ireland the species is concentrated into just a few colonies including the Copeland Islands, Strangford Lough, Belfast Harbour, Bird Island, Green Island and Cockle Island. The population grew in the intervals between the previous censuses, rising by 257% between 1969–70 and 1985–88, and again by 78% to 767 AON by Seabird 2000 (1998–2002 JNCC, 2021). Seabird 2000 reported Arctic Tern numbers peaking in 2006 at 1,854 AON, which included counts of all major colonies. These numbers then declined again to 800 AON in Seabirds Count (Burnell et al. 2023).

Between 1991 and 2019, Arctic Tern breeding success in Northern Ireland was similar to that elsewhere in the UK, producing an average of 0.30 chicks per pair per year (JNCC 2021).

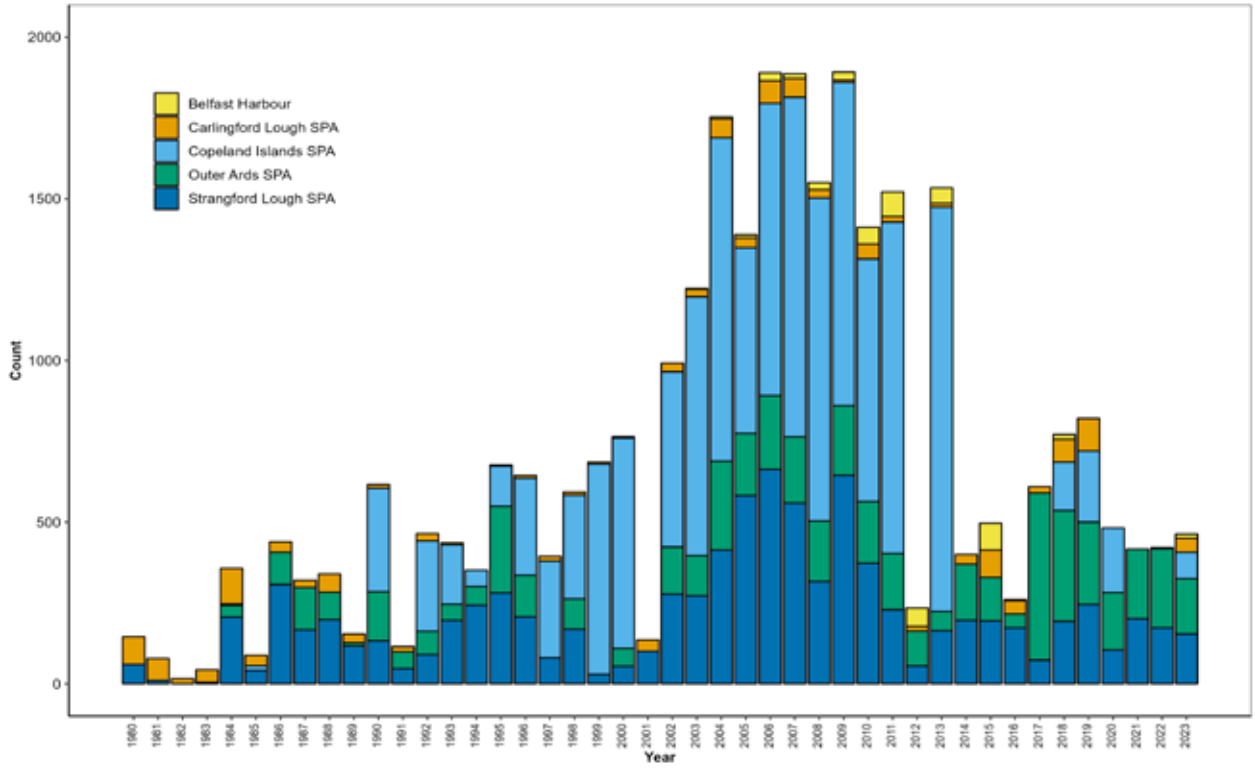
Abundance in 2023

Colonies of Arctic Terns around Northern Ireland are highly variable in their size year-to-year (Figure 17). In the last 25 years, the Copeland Islands and Strangford Lough have held the majority of breeding Arctic Terns in Northern Ireland. The colony at the Copeland Islands fluctuated between 600 and 1,250 AON between 2000 and 2013, but no full survey has taken place on all three islands since 2013 and it is thought that the breeding terns of the islands have largely moved elsewhere. During rare access to Big Copeland, approximately 200 Arctic Tern AON were estimated to be present in 2020 (Gareth Platt, pers. comm.), more than the estimate for the previous year (75 AON, Table 6, Appendix). In 2019, 150 individuals were present on Lighthouse Island, Copelands, and these experienced a complete breeding failure potentially due to high levels of predation from Jackdaws, *Corvus monedula* (Chris Acheson and David Galbraith, Copeland Bird Observatory, pers. comm.). No Arctic Terns nested on Lighthouse Island in 2021 (Katherine Booth Jones, Copeland Bird Observatory, pers. obs.). In 2023, an estimated 82 AON were present on the Copeland Islands (Table 6, Appendix).

Numbers present at Strangford Lough have declined in the past decade, falling from a high of 663 AON in 2006 (Figure 21). Numbers on the eight Strangford Lough island colonies declined further in 2023 to 154 AON (Table 6, Appendix). Although numbers of Arctic Terns were between 48 and 83 AON in Belfast Lough RSPB between 2010 and 2015, they have been much scarcer since, with no breeding pairs in 2020 or 2021 and 3 AON

in 2022. In 2023, the number of Arctic Terns at Belfast Lough increased to 13 AON (Table 6, Appendix). The Cockle Island, Outer Ards population has been particularly variable, having decreased to 171 AON in 2023 after increasing the two years prior. 43 Arctic Tern AON were counted at Carlingford Lough in 2023.

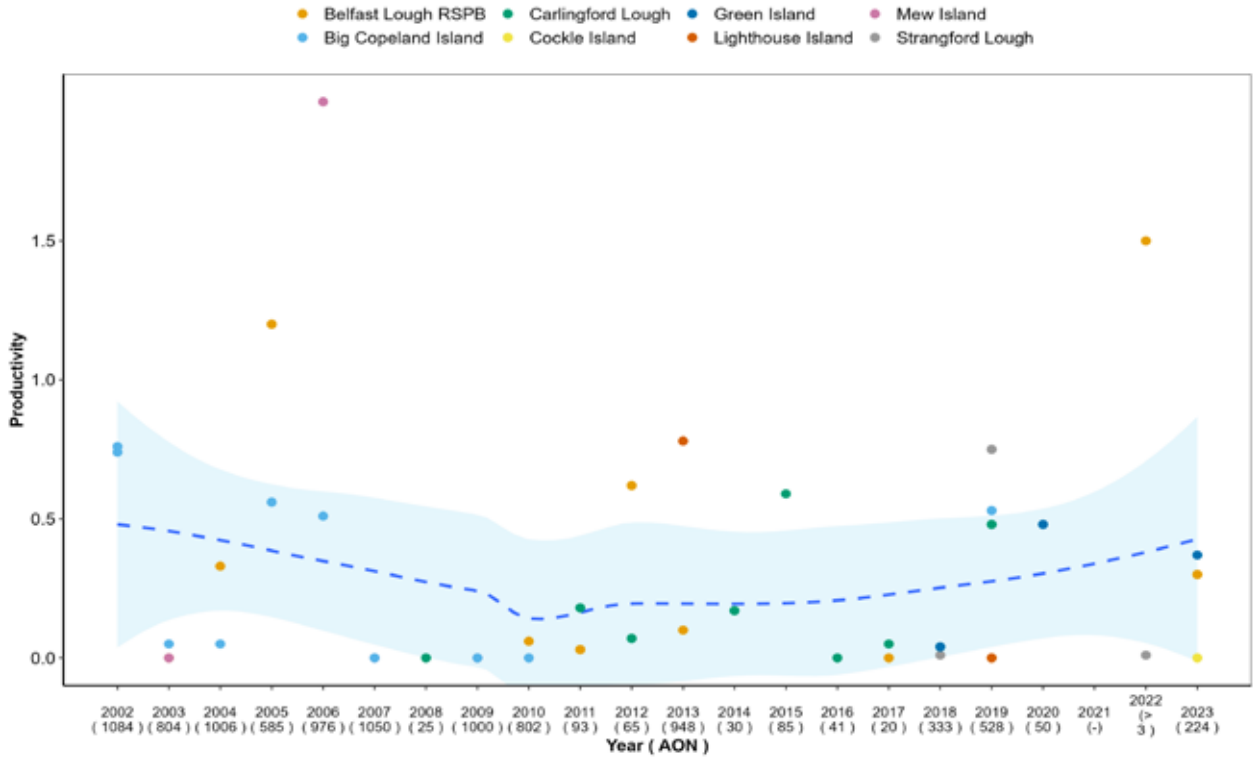
Figure 16: Cumulative Arctic Tern counts (AON) at Belfast Harbour, Carlingford Lough SPA, Outer Ards SPA, The Copeland Islands SPA and Strangford Lough SPA 1980–2023. Arctic Terns were not counted at Carlingford Lough in 2020 or 2021, and counts of 'Commic' terns in 2022 were also not included. The Copeland Islands consist of a group of three islands that have not been fully surveyed since 2013 and contain estimated numbers. The area filled represents the number of Arctic Tern pairs per year, and the colour represents the number in each site.



Breeding success in 2023

Eight sites have received some productivity monitoring effort since 1990, but few of these are regularly monitored. The last productivity data available for Larne Lough were collected in 1990 (zero fledged from 4 AON) and from Cockle Island in 1996 (50 fledged from 120 AON). In 2023, Strangford Lough, Green Island, Cockle Island, and the Belfast Lough RSPB reserve were monitored for productivity. Only 10 AON (out of a total of 13 AON) were followed in the Belfast Lough reserve, therefore the productivity figure of 0.30 chicks/AON (3 chicks fledged) is not very representative. Monitoring of Arctic Tern in Strangford Lough by National Trust found a near-complete breeding failure (for more information, see the Strangford Lough Seabird Monitoring Report, page 80), with only approximately 0.09 chick/AON. Green Island had a productivity of 0.37 chicks/AON and zero chicks were fledged at Cockle Island.

Figure 17: Arctic Tern productivity (chicks/AON) 2002–23 across eight sites in Northern Ireland (Belfast Lough RSPB, Big Copeland Island, Carlingford Lough, Green Island, Cockle Island, Lighthouse Island, Mew Island, and Strangford Lough). No data were available for 2020 and 2021. The dashed line represents the Locally Weighted Least Squares Regression trend in productivity over time. The shaded region represents the 95% confidence interval around the trend. The total number of AON monitored per year is included in brackets under the year, with unknown numbers denoted by a hyphen (-).



Guillemot

Uria aalge

Conservation status: Amber-listed in BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021).

Guillemots, by Philip Croft / bTO

Overview

Synopsis: The Guillemot is one of the most abundant seabirds in the northern hemisphere (JNCC 2021). Guillemots are extremely gregarious and colonies can contain many tens of thousands of individuals, and these very large populations occur both in the Atlantic and Pacific Oceans (JNCC 2021).

UK population size, abundance and breeding success trends: The most recent census (2015–21) shows that the UK and Ireland population of Common Guillemot has remained stable (Burnell et al. 2023). The UK and Ireland censuses in 2000 showed a large population increase compared to the previous survey, although some of this may have been due to better coverage and survey methods (JNCC 2021). Between the 1969–70 and 1998–2002 censuses, the numbers of individuals recorded rose from 611,281 to 1,416,334. The Seabird 2000 estimates put the population size at approximately 950,000 individuals (Mitchell et al. 2004, Woodward et al. 2020). Annual SMP data indicate that numbers in 2019 were 86% above the 1986 baseline, although it was noted that that figure should be treated with caution as the large number of smaller colonies included in the sample were likely to have had a disproportionate influence on the index (JNCC 2021).

The average breeding success of Guillemots in the UK between 1986 and 2002 was approximately 0.70 chicks per pair, but subsequently declined steeply until 2007. Recent years have seen a recovery in breeding success and in 2019, productivity was 0.62 chicks fledged per pair (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: In Northern Ireland the main colony is on Rathlin Island with smaller satellites at The Gobbins, Muck Island and at scattered cliff faces between Ballycastle and Portrush. Between the 1969–70 and 1985–88 censuses, the numbers of Guillemot appeared to remain stable, but had more than doubled to 98,546 individuals by Seabird 2000 (JNCC 2021). Following a 50% decrease between 1999 and 2007, numbers of Guillemots rose by 60% to 130,445 individuals in 2011, when the last full survey was undertaken of Rathlin (Allen et al. 2011). This made Rathlin the largest colony in the UK and Ireland. Seabird 2000 estimates of Guillemots population size in Northern Ireland are slightly lower, at 65,000 individuals (Mitchell et al. 2004, Woodward et al. 2020).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC 2021).

Abundance in 2023

Only one site was monitored for Guillemot in 2023: The Rathlin Island RSPB reserve. On Rathlin Island, the RSPB carry out annual comparative counts of study plots to monitor population levels. While no data were available for 2019 or 2020, in 2022 only 286 Guillemots were counted in the north cliffs study plot, compared to 592 AON in the plot in 2018. The total count on the Island decreased from 691 IND in 2022 to 630 IND in 2023 (Table 6, Appendix). A full census of Rathlin Island was carried out for MarPAMM in 2021 and found a total of 149,510 IND, which was an increase of 56% on the census of 1998–2002. Likewise, along the north Antrim coast between Runkerry and Murlough Guillemots increased by 57% to 981 IND in 2021 since the last census (Booth Jones et al. 2022).

Guillemot numbers at Muck Island for 2023 were not submitted to the database. Numbers of Guillemot at Muck Island, which has received continuous monitoring for this species since 2000, increased by 23% between

2021 and 2022 to 2,868 IND. This colony has had a generally positive trend in numbers since 2000, reaching a peak of 3,107 IND in 2020. While no surveying was carried out on The Gobbins in 2020 or 2021, in past years the trend at this neighbouring site has generally matched that seen on Muck Island (Table 6, Appendix).

Breeding success in 2023

No breeding success data have been collected for Guillemot since 2019, when a sample of 29 nests (not a formal Seabird Monitoring Programme plot) was monitored on Rathlin Island near the West Light, producing 19 jumplings (0.66 chicks/AON) (Else & Watson 2019).

Razorbill

Alca torda

Conservation status: Red-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Least Concern – IUCN Red List Europe (BirdLife International 2021), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

Razorbill, by Gary Clewley / BTO

Overview

Synopsis: The Razorbill is an auk of the North Atlantic and Arctic Ocean, breeding on both sides of the Atlantic. Razorbills nest on ledges with Guillemots and Kittiwakes, but also frequently in clefts, holes and under boulders.

UK population size, abundance and breeding success trends: Razorbill populations showed successive increases between the national censuses, though the population of 132,734 individuals recorded at the time of the first census in 1969–70 may have been underestimated because the small ledges they nest on can often be hidden from view, making them difficult to count (Mitchell et al. 2004, JNCC 2021). By Seabird 2000 (1998–2002), the estimated population size was 187,052 individuals, a 21% increase on the previous 1985–88 census. The latest Seabird 2000 estimates put the population size at approximately 165,000 (100,000–250,000) individuals (Mitchell et al. 2004, Woodward et al. 2020). The UK breeding abundance index was 195% above the 1986 baseline in 2019, although wide confidence intervals mean this apparent increase should be treated with caution (JNCC 2021). The most recent census (2015–21) confirms that the Razorbill UK and Ireland population is increasing (Burnell et al. 2023).

Productivity was stable from 1986 to 2001 but declined to 0.38 chick/pair in 2008. Productivity has increased since and an average of 0.63 Razorbill chicks were fledged per pair in 2019 (Miles et al. 2015).

Northern Ireland population size, abundance and breeding success trends: Between the 1969–70 and 1985–88 censuses, the numbers of Guillemot increased by 58%, and had more than doubled to 24,084 individuals by Seabird 2000 (JNCC 2021). In Northern Ireland the main colony is on Rathlin Island with smaller satellites at The Gobbins, Muck Island and at scattered cliff faces between Ballycastle and Portrush. The last full survey of Rathlin, in 2011, recorded 22,975 individuals (Allen et al. 2011), when it was the second largest colony of Razorbills in the UK at the time (JNCC 2021). Razorbills have been upgraded from Amber-listed to Red-listed in the latest Birds of Conservation Concern Ireland due to their increased European status (Gilbert et al. 2021).

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC 2021).

Abundance in 2023

Razorbills were only monitored at one site in 2023: The Rathlin Island RSPB reserve (Table 6, Appendix). In 2023, 136 Razorbills were recorded in the Rathlin Island RSPB reserve's north cliffs study plot (Table 6, Appendix). A full census of Rathlin Island and of the north Antrim coastline between Runkerry and Murlough occurred as part of the MarPAMM project in 2021 (Booth Jones, et al. 2022). These surveys found that Razorbills increased very slightly (by 7%) on Rathlin to 22,421 IND since the 1998–2002 census, but in contrast on the north coast stretch they declined by 70% to 582 IND.

Although numbers were not submitted in 2023, the number of Razorbills was at the highest level ever recorded on Muck Island in 2019 at 1,118 IND. Since then it has fallen, with numbers in 2022, 314 IND, their lowest since 2009. However, it should be noted that numbers of Razorbills in attendance at the colony can be subject to large fluctuations, as in some years, many birds may not breed. Numbers at the neighbouring colony at The Gobbins decreased by 23% between 2018 and 2019, to 679 IND (Table 6, Appendix), but no counts have been carried out since.

Breeding success in 2023

No productivity data were submitted for Razorbills in 2023. The RSPB Life RAFT team monitored 157 Razorbill AONs across five sub-sites and recorded productivity of 0.61 chicks/AON. In 2019 a sample of 17 AON (not a formal SMP plot) were monitored on Rathlin Island near the West Light, producing six successful fledglings (0.35 chicks/AON) chicks/AON) (Else & Watson 2019).

Black Guillemot

Cepphus grylle

Conservation status: Amber-listed in the BoCCI4 (2020–26), Amber-listed in the BoCC5 (2021), Least Concern – IUCN Red List Europe (BirdLife International 2021), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

Black Guillemot, by Sarah Kelman / BTO

Overview

Synopsis: The striking Black Guillemot (or Tystie) is a circumpolar auk which in the UK has historically been a predominantly Scottish species. They can be found around rocky shores and nest in natural or artificial crevices, making records of breeding pairs difficult. When Black Guillemots carry fish in their bills the way the fish point suggest that some individuals are right-handed, whilst some are left-handed (Ewins 1988).

UK population size, abundance and breeding success trends: There was insufficient coverage in the 1969–70 census to create a robust population estimate for Black Guillemot. Numbers appeared to remain stable between the 1985–88 census (37,745 individuals) and Seabird 2000 (38,714 individuals) (JNCC 2021). The Seabirds Count census (2015–2021) shows that the UK and Ireland population of Black Guillemot is stable (Burnell et al. 2023). The SMP abundance index for Black Guillemot is very uncertain, but appears to have been relatively stable at 50–75% below the 1986 baseline (JNCC 2021); the Seabird 2000 estimate puts the population at around 19,500 individuals (Mitchell et al. 2004, Woodward et al. 2020).

There was no statistically significant trend in Black Guillemot productivity at study sites (restricted to Orkney and Co. Down), which was on average 1.05 chicks per pair between 1986 and 2018 (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: Between the censuses in 1969–70 and 1985–88 Black Guillemot expanded their range in the Irish Sea, adopting the use of artificial structures such as harbour walls and jetties as nest sites. This is likely to have contributed to the 120% increase in Black Guillemots between the 1985–1988 and 1998–2002 censuses, to 1,174 individuals (JNCC 2021). However, in 2017 and 2018, colonies representing 80% of the population recorded during Seabird 2000 were surveyed, with a total of 879 individuals recorded. The 11% decline observed may indicate a change in fortune for Black Guillemot in Northern Ireland (JNCC 2021).

The breeding success of Black Guillemots in Northern Ireland is mostly monitored through a study colony in Bangor, Co. Down (Greenwood 2010, Leonard & Wolsey 2014). On average between 1986 and 2018 productivity was 0.98 chicks per nest (JNCC 2021).

Abundance in 2023

Monitoring effort for Black Guillemots was once again exceptional in 2023 (Table 6, Appendix), with 41 sub-sites surveyed by volunteers, RSPB, Ulster Wildlife and NIEA. A total of 822 Black Guillemots was counted around the coast in 2023, with the greatest concentrations found at Larne Lough (103 IND), Groomsport to Donaghadee (111 IND) and Belfast Harbour (115 IND). The 2023 counts at Larne and Groomsport to Donaghadee showed increases of 24% and 8%, respectively. In addition, a full survey of Belfast Harbour found 115 IND in 2023, the second highest count since 2015 (Table 6, Appendix). Although no numbers were submitted for 2023, the count of Black Guillemot AOS at Annalong was stable in 2022 (21 AOS), despite disruption to the colony and in-filling of nest holes caused by harbour restoration work.

Numbers recorded on Rathlin appear to have increased since last year, reaching a peak of 197 IND. In 2022, a series of counts were made around the White Cliffs at Knockans between late March and mid April, with an average of 158 IND and peak of 189 IND.

Notably, a survey of The Skerries in 2021 observed that there were 54 IND late in the season (June). While this is too late to get a good indication of the true number of breeders, it is a colony that has not been counted for the SMP in the past. This colony requires a boat to survey, and therefore has not been monitored since then.

Increases and decreases around the Northern Irish coastline do not appear to have a spatial pattern and therefore may be due to stochastic effects; overall total numbers counted between 2021 and 2023 appear to be fairly stable.

Breeding success in 2023

No sites were monitored for Black Guillemot breeding success in 2023.

Only Annalong was monitored for breeding success in 2022, surveys recording 10 chicks from 21 AOS (0.48 chicks/AOS, Marc Vinas and Jessica Koquert). The breeding success of this colony has been consistent between the years it has been monitored (2020, 0.50 chicks/AOS; 2021, 0.48 chicks/AOS), even though fewer nesting crevices were available to the 2022 colony due to ongoing harbour works. It is likely that sensitive installation of nest boxes such as those deployed in Bangor Marina would benefit the Annalong colony and provide alternative nesting areas to crevices blocked during the development of the harbour.

On Lighthouse Island in 2021, 24 AOS were followed to chick stage out of the total of 27 AOS. Although the ultimate fate of all of the chicks could not be monitored, 19 chicks were presumed to have fledged, giving an estimated productivity of 0.79 chicks/nest (Daniel Johnston/Katherine Booth Jones, BTO, and the Copeland Bird Observatory).

Puffin

Fratercula arctica

Conservation status: Red-listed in BoCCI4 (2020–26), Red-listed in the BoCC5 (2021), EC Birds Directive – migratory species, Endangered – IUCN Red List Europe (BirdLife International, 2021), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

Puffin, by Sam Langlois / BTO

Overview

Synopsis: The Puffin is the most iconic and well-loved of all North Atlantic seabirds. This is a secretive bird on land, nesting in burrows, and until recently relatively little was known about its pelagic lifestyle. The colourful beaks have been recorded carrying up to 83 small fish in one go (Robinson 2005).

UK population size, abundance and breeding success trends: Around 10% of the world population of Puffins breeds in the UK and Ireland, where it is the second most abundant breeding seabird (Mitchell et al. 2004). The UK population of Puffin increased by 13% between the 1969–70 and 1985–88 censuses, and by a further 19% to 580,714 AOB by Seabird 2000 (JNCC 2021). The most recent census (2015–21) shows that the UK and Ireland population is declining. Due to their burrow-nesting habits and often remote breeding sites, Puffins are a difficult species to monitor. Therefore, data collection is biassed towards smaller colonies and counts of individuals, rather than AOB. Counts of individuals can vary quite markedly between years compared to counts of apparently occupied burrows and this makes it impossible to generate a reliable breeding abundance index for the UK population (JNCC 2021).

The breeding success of Puffins has been variable throughout the recording period, declining from the 1990s to early 2000s before then rising again (JNCC 2021). More recently in 2019, average breeding success was 0.71 chicks per pair (JNCC 2021).

Northern Ireland population size, abundance and breeding success trends: Although there was an apparent increase of 86% in Puffin AOB between the 1969–70 and 1985–88 censuses, Puffins had declined by 40% to 1,610 AOB by Seabird 2000 (JNCC 2021). Due to their increased European status, Puffins have been upgraded from Amber-listed to Red-listed in the latest Birds of Conservation Concern Ireland report (Gilbert et al. 2021). The main colony in Northern Ireland is in Rathlin and it holds approximately 98% of the Northern Irish population. Small numbers also breed at The Gobbins and some are occasionally seen at Muck Island although breeding has not been confirmed. A conservation project on the Copeland Islands, using decoys and sound lures to attract birds, has resulted in a new colony with breeding confirmed in 2015 (Wolsey & Smyth 2017). This was a tremendous achievement and hopefully the start of a viable colony, proof that the use of sound lures and decoys can work for this species without the need for translocations.

The collection of productivity data in Northern Ireland has been limited; therefore productivity estimates cannot be modelled at the regional-level (JNCC 2021).

Abundance in 2023

No Puffins were observed at Muck Island again this year, and 1 AOB recorded in the Rathlin Island RSPB reserve (Table 6, Appendix). The full census of Rathlin for MarPAMM in 2021 revealed a count of 407 IND, which represented a decline of 74% since the 1998–2002 census. However, it must be noted that all censuses of Puffin on Rathlin Island are made later in the season than recommended (Walsh et al. 1995) due to the logistical difficulty of surveys, and therefore may not closely indicate the true size of the breeding population (Booth Jones et al. 2022). MarPAMM surveys also recorded 2 IND at Sheep Island in 2021.

Puffins continued to be present in encouraging numbers at Lighthouse Island, Copeland Islands, where 25

IND were counted in May 2023 (Table 6, Appendix). In 2022, the area of potential AOB, while not currently monitored, appeared to have expanded outside the traditionally used area on the island (Katherine Booth Jones, Copeland Bird Observatory, pers. obs.).

In 2019, a peak count of 54 individuals was recorded at The Gobbins, in the same range as counts during 2013–18 (Table 6, Appendix), however this site has not been counted since.

Breeding success in 2023

No breeding success data were was submitted for Puffins in 2023.

In 2022, Puffin nests were monitored by the RSPB Life RAFT team on Rathlin across three sub-sites, finding breeding success to be 0.47 across 131 AOB.

The Puffin colony on Lighthouse Island is not yet monitored for breeding success, but Puffins continue to be observed bringing prey back to the colony, confirming breeding (Copeland Bird Observatory, pers. comm.).

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HPAI in Northern Ireland seabirds 2023

Ronan Owens

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Beached Gannet, by Ronan Owens

Highly Pathogenic Avian Influenza (HPAI) in Northern Ireland's wild birds resulted in significant seabird mortalities in both 2022 and 2023. HPAI clearly poses a serious threat to the conservation of our seabirds, most of which already have a conservation status of Amber or Red in the most recent UK and Ireland Birds of Conservation Concern assessments. Responding to HPAI requires the collaboration of all stakeholders with a role in, or an interest in the conservation of our seabirds.

Many seabird enthusiasts and regular readers of the *Northern Ireland Seabird Report* will be aware of the effects that avian influenza (HPAI) (or bird flu) had on seabirds in Northern Ireland (NI) in 2022 (Else and Watson 2022, Gray 2023). Many of you will also be aware that unfortunately HPAI affected our breeding seabirds in 2023. Many of our seabird colonies are nationally or internationally important due to the numbers that they support and as result, the most important sites are legally protected and designated as Areas of Special Scientific Interest (ASSIs) or Special Protection Areas (SPAs). The fact that many seabirds are long-lived birds with low productivity, and are already facing threats such as climate change, means that significant mortalities due to HPAI can have long-term consequences for their populations.

Testing for HPAI in wild birds in Northern Ireland is undertaken by the Agri-Food and BioSciences Institute (AFBI) under the Department of Agriculture, Environment and Rural Affairs (DAERA) AI wild bird surveillance programme. The DAERA AI Map Viewer website available here: www.daera-ni.gov.uk/services/avian-influenza-map-viewer allows the public to view the records of dead wild birds which have been reported to DAERA and collected and tested for AI. The start of the current HPAI outbreak in NI was indicated during winter 2021–22 by H5N1 HPAI positive cases in unspecified swans, unspecified geese, and a Buzzard *Buteo buteo* (Figure 1). The current highly infectious variant of HPAI H5N1, has shown that it can spread rapidly and result in mass mortalities, particularly when birds are in close proximity, such is the case with colonial nesting seabirds.

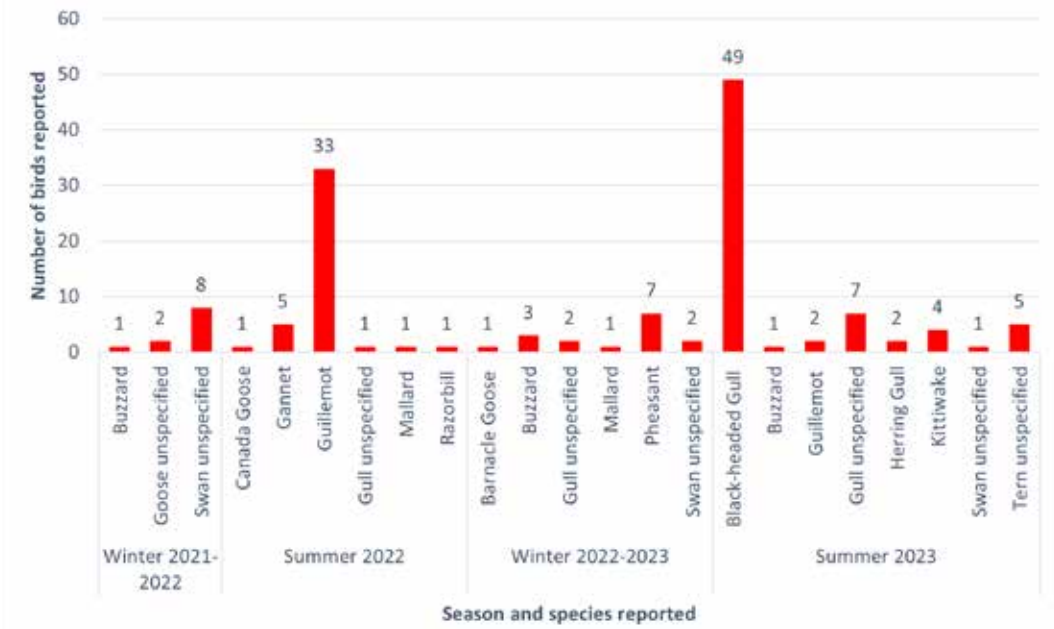
HPAI in wild birds has resulted in unparalleled excess mortality in bird populations since 2021. Pearce-Higgins et al. (2023) reported that "since October 2021, there has been an unprecedented outbreak of HPAI of the subtype H5N1 in wild birds, initially in wintering waterbirds and then in breeding seabirds and other species, including raptors." The impacts of HPAI have been described as 'unprecedented' due to several factors. These include the settings and seasons for outbreaks, the number and types of affected species, the scale of the mortality, the geographical spread, the conservation implications, the involvement of wild and farmed mammals and the risk to human health (CMS and FAO 2023).

The Guardian (2023) reported that at least 50,000 wild birds died in the UK due to AI from October 2021 to the start of April 2023. In NI a comparatively smaller but still significant, number of wild bird mortalities was recorded over this period (550), with most being seabirds during summer 2022. Overall, these numbers are still considered to be underestimates due to the difficulties associated with recording wild bird mortality i.e., inaccessible sites, carcasses not detected, scavenging of carcasses and mortalities in inland waterbodies or at sea.

Twelve bird species have now been confirmed positive for the H5N1 HPAI virus in Northern Ireland since the winter of 2021–2022 to the end of 2023, including Barnacle Goose *Branta leucopsis*, Black-headed Gull, Buzzard, Common Tern, Canada Goose *Branta canadensis*, Gannet *Morus bassanus*, Guillemot, Herring Gull, Kittiwake, Mallard *Anas platyrhynchos*, Pheasant *Phasianus colchicus* and Razorbill (Figure 1). The largest number of confirmed HPAI mortalities since the outbreak began in 2021 have been in Black-headed Gulls, Guillemots, unspecified swans

and unspecified gulls. Figure 1 illustrates that the HPAI wave during summer 2022 was responsible for majority of the Guillemot confirmed HPAI mortalities, while the HPAI wave during summer 2023 was responsible for the majority of the Black-headed Gull confirmed HPAI mortalities. Confirmed HPAI mortalities in Northern Ireland now involves raptors, wildfowl, gulls, auks, gannets, pheasants and terns.

Figure 1. Species which tested positive for the H5N1 HPAI virus in Northern Ireland from winter 2021–22 to summer 2023. Data: DAERA Avian Influenza Map Viewer.



During the first (2021–22) and second (2022–23) winters of the current HPAI outbreak in NI there were lower numbers of both HPAI positive cases and reports of dead birds, and no large mortality events were reported. In winter 2022–23, DAERA reported H5N1 HPAI positive cases in Pheasants, Buzzards, unspecified swans, unspecified gulls, Mallard and Barnacle Goose (Figure 1). Four species were confirmed positive for HPAI, including for the first time, in Pheasant and Barnacle Goose. HPAI was confirmed in wildfowl, raptors, gulls, auks, pheasants.

Following on from severe impacts in summer 2022, HPAI again caused significant impacts on colonial nesting seabirds in summer 2023 (Table 1). This summer a HPAI outbreak occurred earlier in the season (late May) and resulted in severe impacts on Black-headed Gulls. By mid June, more than 200 dead Black-headed Gulls were reported from the RSPB Belfast Window on Wildlife (WoW) nature reserve, Belfast Harbour (BTO, 2023a). HPAI incursion in several mixed Black-headed Gull and tern colonies resulted in large mortalities (Table 1), following earlier outbreaks in Black-headed Gull and tern colonies in England and Wales which resulted in mass mortalities (BTO 2023a, BTO 2023b).

DAERA reported H5N1 HPAI positive cases in Black-headed Gulls (49 – including one mass mortality event relating to 27 dead), unspecified gulls (7), unspecified terns (5), Kittiwakes (4), Guillemots (2), Herring Gulls (2), a Buzzard (1) and an unspecified swan (1) (Figure 1). Five different species were confirmed positive for HPAI. This season was the first time that HPAI was confirmed in Black-headed Gulls, Herring Gulls, and Kittiwakes, as well as in terns. This season HPAI was confirmed in gulls, raptors, auks, wildfowl, terns. More dead Black-headed Gulls (52), unspecified gulls (31), Kittiwakes (one mass mortality event relating to 20 dead), Common Terns Sterna hirundo, Guillemots and unspecified swans were also reported to DAERA between May and July, but these were not collected for testing. Some of the reasons why carcasses were not collected for testing include reports from inaccessible sites, carcasses in poor condition not suitable for testing, and scavenging of carcasses between reporting and collection or where a positive case of HPAI had already been recorded in the area. Many beached seabirds were again reported to DAERA from the Northern Ireland coastline including from Tyrella and White Park Bay in July (Table 1). DAERA reported H5N1 HPAI positive cases in Fox *Vulpes vulpes* cubs (2) collected from the north coast. This was the first time the virus was found in wild mammals in Northern Ireland. Exposure of the Foxes to the virus was possibly through consumption of dead or infected wild birds.

Table 1. Reports of unusually high mortalities in Northern Ireland's seabirds and associated sites which had samples of carcasses confirmed positive for H5N1 HPAI in summer 2023.

Site/s	Part of, or nearest protected site	First date unusual mortality detected	Date or period of mortality records	Species and total number of mortalities	H5N1 HPAI results	Data source
RSPB Belfast Window on Wildlife nature reserve	Belfast Lough SPA	27/05/2023	23/05/2023 – 01/07/2023	Black-headed Gull: 312 including 50 chicks	Positive on 06/06/2023. 5 samples collected 01/06/2023	Epicollect; DAERA AI Map Viewer
				Common Tern: 30	No samples collected.	
Ballyronan	Lough Neagh & Lough Beg SPA	31/05/2023	31/05/2023	Black-headed Gull: 1	Positive on 06/06/2023. 1 sample collected 31/05/2023.	DAERA AI Map Viewer
Derrywarragh Island	Lough Neagh & Lough Beg SPA	04/06/2023	04/06/2023	Black-headed Gull: 3	Positive on 06/06/2023. 3 samples collected 04/06/2023.	DAERA AI Map Viewer
Torpedo Platform, Antrim	Lough Neagh & Lough Beg SPA	09/06/2023	09/06/2023	Black-headed Gull: 12 chicks	No samples collected.	Epicollect
Portmore Lough	Lough Neagh & Lough Beg SPA	12/06/2023	12/06/2023	Black-headed Gull: 4	No samples collected.	DAERA AI Map Viewer
Croaghan Island	Lough Neagh & Lough Beg SPA	15/06/2023	15/06/2023	Common Tern: 14	No samples collected.	Epicollect; DAERA AI Map Viewer
Stewartstown	Lough Neagh & Lough Beg SPA	16/06/2023	16/06/2023	Black-headed Gull: 1	Positive on 16/06/2023. 1 sample collected 16/06/2023.	DAERA AI Map Viewer
Blue Circle Island	Larne Lough SPA	15/06/2023	15/06/2023	Black-headed Gull: 120 including 100 chicks	No samples collected.	Epicollect (120); DAERA AI Map Viewer (20)
Larne	Larne Lough SPA	16/06/2023	16/06/2023 – 22/06/2023	Black-headed Gull: 10	No samples collected.	DAERA AI Map Viewer
		22/06/2023	16/06/2023 – 22/06/2023	Black-headed Gull: 6	Positive on 03/07/2023. 6 samples collected 22/06/2023	
Ballygally, Co. Antrim	–	24/06/2023	24/06/2023 – 10/07/2023	Black-headed Gull: 29	No samples collected.	Epicollect
		10/07/2023	24/06/2023 – 10/07/2023	Black-headed Gull: 15	No samples collected.	DAERA AI Map Viewer
Castle Espie Nature Reserve	Strangford Lough SPA	30/05/2023	30/05/2023 – 09/08/2023	Black-headed Gull: 57 (Epicollect)	Positive on 06/06/2023. 5 samples collected 01/06/2023.	Epicollect; DAERA AI Map Viewer

Site/s	Part of, or nearest protected site	First date unusual mortality detected	Date or period of mortality records	Species and total number of mortalities	H5N1 HPAI results	Data source
Cockle Island, Co. Down	Outer Ards SPA	15/06/2023	15/06/2023 – 29/06/2023	Common Tern: 17	Positive on 01/07/2023. 3 Common Terns collected 29/06/2023.	Epicollect; DAERA AI Map Viewer
RSPB Rathlin West Light Centre	Rathlin Island SPA	10/07/2023	10/07/2023 – 03/08/2023	Auk spp.: 73 chicks	No samples collected.	Epicollect; DAERA AI Map Viewer (13 not collected 7/07/2023)
RSPB Rathlin West Light Centre, East Lighthouse, West Lighthouse, Rue Point, Arkill Bay, Brockley, Kebble and Kinramer Nature Reserve, Harbour	Rathlin Island SPA	10/07/2023	10/07/2023 – 03/08/2023	Kittiwake: 129 including 22 chicks	Positive on 20/07/2023. 3 samples collected 17/07/2023.	Epicollect (129); DAERA AI Map Viewer (20 not collected 7/07/2023)
Tyrella, Co. Down	–	15/07/2023		Guillemot: 12	No samples collected.	DAERA AI Map Viewer
White Park Bay, Co. Antrim	–	25/07/2023	25/07/2023 – 31/07/2023	Kittiwake: 28	No samples collected.	Epicollect
				Guillemot: 37 including 12 chicks	No samples collected.	
				Herring Gull: 3	No samples collected.	
				Razorbill: 2	No samples collected.	

From the conclusion of the 2023 breeding seabird season and so far, during winter 2023/24, there have been no HPAI positive cases and lower numbers of reports of dead birds. The most recent HPAI case in Northern Ireland at the timing of writing (31 January 2024), was reported in an unspecified swan on 15 September 2023.

NI's breeding seabirds have been significantly impacted during this HPAI outbreak with high levels of seabird mortality recorded during both 2022 and 2023 (Figure 1 and Table 1). The dynamics of the virus appeared to shift in 2023. Incursion of HPAI in seabirds and unusually high mortality effects were detected approximately one month earlier in the breeding season compared with 2022. HPAI also affected species in 2023 which were not as significantly impacted in 2022. Incursion of HPAI in 2023 resulted in significant impacts at Black-headed Gull colonies (Table 1). Guillemots were hit hardest by HPAI in Northern Ireland in 2022, with the highest number of recorded mortalities. In 2022 HPAI incursion appeared to be responsible for severe impacts in NI on Rathlin Island's Guillemots in late June (23–29 June) (Else & Watson, 2022) with H5N1 HPAI confirmed in Guillemots on 7 July. In 2023 evidence for HPAI incursion and significant impacts in NI was first indicated by mass mortality of Black-headed Gulls at RSPB Belfast WoW (BTO, 2023a) in late May (27 May) (Table 1). H5N1 HPAI was confirmed in Black-headed Gulls collected from RSPB Belfast WoW on 6 June.

Some useful developments in relation to HPAI occurred in NI in 2023. More cross-sector communication took place and improvements were made to the surveillance and monitoring of HPAI impacts on wild birds. The

Northern Ireland Environment Agency (NIEA) hosted regular 'HPAI Meetings' with wild bird stakeholders (including Non-Governmental Organisations (NGOs)) weekly from June until August, and fortnightly until mid October. BTO HPAI Forum meetings involving UK and Ireland Statutory Nature Conservation Bodies (SNCBs), NGOs and other government bodies, continued from 2022. These meetings were initiated by the BTO in response to the HPAI outbreak in 2022. The frequency of meetings was adjusted in response to how the impact of HPAI evolved throughout 2022 and 2023. There are now efficient online systems in place for the public to report dead birds to DAERA for AI surveillance purposes (DAERA online reporting), and also to collect more details on outbreaks to inform HPAI conservation impacts (BirdTrack and Epicollect).

NIEA produced a guidance document entitled 'HPAI in Wild Birds: Guidance for Site Managers in Northern Ireland' (NIEA, 2023) in June 2023. The guidance is primarily for NGO Site Managers (including wardens and rangers) responsible for managing nature reserves, to provide practical guidance when dealing with HPAI on their site/s.

Reporting dead birds to the DAERA AI wild bird surveillance programme

DAERA introduced a dead wild bird reporting tool in July 2023. Reports can now be submitted by the public 24 hours a day seven days a week. The online reporting tool replaced the Helpline for the reporting of dead birds to DAERA's HPAI wild bird surveillance programme. DAERA collects dead birds for surveillance purposes to help understand if and when the virus is present and how it is distributed geographically. Once HPAI has been confirmed through a positive test in a specific area, further testing of carcasses in that location is not undertaken and therefore, in relation to mass mortality events, not all carcasses will be collected for testing (DAERA, 2023a).

If you find a dead bird, you should not touch or handle the carcass but leave it in situ and take immediate action to report it to DAERA, using the online reporting tool available here: www.daera-ni.gov.uk/services/daera-dead-wild-bird-online-reporting-tool. The sooner the dead bird/s is reported the better, as fresh carcasses are most suitable for testing. Reports are assessed by DAERA's VSAHG who decide whether to collect and sample the carcass/es for HPAI.

Additional mortality reporting to inform HPAI impacts on bird populations

The key message is if you come across dead birds to immediately report using the DAERA online reporting tool. While reporting dead birds to DAERA is essential for AI surveillance, the system is not aimed towards collecting information about the total numbers of birds that have died at an outbreak site or if ongoing mortality occurs on site. DAERA will only collect a sample of carcasses in any mass mortality event. The surveillance programme does not collect the additional information required to quantify the impacts of HPAI on bird populations. The CMS and FAO (2023) have stated that impacts of HPAI on wild bird populations remain poorly understood due to poor quality of data surrounding outbreaks.

This is why we are asking those who can confidently identify bird species, to also report the numbers of dead or sick birds they see to either the BirdTrack, Wetland Bird Survey (WeBS) or Epicollect (Site Managers and others) online systems.

BTO's BirdTrack (www.birdtrack.net) is used by many birders across the UK and Ireland to record their bird sightings. As well as recording the 'live' birds, BirdTrack users can also record sightings of dead and sick birds.

The WeBS (www.bto.org/webs) is the principal scheme for monitoring the wintering waterbird populations across the UK. If you are conducting a WeBS count, you can also record any dead or sick birds you see, along with your WeBS survey data.

NIEA introduced the Epicollect 'Wild bird mortality project' in NI in February, with the aim of collecting accurate wild bird mortality information from our most important seabird colonies and waterbird sites. Epicollect is a joint collaborative project between the SNCBs for England (Natural England), Wales (Natural Resources Wales) and Northern Ireland (NIEA). It is a free and easy-to-use mobile data-gathering platform (website and smartphone App). During the HPAI outbreak in 2022 it became apparent that the collection of accurate and detailed bird mortality data was insufficient to inform population level impacts on birds.

Epicollect functions like a network across Northern Ireland. Key sites at risk of HPAI incursion have at least one person listed on Epicollect, who if they happen to encounter a dead bird and have reported the carcass to DAERA, can record more details on site level mortality data in Epicollect. All users can visualise mortality data in real-time online. This means that everyone on the system be informed about the impact and spread of any HPAI incursion. Unusual mortalities can be highlighted, and this facilitates early warning of any HPAI outbreak.

In many of the dead bird records in these additional mortality reporting systems however, we do not know if these carcasses have been also reported to the DAERA online reporting tool. We would ask anyone additionally recording dead birds in these systems, to also note in the online 'comments' fields if the birds have been reported to DAERA.

If you encounter a dead bird with a leg ring/s or other markers, and you wish to read the ring number, you could use a stick to reposition the body into a position that allows the ring to be read or photographed. The details of the ring should be reported to the BTO Euring website, available here: https://app.bto.org/euring/lang/pages/rings.jsp. Bird ringing provides extremely valuable information about bird populations and their movements. Any dead birds with rings should be immediately reported to the DAERA online reporting tool and recorded in BirdTrack or Epicollect.

Reporting dead birds to DAERA's AI surveillance programme and recording additional mortality information to BirdTrack or Epicollect was invaluable in 2023. All of these data are now helping to provide much more detail on the impact of HPAI on wild birds than we have ever had before. The combination of reports to the surveillance scheme and the additional monitoring information is providing greater intelligence on both wild bird mortalities and the spread and impact of HPAI.

Please be alert for the presence of dead birds if you are undertaking seabird monitoring in 2024 (or any other surveys) and when you are out and about, or on walks along beaches. New HPAI cases can occur at any time, especially since the virus has shown itself to be extremely unpredictable. It is important therefore to remain vigilant and we rely on your support and assistance in reporting any dead birds.

Acknowledgements

Many thanks to all of those who reported sightings of dead birds to DAERA, and to those who added additional information into BirdTrack or Epicollect. Thanks to Site Managers and others who supported the collection of additional mortality data through Epicollect in 2023 and we hope that you can support the collection of data through this system in 2024. Finally, thanks to all stakeholders for your collaboration and partnership as we have worked together to respond to HPAI.

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Further sources of information

BTO Avian influenza website: www.bto.org/understanding-birds/avian-influenza

BTO HPAI Ringing Framework: www.bto.org/hpai-ringing-framework

DAERA Avian Influenza: www.daera-ni.gov.uk/ai

DAERA Wild Birds and Advice for the Public: www.daera-ni.gov.uk/articles/wild-birds-and-advice-public

If you have any further questions relating to AI in wild birds, please email NIEA at: BCSGeneral@daera-ni.gov.uk

Copeland gull censuses

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Introduction

Copeland Bird Observatory (CBO) is the only bird observatory in Northern Ireland and boasts an excellent assemblage of breeding seabirds. The bird that graces our logo – the Manx Shearwater – is often the focus of work on the island given that CBO, along with a smaller colony on the nearby Big Copeland Island, are home to the only Manx Shearwater colonies in Northern Ireland, with several thousand nesting birds on CBO alone every year. But the island also hosts small numbers of breeding Fulmar, in addition to Arctic Terns (sporadically), Eiders, Black Guillemot (~70 IND), as well as the newly arrived Puffins.

However, we are not here today to talk about any of those birds. Today we are talking about gulls! The gulls on CBO often get overlooked in amongst all the other wonderful attractions of the island but CBO boasts one of the biggest mixed gull colonies in Northern Ireland. The biggest chunk of this is the Lesser Black-backed and Herring Gulls, though there are also a small number of breeding Common Gull (~15 AON). After a massive decline in numbers due to the botulism outbreaks in the late 1980s, the numbers of gulls on the island have gradually built up over the last few decades, though they have not yet built back up to the thousands that they used to number. The Seabird Colony Register (SCR) carried out from 1985–88 recorded 4,000 Herring Gull AON on Lighthouse Island and Mew (with another 3,000 AON on Big Copeland Island).

In 2018, CBO started what would become our annual gull census of Lighthouse Island in order to track the fortunes of our gull colony. While we ringed a number of gulls most years, it was sporadic and not focused or targeted in any way. Censusing of the gulls had also been carried out at certain points in the past, the last one being in 2012, but an annual census is a much more powerful and robust monitoring tool as it allows us to determine if there are any big changes in the population, positively or negatively, much more quickly and accurately. It has also proved fortunate given the recent impacts of Highly Pathogenic Avian Influenza (HPAI) on gull populations in the UK.

CBO is a volunteer organisation and this census is no different with a group of volunteers coming out each year to carry out the survey. We are lucky to have a keen set of volunteers who are always enthusiastic to help out with the survey. Every year we have a great mix of experienced volunteers and new folk keen to learn a new skill and help out the Observatory. We have been able to run the census every year since we started in 2018 apart from in 2020 due to COVID-19 restrictions at the time.

Methods

We carry out the census in the second or third weekend in May as this is when the majority of egg laying has finished. The recommended census unit is an apparently occupied nest (AON), i.e. a well-constructed nest, attended by an adult and capable of holding eggs.

The methodology for the census uses Census Method 3 from the 'Gulls' chapter of *Seabird Monitoring Handbook for Britain and Ireland* by Walsh et al. (1995) which sounds complicated but is actually pretty straightforward. Prior to the survey, we count out a known quantity of pasta pieces (usually between 1,500 – 2,000 with the total number being based on the number of birds counted in the previous census plus some extra) and then split these into small bags with 100 pieces in each. We have become pasta afficionados over the years and we have found that pasta such as penne is best. We used fusilli one year but it tends to break into small pieces and it made an accurate count more difficult. Penne holds its shape and rarely breaks.

Once out on the island, we start at the north end of the gull colony. Surveyors spread out in a transect line from the rocky shore up to the vegetated slopes and move around the circumference of the island from one end to another, staying in a rough line the whole way. Each surveyor carries one of the bags of pasta and when they come across a gull nest, a piece of pasta is placed in it. This marks the nest as counted, so double counting a nest is unlikely and the pasta is biodegradable so we don't need to worry about retrieving them. The gulls often pick the piece of pasta out of the nest and throw it away when they return anyway.

It is impossible to differentiate between Lesser Black-backed and Herring Gull eggs with any degree of accuracy so they are not counted separately. We do come across the odd Common Gull nest which can be identified by their smaller eggs. These nests are not counted as part of this census. We also tend to encounter our breeding Eider during the survey as they like to nest in amongst the bracken. If we can catch the female on the nest, she will be ringed (or her ring read if she is already ringed) and released where she will often just walk back to her nest. Sometimes she doesn't even budge and we can extract a leg to process her. The grid reference of the nest location is noted too for our records.

While this census method sounds like it would cause a lot of disturbance, in practise, we have found that the disturbance level overall is low. Due to the number of volunteers, we are able to cover an area quite quickly and the birds settle back down on their nests fairly swiftly after we have passed. We have observed no negative effects from the census thus far.

The census takes about 2–2.5 hours and once it is over and the whole colony has been covered, we tally up how much pasta is left over. Once that is subtracted from the known total at the start, we arrive at our total number of gulls for the year.

As noted above, the eggs of the two species cannot be differentiated. In order to get an estimate for the ratio between the two species, we carry out several point counts of attending adults at various spots in the colony which allows us to derive a ratio which we then apply to the total.

Results and Discussion

We have learned some lessons over the years. We have found that getting between 15 and 20 people to do the census generally strikes the right balance between sufficient coverage, duration of census and limiting disturbance to the colony as much as possible. Standardising effort is also important to ensure we are getting an accurate and comparable count each year. In Table 1, it can be seen that the numbers of gulls counted jumps a lot between 2018–21 and 2022–23, particularly for Lesser Black-backed Gulls, and this is likely largely because of the increased numbers of surveyors in those years. This can be seen especially for the Lesser Black-backed Gulls who often nest up on the bracken covered slopes which can be hard to survey without sufficient coverage. Nests tend to be more dispersed compared to the density around the much more open and easily surveyed (apart from all the clambering about required!) rocky coastline.

Table 1 – Results of the annual CBO gull census.

Year	No. Surveyors	Lesser Black-backed Gull	Herring Gull	Total
2018	? (~10)	365	483	848
2019	9	547	483	1,030
2020	-	-	-	-
2021	9	390	585	975
2022	20	602	680	1,282
2023	16	683	869	1,552

With HPAI looming large the last two years, our annual census has proved particularly fortunate in a number of ways. While we have not seen any signs of gull sickness or mortality on the island during the course of the Observatory season, this does not mean we would be safe from impacts. We have been making a particular effort to monitor the gull colony the last two years with regards to HPAI but the Observatory is not manned all the time, mostly on weekends with the occasional week long trips. Even when it is manned, it might be that the gull colony is not visited to any great extent for whatever reason during a particular weekend. So, while it is unlikely, if there was mortality or sickness, it could be missed. Additionally, our gulls tend to move around in the winter, particularly with the Lesser Black-backed Gulls heading off on their migration. So, it is possible

that there could be HPAI impacts during this period which we would not see. Having a robust abundance estimate for our breeding gulls the past few years allows us to compare numbers across time and see if HPAI was a factor in any changes. If we did not have that past data, it would be much more difficult to compare current levels with any certainty.

Without the support of our volunteers, it would be very difficult to carry out the annual census so we are incredibly grateful for their help every year and we hope it continues on into the future. In terms of our future goals, we obviously hope to continue on with our survey of Lighthouse Island and we may look into the viability of censusing Mew Island. Mew is visited periodically by CBO but mostly to run our annual Eider ringing trip but it hosts its own impressive mixed gull colony.

CBO Gull Census Volunteers 2023. Credit - Copeland Bird Observatory

If anyone would like to help out with the survey or even just to visit our beautiful island, please get in touch. We love to see new faces! Visit www.thecbo.org.uk for more information.

Also, and in conclusion, I just want to give a quick plug for our new gull colour ringing project which we started in the summer of 2023 in order to study our Lesser Black-backed and Herring Gulls further.

Our rings are orange with three numbers followed by a ':C', for example – '028:C'. If you spot any of our colour ringed birds please report their ring number, location and any other information to CopelandBirds@outlook.com

Beyond the horizon: technological advances shape long-term tracking of Manx Shearwaters

Patrick Lewin

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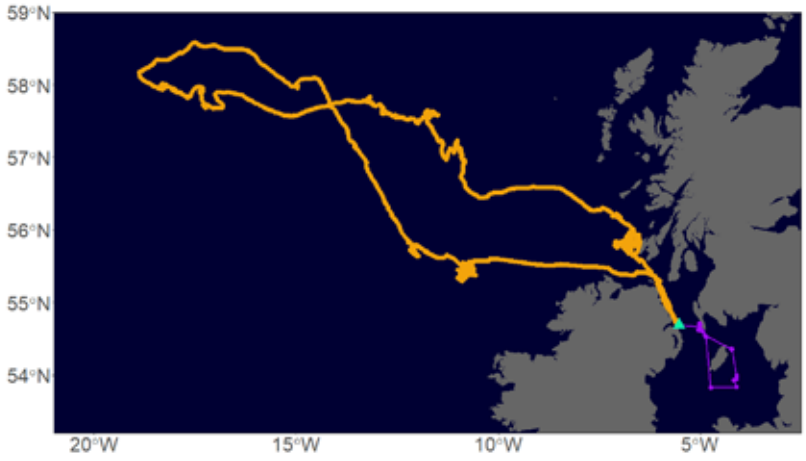
Manx Shearwater, by Liz Cutting / BTO

Before my PhD, my entire experience of Manx Shearwaters consisted of distant flashes of black and silver seen through a shaky scope. At the time, I couldn't have imagined that the world of the shearwater extended thousands of miles beyond my horizon. But the Copeland Islands changed that. Lighthouse Island is home to around 4,000 pairs of shearwaters and it also plays host to the Copeland Bird Observatory (CBO). Observatory members have ringed thousands of shearwaters every year since, so each bird can be identified and matched to its history, which often includes the year and area of the colony in which it hatched. Through this decades-long effort, the volunteers have accrued an enormous body of knowledge about shearwaters and how to study them. By comparison, our research group, OxNav, are relative newcomers to the island. It's the ongoing effort and unceasing support from CBO which makes it a uniquely valuable place to study these birds.

Tim Guilford, one of my supervisors, started working on shearwaters in 2004 and first came to the Copelands in 2007. Over the previous decade, he'd worked on homing pigeons, developing the use of bird-borne GPS tracking devices to investigate how the pigeons find their way back to their home loft. When Chris Perrins, a stalwart of shearwater research since the 1960s, persuaded Tim to collaborate on deploying these trackers on breeding adult Manx Shearwaters, they had no idea of the secret life of shearwaters they'd unlock, nor that we'd still be enthralled by this species and its ocean wanderings almost two decades later.

Figure 1: GPS tracking of Manx Shearwaters has come a long way since the first devices were deployed on Lighthouse Island in 2007. The track from 2023 (in orange, recorded with SnapperGPS: https://snapper-gps.herokuapp.com contains more than ten times as many locations as the track from 2007 (purple, recorded with a homemade tracker).



The earliest GPS devices were home-made and recorded locations every two hours for less than two days – when you look at those early tracks, they look threadbare. Even so, they revealed that birds from Skomer Island in Wales might forage as far afield as Cork and Belfast (Guilford et al. 2008).

Since 2007, our group has collected GPS data from adult shearwaters on Lighthouse Island every year. After a decade, this really started to pay dividends; the tracking data showed that shearwaters from all over the Irish Sea converged on the Irish Sea Front every year to forage (Dean et al. 2015). In 2017, this area became the first entirely offshore Specially Protected Area designated for foraging seabirds. Identification and protection of important areas such as this are vastly aided by monitoring of the movements and behaviour of our seabirds over many years.

As well as the ecological information our tracking yields, we can use the movements of shearwaters to lift the lid on what they 'know' about their world. In 2019, my now co-supervisor, Ollie Padget, led a study which analysed over seven hundred tracks, hundreds of them from Lighthouse Island. The analysis revealed that, even from up to 800 kilometres away, shearwaters are able to estimate the direction towards home with incredible accuracy. Not only that, but they also seem to know how far they are from home and use this to set off at the right time of day to arrive just as it is getting dark, when they can safely return to the colony.

The strange twist is that, despite apparently knowing exactly where they are, the birds don't seem to know about obstacles in their way – even obstacles as massive as the island of Ireland. This means that birds returning from the Atlantic plough on towards the Copelands until they hit Donegal and are forced to follow the coast. So how can birds clever enough to have such an accurate map forget to pencil in the roadblocks? We think this is because the environmental information they use to estimate their location doesn't tell them where land is. The evidence suggests these cues might be airborne molecules - they might literally be smelling where they are. As well as revealing something fundamental about how shearwaters represent space and achieve their remarkable feats of homing, it also gives us a warning about how they might interact with new obstacles: as wind farms spring up in the Irish Sea, these birds may fail to avoid these developments when homing back towards their colonies.

This work, and much more besides, has been made possible by tracking shearwaters over decades, alongside the CBO ringing effort. But now, 20 years after miniaturised GPS first made tracking shearwaters possible, we're seeing another revolution in technology. We've always used devices that record the locations onboard and have to be retrieved to download the data. This works well with breeding shearwaters because they return so faithfully to their burrows to incubate their egg or feed their chick. But we can't reliably use them to track non-breeding birds. So we've known very little about the movements of shearwaters before they reach breeding age, somewhere around two to five years old. This represents a substantial proportion of the population and one that might exhibit very different behaviours from breeding adults. But recently, innovative devices called GPS-GSM tags have become small enough to be used on shearwaters. Rather than having to retrieve them to download the data, they send the data to us via the 3G and 4G network – the shearwaters text their locations to us whenever they can connect to a mobile tower. These texts are now sending us data about birds we've never been able to track before.

By September every year, Lighthouse Island appears to have been abandoned by its seabirds. But as night arrives, thousands of fledgling shearwaters materialise above the surface, still sporting tufts of fluffy down. These birds have by now been left behind by their parents and, increasingly hungry, have no choice but to leave the only home they've ever known – they quite literally march on their stomachs to the sea. At the same time, our research group spends one last week on the island before we say goodbye for the winter. During this week, we do our part in the massive annual ringing effort by the observatory. This year, we ringed over one thousand shearwaters. By now, these birds will have reached Argentina, or died trying. The total was far from a record, but last September was special in a different way. For the first time, a fledgling Manx Shearwater departed on migration carrying a GPS-GSM tracker. We were able to follow its movements as it waved farewell to the Copelands and set out on its 12,000 km journey. Over the next decade we hope to be able to track many more fledgling shearwaters to understand how they find their way to Argentina and the risks they face along the way. And, when they do return, we plan to put all that ringing effort to good use. By tracking immature, non-breeding adults which were ringed as chicks (so are of known age and origin), we're aiming to find out about how they make the Copelands their home once again. We want to investigate how they learn to navigate across the Irish Sea, how they decide where to breed (which they do with almost supernatural faithfulness to the site of their birth), how they find reliable foraging areas and so much more. Finally, we can start to understand how those fluffy fledglings turn into the birds we know so well.

When shearwater ringing first started on Lighthouse Island in 1954, those observatory pioneers knew exactly what they were doing; they were generating data that would form the foundation of a long-term study of

Northern Ireland's Manx Shearwaters. But I doubt they imagined that their shearwaters would one day be carrying high-tech devices capable of reporting their location every minute for weeks with almost perfect accuracy. I like to think that in another 70 years, further advancements will have taught us a great deal more about the lives of shearwaters, but I have no doubt that there'll still be mysteries left to solve.

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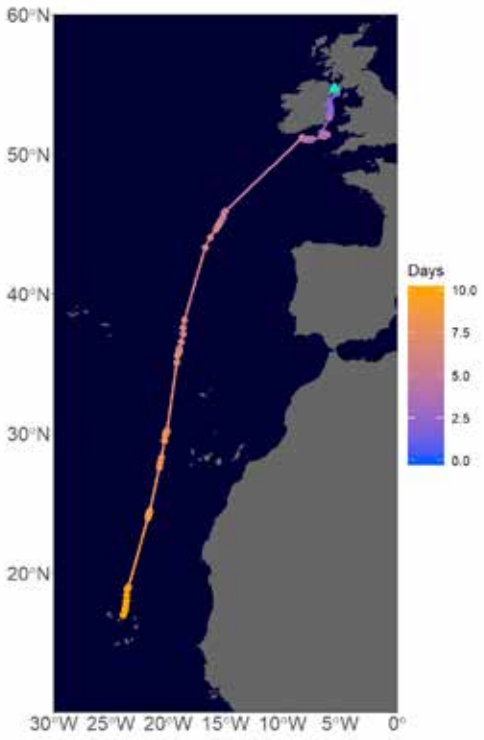
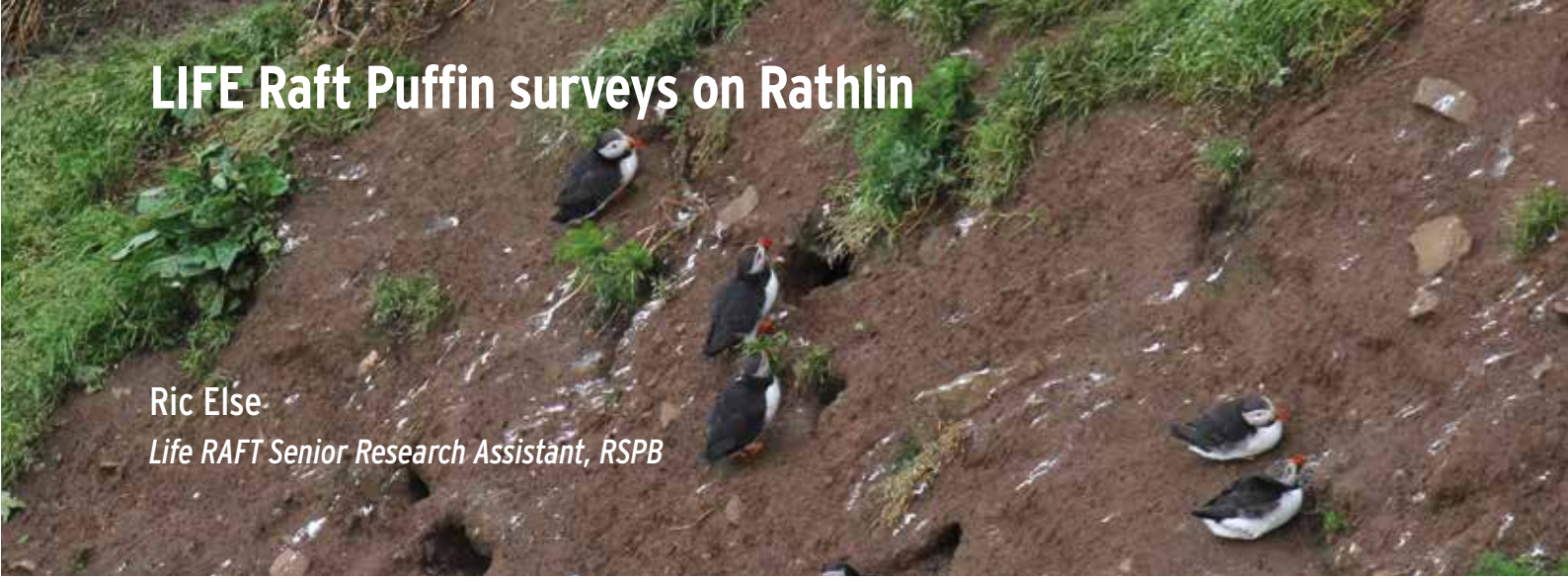
Figure 2: One of the first 10 GPS-GSM tracks of fledgling Manx Shearwaters ever recorded. The shearwater took its first flight and left Lighthouse Island on 10 September. Ten days later it had reached the Cape Verde islands 4,500 kilometres away.



LIFE Raft Puffin surveys on Rathlin

Ric Else
Life RAFT Senior Research Assistant, RSPB



Puffin colony on Rathlin Island, by Ric Else

Introduction

Rathlin Island, lying off the north coast of County Antrim, is home to Northern Ireland's largest seabird colony. The LIFE Raft project is currently working to remove non-native ferrets and rats from Rathlin, with ferret eradication taking place during the winter of 2023/24, and rat eradication planned for the following year. The island's seabirds are being monitored throughout the project to observe how their populations respond to the removal of these mammals. As a burrow-nesting species that is highly vulnerable to mammalian predators, Puffins are a priority for this monitoring work, and it is both hoped and expected that the population of these birds will be able to expand post-eradication.

Rathlin's Puffins delight thousands of visitors each year, but unfortunately for me and colleague James Crymble, who have been carrying out this monitoring since March 2022, these pesky piscivores are particularly difficult to study. Their nesting sites are all in isolated pockets of habitat that are effectively inaccessible to surveyors, and most can only be observed from a boat. This greatly limits the survey methods that are available to us, but in 2023 we resolved to take on the challenge of recording a new estimate of the Puffin population, pinpointing all their current nesting areas, and gathering breeding productivity data for this species.

Population estimate and distribution mapping

Understanding how many Puffins currently breed on Rathlin, and exactly where they nest, is key to identifying any changes that arise following the eradication. However, in addition to their highly inconvenient locations, the Puffins' habits do much to confound attempts to survey them. As they spend much time underground in their burrows or foraging offshore, the number of birds actually visible at the colony varies from day to day and hour to hour. Even at the height of the breeding season, there are times when very few Puffins are visible around their burrows, and other times when every part of the colony seems absolutely teeming with them, and the factors that determine this are not understood. In any case, it is not known how closely the peak number of Puffins visible on land relates to the actual breeding population, so counting individual Puffins from a distance, mainly from a boat, is far from an ideal method (Walsh et al. 1995). But due to the inaccessibility of these birds on Rathlin it is the best method currently available, and it is the one that has been used in all previous Puffin counts here.

From the occasional Puffin censuses that have been carried out on Rathlin in the past, the highest number recorded was nearly 2,400 birds in 1985 (SMP data). Although just single counts of birds visible at the colony, and subject to the great variability described above, subsequent surveys indicated a worrying declining trend: 1,579 were counted in 1999, 695 in 2011, and just 407 in 2021(SMP data, Booth Jones et al. 2022). However, my own regular observations on the island since 2017 indicated that this latest single count under-represented the true population, as much larger numbers can be seen on many days (Else & Watson 2021, 2023). An aim of our 2023 fieldwork was to obtain a more representative baseline population estimate for this species before the mammal eradication began.

After a couple of attempts to count Puffins in April and May 2023, during which only low numbers were showing themselves at the colony, we decided to try another full count in an evening, as this is the time of day when the highest numbers of Puffins have often been observed on the land (Else & Watson 2021).

We planned this for 13th June, around the end of the count period used in the 2021 survey (Booth Jones et al. 2022), and by good fortune the Puffins were in a particularly obliging mood! Setting off by boat at 19:00, we sped

around to the first survey site near the East Lighthouse which was, as hoped, very busy with Puffins. We proceeded around the north side of the island, carefully counting all the Puffins visible along the way, reaching our final sites at Rathlin's western tip just as the light was fading. In total, the Puffin count that evening came to 1,171 individuals – almost triple the census figure from two years earlier.

It is crucial to interpret this not as a precise count of the island's breeding Puffins, but rather as a general indication of the scale of the population. However, the numbers of Puffins we counted at individual sites broadly matched many of our observations during recent nesting seasons, and we believe the result gives a truer indication of the current size of Rathlin's breeding Puffin population than the 2021 count. Comparison with other previous counts is difficult due to the great variability in the number of birds present at any moment, and in 2023 we did specifically aim to survey when we knew a large number of birds was visible. However, despite selecting our 2023 survey time to maximise the Puffin count, the result is still far lower than the 1985 count and it seems clear that there are considerably fewer Puffins on Rathlin now than there were back then.

Perhaps more important than the number of birds counted, this survey gave us comprehensive data on exactly where Puffins currently nest, allowing us to map all those pockets of habitat where birds are present. Islanders remember Puffins once nesting in spots where they no longer occur, and post-eradication we might expect to see Puffins returning to these previous haunts, and maybe colonising new sites where they are currently excluded by the presence of ferrets and rats. Our 2023 data provide a good baseline by which to measure any such change in distribution through repeat surveys over the next few years.

Productivity monitoring

The proportion of Puffin pairs within the colony that manage to raise a chick to fledging age is a useful measure of overall breeding success. In the context of the LIFE Raft project, breeding productivity could potentially show an improvement in the seasons immediately following the removal of predators, making it an important early indicator of the impacts of the predator removal.

Ideally, monitoring breeding success involves visiting a sample of burrows at key times during the season and looking/feeling inside to record the presence of eggs or chicks. But on Rathlin, with no burrows within easy reach, we would have to settle for closely watching the Puffins' behaviour to infer what was happening inside their burrows.

After studying the Puffins' breeding behaviour in 2022, we adapted our monitoring protocol slightly in 2023 to follow a method used on Skomer Island (Newman et al. 2023). In May, we identified 101 apparently occupied burrows by observing the comings and goings of adult birds, and these burrows were marked and numbered on photographs of the colony. That was the easy part.

The difficult bit required returning later in the nesting season and watching intently for every adult Puffin arriving with a beakful of fish. For each fishy delivery, we matched up the destination burrow with one of the numbered burrows on our photographs from the spring. If a numbered burrow received fish, we inferred that it had a growing chick inside.

Assuming that every chick would need at least one meal each day, James and I opted to do dawn to dusk monitoring sessions, working in alternating four-hour shifts from 04:30 to 20:30, watching for fish-bearing Puffins and recording which burrows they went into. The first monitoring session took place on 20 June, a couple of weeks after the season's very first sighting of a Puffin bringing fish home for its chick, and two further sessions were carried out at two-week intervals.

Following the approach used on Skomer, we considered nests to be successful only if they received food on at least two of the survey days. This would indicate that a chick must have survived to at least two weeks old. By this measure 37 of our 101 study burrows were deemed to be successful (i.e. a productivity value of 0.37). Just occasionally during our feeding watches, a Puffin chick – a puffling, if you prefer – was actually seen at the entrance to its burrow, providing some confirmation of what we had inferred from seeing its parents arriving with food.

Again, this method isn't perfect, and there are difficulties to consider when interpreting the results. For example, it is very easy for even the most vigilant observer to miss an adult Puffin arriving from the sea and plunging headlong into its burrow without a pause, especially if multiple birds arrive at once. And it can be quite a puzzle matching burrows in June/July with those marked on a photo from May, as vegetation growth and erosion have often changed the surface appearance of the colony markedly during the intervening weeks.

Nonetheless, our productivity estimate of 0.37 gives us at least an indication of Rathlin's Puffin success rate in 2023. The result is rather low compared with productivity data available from other colonies – Skomer and Skokholm,

for example, have both recorded values of 0.7 and above for recent years (Brown et al. 2022, Newman et al. 2023) – but this is not surprising as we know rats to be present in our study colony on Rathlin. In fact, given the current abundance of rats, it is encouraging that even this many Puffins still appeared to be successful.

Importantly, we have established a methodology that can be repeated in the coming seasons, and we hope that the post-eradication monitoring results will show improving success rates. Maybe one day, with mammal predators gone, a growing Puffin population might even colonise more accessible areas of Rathlin, where ornithologists can study these most awkward of auks with ease. Now that is something we can't wait to see!

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Strangford Lough seabird monitoring report 2023

Hugh Thurgate

Strangford Lough and Ards Peninsula Head Ranger, National Trust

Black-headed Gulls, by Edmund Fellowes / BTO

Cormorant: 446 AON on two islands.
This year's count was the highest since 2010 with 433 AON on their main colony on Bird Island off Kircubbin. The total count represents a 19% increase on last year. Unfortunately, weather constraints prevented a trip to Burial Island and North Rock off the Outer Ards where Cormorants also breed. Thus, it wasn't possible to establish if the increase in the Strangford Lough population in 2023 was simply a reflection of a fall in either or both of the other two colonies. Perhaps the most interesting development this year was the establishment of a second colony of Cormorants on the Lough, on West Boretree Island (13 AON). This is only the third island ever to have been used for breeding on the Lough by this species and the first time since 1998 that two islands have been used in the same season.

Black-headed Gull: 1,179 AON on 14 islands (669 AON) and Castle Espie (510 AON).
This was the highest Lough count and the lowest Castle Espie count since 2017 (Black-headed Gulls first started nesting at Castle Espie in 2009). A total of 1,179 AON equated to 93% of the ten-year rolling mean of 1,273 AON, the population of this species having been remarkably stable since 2011. Swan Island standing at 150 AON was the second largest colony on Strangford Lough. It was subject to the same mammalian predator attack in the last week of May, as the Sandwich Tern colony, with a 'significant' number of young, newly emerged chicks killed but not eaten. Some of these were decapitated, others 'deconstructed', appearing to have been partially pulled apart with their torsos ripped open. There's very little flesh on a young chick, they're incredibly light and really, just innards covered by 'fluff', so it's conceivable that a mammalian predator might go on a killing spree and not actually consume a lot. A Mink or, more likely, Otter are the likely perpetrator. If a bird of prey had been the predator responsible, they would have more than likely targeted adults and if large gulls were involved, they would have been more inclined to swallow the chicks whole. This colony also appeared to have been subject to predation at a similar time of the season in 2022, when a visit to the island on 9 June revealed that many Black-headed Gulls were incubating when they should have been at the chick stage. At the time it was thought that these birds were sitting on their replacement clutches, the first having fell victim to predation or chilling through a bad weather event. Jackdaw Island now hosts the largest Black-headed Gull colony on the Lough with 323 AON this year. It was therefore surprising that Sandwich Tern, who habitually nest within colonies of Black-headed Gull and who appeared to have had a good season in 2022, deserted Jackdaw Island in 2023. However, this may have been a fortuitous move as Herring Gull numbers on Jackdaw jumped from 47 in 2022 to 172 in 2023. Although no corpses were sent for analysis the timing and pattern of mortality of several seabird species supported the assertion that avian flu was present on the Lough this summer. The prevalence of the disease was difficult to assess, however, in general terms it was thought to have had a relatively low impact and only to have affected birds from mid to late season (Leonard 2023). It was widely dispersed but had its greatest impact on the Black-headed Gull and Common Tern colonies on Gull Rock (Boretrees). One adult Black-headed Gull and as many as 20 chicks were thought to have died from the disease on this island. In the whole season a minimum of 118 seabirds both adult and young were thought to have died from the virus. These were made up of 19 adult Common Terns, two adult Arctic Terns, two adult Herring Gulls and one adult Black-headed Gull. With regard to pulli, 41 Common Tern chicks were adjudged to have died from the virus, 30 Black-headed Gulls, 20 Herring Gulls and three Sandwich Terns.

Mediterranean Gull: 2 AON on two islands.
For the second consecutive year, two pairs of Mediterranean Gull bred on the Lough, one pair on Jackdaw Island and one on Gull Rock (Boretrees). This species has bred on the Lough since 2002 but has yet to fully establish, never exceeding three pairs and failing to breed one year in every three. The Gull Rock pair are unlikely to have fledged any chicks as the seabirds on this island suffered the worst outbreak of suspected HPAI on the Lough this year. Only one nest count visit took place on Jackdaw Island on 12 May when a pair of Mediterranean Gulls was located but no nest was found and it is not known if this pair were successful in fledging any young.

Common Gull: 329 AON on 20 islands.
The population on Strangford Lough has remained remarkably stable over the last 10 years, this year's count of 329 AON compares with a 10-year rolling mean of 312. The three largest colonies are on Roe Island (75), the Chanderies (46) and the newly established colony on Pawle Island (57). In 2023 the Pawle colony rose by 14% from 2022 its inaugural year and was joined by a new colony of Herring Gulls (19 AON). The Pawle colony is situated very close to the shore on a broad low-lying shelf very similar to the colony on Roe Island.

Lesser Black-backed Gull: 293 AON on 18 islands.
Numbers have fallen back over the last couple of seasons and this year's total represents a 14% drop from the five-year rolling mean (starts with 2019, as no gull data were collected in 2020 due to COVID-19) and 18% down on the 10-year rolling mean. Lesser Black-backed Gulls are Amber-listed in Ireland due to a moderate decline in breeding range in the past 25 years and a localised distribution (Colhoun & Cummins 2013). It is interesting to speculate why two very closely related species, Lesser Black-backed and Herring Gull are faring very differently on the Lough. Is some form of inter-specific competition for nesting habitat or for food resources taking place? What is it about the Herring Gull's ecology and habitat preference that is favouring the growth in population on the Lough? One clear cut difference in the two species is that unlike Herring Gulls many Lesser Black-backed Gulls migrate to North Africa or Iberia in the winter (Rock 2002). Green Island off Killyleagh hosts by far and away the largest Lesser Black-backed Gull colony at 156 AON, the next largest being East Boretree Island off Mount Stewart at 51 AON.

Herring Gull: 1,920 AON on 27 islands.
This was the third largest count on record for Strangford Lough representing an eight-fold increase on the nest count in 2001 and was 65% above the 10-year rolling mean (data start from 2013 as no gull data were collected in 2020 due to COVID-19). This species is the most widespread of all the seabirds on the Lough, occupying more islands than any other species. Seven of the colonies exceed 100 pairs (Inishanier – 117 AON, East Boretree – 137, Bird Island, Kircubbin – 145, Jackdaw Is. – 172, Round Is. – 247, Drummond Is. – 264 and Green Is., Killyleagh – 510. In 2023 of these seven three-figure colonies, five saw increases from 2022 and two saw slight decreases, Round by 11% and Bird Island by 5%. Considering this species appears on the Red List for Birds (Birds of Conservation Concern 5, 2021) the burgeoning population on Strangford Lough could certainly be viewed as significant for this species in Northern Ireland. However, in terms of the Lough's breeding tern species this increase may be of concern, not so much in terms of increasing predation pressure overall but more in terms of the presence of Herring Gull deterring terns from nesting on islands with favourable nesting habitat or increasing predation risk of chicks if they do, e.g. on South Sheelahs Island in 2023 (Leonard 2023).

Great Black-backed Gull: 149 AON on nine islands.
This is the other large gull that is currently thriving on the Lough, this year's count being the second highest on record (systematic, Lough-wide counts of breeding seabirds began in 1969), surpassing the recent count of 143 pairs in 2021 and approaching the record count of 176 pairs, recorded in 1972. The breeding population is concentrated in one large colony on Great Minnis's (122 AON in 2023) with a growing colony on West Boretreee Island (20 AON in 2023). The range and predation impact of the Great Minnis's colony is difficult to ascertain but tern predation by this species on nearby Blackrock (Ringdufferin) has been recorded in the past (Wolsey 2019). The growing colony on West Boretree Rock may pose a threat to all three of the Lough's tern species that breed on nearby Salt Rock, Gull Rock, North Boretree Rock and the Chanderies. Great Black-backed Gulls were thought to have been responsible for chick losses on all but Salt Rock this year (Leonard 2023).

Sandwich Tern: 251 AON on two islands.
The mean population size over the period 2020–22 stood at 260 AON, so with 251 AON in 2023 it could be surmised that Sandwich Terns are 'holding their own' on Strangford Lough. However, delve a little deeper and it is plain to see all is not well for what has been the iconic breeding seabird on the Lough for the last 60 years.

For the first 20 years of this century the core breeding population of this species stood at approximately 750 pairs. With late season influxes of a second cohort of birds, sometimes attributed to failure at other colonies, in particular Carlingford Lough, this figure often doubled. However not since 2010 have the number of pairs surpassed the thousand mark and really the alarm bells have been ringing since numbers dipped to 581 AON in 2015. Over the last 20 years, in general terms, the subjective assessment from summertime fieldwork is that the productivity has been consistently good for Sandwich Tern whilst Arctic Tern and Common Tern have consistently failed en masse, with very few years of 'notable' fledging success. Sandwich Tern have generally had two main colonies and in most years overall fledging success has been 'good'. In years where one colony has failed, the other has been successful.

The trend in recent years has been that the colony on Swan Island has been the fortress with consistently high fledging success but that the other colonies have been a little bit 'flaky', with inconsistency and in recent years apt to fail, for example North Boretree Rock, Blackrock (Ringdufferin), Dunnyneill and since 2020/21 Jackdaw Island. For 20 years Swan Island had been 'immune' from mammalian predation with the absence of rats and the apparent reluctance of Otter to visit the island (it's been speculated that the bright lights of Strangford Harbour have put them off nocturnal visits when the breeding seabirds are at their most vulnerable). The first confirmed predation of terns by otter on Swan Island occurred in 2019 (picked up during the second summer of Shane Wolsey's predation and productivity study – see *Northern Ireland Seabird Report 2019*) but took place after the peak of the Sandwich Tern breeding season and whose impact was largely felt by common and Arctic Terns. In 2022 Sandwich Tern did not breed on Swan Island, the first time they hadn't bred there since 2013. Their return in 2023 was welcomed but unfortunately there was a delay in the planned deployment of mammalian deterrent devices on the island, with catastrophic consequences.

On the first nest count visit on 11 May all seemed well with a good early settlement of 215 AON of Sandwich Tern and 150 AON of Black-headed gull. On the second visit on 22 May the Sandwich Tern colony had increased to 239 AON with four nests each containing a recently hatched chick alongside an unhatched egg, putting the date of first hatching at 20/21 May and date of first laying between 27 April and 1 May, given a 20–24 day incubation period (Harrison 1975). Of the 239 clutches 124 were singles, 114 doubles and one a clutch of three. This gave a mean clutch size on Swan Island of 1.49 (cf. 1.65 in 2019, 1.50 in 2021). However, a week later, on the third nest monitoring visit to the island on 30 May only two Sandwich Tern chicks were present, both deemed to be under 24 hours old, a lot more clutches should have hatched by this date. There appeared to have been a significant mammalian predation event with the finger pointing either at American Mink or more likely Otter. There were four dead adult Sandwich Tern present which is a very unusual finding on one visit. Of course, HPAI could have been a causative agent but in this instance death by depredation was thought to have occurred as some of the adults had been 'de-winged' or decapitated and many young newly emerged Black-headed Gull chicks lay 'in pieces'/'deconstructed'. Decapitation and removal of wings and breast meat on adult terns would be typical of mustelid predation. Avian predators such as Grey Heron (*Ardea cinerea*), corvids (Corvidae) or gulls (Laridae) are much more likely to swallow young chicks whole. These young chicks had been partially or wholly pulled apart. Absence of Sandwich Tern chicks might have resulted from a mustelid eating the whole animal as they are bigger and at a later age, 'more of a meal' than the very young Black-headed Gulls observed. However, they may have been swallowed whole by a larger gull etc.

On 26 May North Boretree Rock was visited and at that stage had 12 AON of Sandwich Tern. These were thought to be 'genuine/original' breeders, too early for Swan Island deserters and this figure was included in the total number for the Lough in 2023. However, this number grew to 89 on 7 June and as high as 167 on 18 June. The mean clutch size for the 167 nests was 1.32, lower than for Swan Island (1.49) which would be expected for a colony made up of re-laying or younger birds. The count of 167 AON on 18 June had fallen to 120 by the 22 June and by 28 June not a single clutch remained. Camera trap evidence showed at least two Great Black-backed Gulls visiting the colony on a regular basis in late June and were thought to be the principal culprits for the loss of clutches and the abandonment of the colony. A dead adult Sandwich Tern found at the colony on 18 June was thought to have been predated by Otter, so this species may also have contributed to the demise of the colony as could high spring tides. General bad weather resulting in chick loss through hypothermia cannot be ruled out as a contributory factor too. If the Swan Island colony had not been subject to a major predation event between 22 May and 30 May the North Boretree colony would have been considered as a late starter or re-lay from a colony failing elsewhere, and a figure of 167 would have been added to the Lough's total giving a total of 418 AON. Somewhat bizarrely, the only Sandwich Tern to fledge on Strangford Lough in 2023 was a solitary individual from a late nest on Blackrock (Ringdufferin). The clutch was not seen on nest count visits to the island in May but was picked up on a productivity monitoring visit on 7 June. This pair were thought to have originated from Swan Island.

Common Tern: 273 AON on 11 islands. Productivity – 0.09.
The only chicks to fledge in 2023 were reared at the principal colony (70 AON) on Blackrock (Ringdufferin) and the Chanderies with those adults breeding on Blackrock moderately successful, with a productivity figure of 0.26 chicks raised per pair. The eighteen chicks to fledge came from early nests as the later chicks and eggs were swamped by a succession of high tides in early July, which covered the island leaving 60 cm high piles of seaweed along the spine of the island. There were two other significant colonies of 45 on Gull Rock (Boretrees) and 38 on Green Island Rock. The Green Island rock birds were late to settle and subject to repeated high tide wash outs of peripheral nests and then to a total swamping in early July leading to total colony failure (Leonard 2023 unpublished). Great Black-backed Gulls (probably from their main colony on nearby Great Minnis's) were also seen frequenting the island on a number of the productivity visits. The Gull Rock (Boretrees) colony was faring well in the second half of June with 26 chicks making it all the way through to early July. However, this island appeared to host an outbreak of HPAI (Leonard 2023 unpublished) and even though 26 Common Tern chicks were recorded alive on 2 July, eight 'intact' corpses of chicks were found and four had already been found on 22 June. Three days later, 20 corpses of Common Tern chicks were found with an additional two still alive but sick. In addition, 12 Black-headed Gull chicks and one Sandwich Tern chick were also found dead. Although no corpses were tested for HPAI the pattern of deaths and the presence of multiple intact corpses of more than one species of both adult and pulli and alive but clearly sick individuals all strongly suggested the presence of HPAI at this seabird colony.

Arctic Tern: 154 AON on 8 islands. Productivity – 0.09.
Whilst 154 AON is just 9% below the 10-year rolling average, which could be interpreted as a relatively stable population, concern for the Arctic Terns future on Strangford Lough mounts, as yet another year passes with abysmal productivity. Long-lived species of seabirds have evolved a strategy of low overall annual productivity but a long life of production. In this scenario what appears to be a relatively stable breeding population is one that might be failing to recruit year on year. The breeding population levels indicate stability but all of a sudden the population crashes, as an ageing cohort of adults suffer a condensed period of mortality as a lot of adults reach the end of their natural lifespan in a short space of time. In other words, all can seem rosy and then out of the blue there's a massive drop in the numbers of adult breeding birds. In 2023, the majority of Arctic Terns (101 AON) chose to nest across the Chanderies which is made up of a number of discrete pladdies joined from mid-tide. The breeding season was developing well up until the end of the third week of June. On 18 June there were 37 Arctic Tern nests and 37 chicks. A high tide some time between 19 and 21 June washed out a lot of nests but even so 18 chicks and 17 nests were still present on 22 June, albeit some of the nests were probably re-lays. However, by 25 June all the mid-sized chicks that had survived the high tide wash-out had disappeared. Large gulls were strongly suspected of 'mopping-up' all the chicks. Just six Arctic Tern chicks were thought to have fledged on the Chanderies by the end of the season.

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Outer Ards seabird monitoring 2023

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Ringed Plover, by Brian Todd / BTO

Cockle Island – visited on 5 May, 30 May, 7 June, 15 June, 22 June, and 6 July.
A visit on May 15th revealed a thriving Black-headed Gull colony of 255 AON, up 13 percent on 2022 and an initial Sandwich Tern count of 71 AON. A fortnight later the number of Sandwich Tern nests had risen to 128, a near three-fold increase from 2022. Of these three nests had chicks in with the oldest of these, thought to be around 48 hours giving a first hatching date of 28 May and first laying date somewhere between 4 May and 8 May (Harrison 1975). Eighty-nine clutches were singletons and 39 doubletons giving a mean clutch size of 1.30, which is relatively low. On the second visit on 30 May whilst there was no evidence of a significant predation event there were 'quite a high' numbers of empty Black-headed Gull nests, or nests with dead young chicks. Arctic Tern numbers were significantly down (43%) on 2022 at 171 AON and Common Tern down 23% at 23 AON. On the third visit to the island on 7 June just one Arctic Tern had hatched and there were far fewer Sandwich Tern chicks than would have been expected indicating high mortality through predation. A mammal thought to be a Mink and not an Otter was spotted swimming out to the island by a local resident (Katy Bell, pers. comm.). However there was no obvious evidence of mammalian predation found on the island. On 15 June, the first visit to specifically assess tern productivity, revealed that whilst there had been a good hatch from Arctic Tern clutches, with 75 live chicks counted and five dead, all was not well within the Common Tern colony. There was a disturbingly high number of dead adults found, 14 in all. This strongly indicated that HPAI had reached the colony (later confirmed by laboratory testing). In addition, there was one dead Arctic Tern and one dead Black-headed Gull. A return to the island on 22 June revealed that the breeding season was unravelling, with no sign of the vast majority of the 75 Arctic Terns counted on 15 June. Just six live Arctic or Common Tern chicks were found and four dead. There was also a dead Sandwich tern chick. The final check on productivity was made on 6 July. Not a single chick of any tern species was present but further corpses of adults, two Black-headed Gulls, five Common Tern and the first Sandwich Tern adult of the season. On each visit where a dead adult seabird was found the corpse was double bagged and removed from the island. **Summary:** Black-headed Gull – 255 AON; Common Gull – 7 AON; Sandwich Tern – 128 AON, Productivity – 0; Arctic Tern – 171 AON, Productivity – 0; Common Tern – 23 AON, Productivity – 0

Bird Island, Portavogie
Ringed Plover – Present; Oystercatcher – 3 AON

Green Island, Portavogie
Ringed Plover – 2 AON; Oystercatcher – 9 AON; Lesser Black-backed Gull – 1 AON; Herring Gull – 1 AON; Black-headed Gull 2 AON; Arctic Tern – 61 AON; Little Tern – 1 pair

The Little Terns were not seen on the first visit to the island on 15 May but were encountered on 6 July. One bird was carrying a sand-eel in its bill for the entire duration of the visit and both birds were quite vocal but most of their activity was in the air over mudflat rather than the island itself and although they did come to ground, they were never seen to interact with chicks or attempt to incubate and despite rigorous searching no clutch could be found. It is suspected that these were post-breeding birds possibly from the breeding colony in County Louth at Baltray or at the Point of Ayre on the Isle of Man.

Appendix: Species counts

Cumulative counts (N) of all species of seabird within Seabird Monitoring Programme (SMP) 'Master Sites' in Northern Ireland between 2015 and 2021. The number of sub-sites surveyed in a Master Site, an indication of relative survey effort between years, is included in brackets next to the count unless the sub-sites were not specified (NR = not recorded). Hyphens (–) denote that no data were collected. Seabirds are counted using recommended census units from Table 3, unless specified with the record. EST means that numbers are an estimate, based on the best available method. Asterisks (*) denote that the count was made late in the season and therefore may include non-breeders .

		2015	2016	2017	2018	2019	2020	2021	2022	2023
Species (Count units)	**Master Site**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**
Fulmar	Binevenagh	–	–	–	–	–	–	11 (5)	7 (5)	9 (5)
(AOS)	Blackhead	3 (1) *	3 (1)	29 (1)	30 (1)	31 (1)	19 (1)	6 (1)	11 (1)	–
	Causeway Coast	–	–	–	84 (1)	165 (4)	159 (3)	880 (18)	–	–
	Copeland Islands SPA	–	–	–	–	–	–	13 (1) EST	–	10 (1)
	Downhill	135 (6)	78 (4)	81 (4)	188 (11)	95 (5)	–	130 (6)	140 (6)	112 (6)
	East Antrim Coast	25 (14)	45 (16)	60 (11)	34 (13) EST	39 (15) EST	32 (16) EST *	38 (12) EST *	33 (12) EST *	–
	Giant's Causeway Coast	–	–	–	57 (3)	134 (2)	81 (2)	209 (4)	–	–
	Larne Lough to Portmuck	201 (1) *	292 (2)	322 (3)	328 (2)	198 (2)	–	2 (1)	1 (1)	–
	Lough Foyle	–	–	–	0 (4)	–	–	–	–	–
	Maggy's Leap	–	–	1 (1)	–	2 (1)	–	–	–	–
	Maggy's Leap to Newcastle	–	–	–	–	–	2 (1)	0 (1)	0 (1) *	0 (1)
	Muck Island	52 (1) *	68 (1)	80 (1)	72 (1)	43 (1)	56 (1)	61 (1)	69 (1)	–
	North Antrim coast	16 (5)	37 (10)	38 (10)	16 (8)	21 (6)	4 (1)	12 (7)	13 (7)	8 (2)
	Outer Ards SPA	–	–	–	–	–	0 (1) *	–	–	–
	Rathlin Island SPA	–	–	–	25 (3)	–	–	1,045 (2)	9 (1) *	7 (1) *
	Sheep Island SPA	–	–	–	–	–	–	61 (1)	–	–
	Skerry Islands	–	–	–	–	–	–	43 (6) EST	–	–
	Strangford Lough SPA	–	–	–	–	–	–	–	0 (1) *	–
	Whitehead	–	3 (1)	5 (1)	7 (1)	5 (1)	8 (1)	7 (1)	5 (1)	–
Cormorant	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
(AON)	Copeland Islands SPA	–	–	–	–	–	–	0 (1) *	0 (1) *	–
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	Larne Lough to Portmuck	0 (1) *	12 (1)	13 (1)	12 (1)	0 (1)	–	–	–	–
	Lough Neagh and Lough Beg SPA	–	–	–	–	–	200 (2) EST	502 (8) EST *	229 (3) EST *	–
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Muck Island	0 (1) *	–	0 (1)	–	0 (1)	–	–	0 (1)	–

	North Antrim coast	–	–	–	–	–	4 (1)	0 (7)	–	–
	Outer Ards SPA	–	–	–	53 (1)	77 (1)	0 (1) *	–	–	–
	Sheep Island SPA	–	84 (1)	100 (1)	88 (1)	–	–	139 (1)	86 (1) EST *	–
	Skerry Islands	–	–	160 (1)	94 (1)	137 (1)	–	82 (6) EST	193 (1) EST *	–
	Strangford Lough SPA	245 (1)	343 (1)	360 (1)	314 (1)	388 (1)	167 (1) *	370 (1)	364 (1)	–
Shag	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
(AON)	Causeway Coast	–	–	–	–	–	–	14 (4)	–	–
	Copeland Islands SPA	–	–	–	–	–	–	0 (1) *	–	–
	Downhill	3 (2)	0 (1)	–	–	–	–	14 (6)	13 (1)	12 (1)
	Larne Lough to Portmuck	20 (1) *	22 (1)	20 (1)	25 (1)	18 (1)	–	–	–	–
	Maggy's Leap	3 (1) *	3 (1)	5 (1)	–	9 (1)	–	–	–	–
	Maggy's Leap to Newcastle	–	3 (1)	–	–	–	15 (1)	12 (1) *	10 (1) EST	8 (1) *
	Muck Island	17 (1) *	21 (1)	30 (1)	34 (1)	38 (1)	31 (1)	67 (1)	71 (1)	–
	North Antrim coast	–	1 (6)	1 (7)	2 (2)	0 (1)	–	8 (7)	6 (2)	9 (2)
	Outer Ards SPA	–	–	–	–	–	0 (1) *	–	–	–
	Rathlin Island SPA	20 (1)	72 (2)	51 (2)	73 (2) *	20 (1)	–	112 (2)	42 (1)	48 (1) *
	Sheep Island SPA	–	84 (1)	–	–	–	–	43 (2)	–	–
	Skerry Islands	64 (1)	–	–	–	–	–	32 (6) EST	–	–
	Strangford Lough SPA	–	–	–	0 (1) *	–	0 (1)	–	0 (1) *	–
	The Maidens	–	–	–	20 (1) EST	–	–	–	420 (2) EST	–
Kittiwake	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
(AON)	Causeway Coast	–	–	–	–	–	–	1,197 (4) EST	–	–
	Copeland Islands SPA	–	–	–	–	–	–	0 (1) *	0 (1) *	–
	Downhill	92 (2)	–	–	–	–	–	102 (6)	130 (1)	117 (1)
	East Antrim Coast	–	0 (2)	–	–	–	–	–	–	–
	Larne Lough to Portmuck	835 (1) *	1,072 (1)	1,053 (1)	683 (1)	1,145 (1)	–	–	–	–
	Maggy's Leap	86 (1) *	78 (1)	76 (1)	68 (1)	91 (1)	–	–	–	175 (2)
	Maggy's Leap to Newcastle	–	–	–	513 (1)	1,251 (2)	717 (1) *	1,370 (2) *	–	545 (1) *
	Muck Island	225 (1) *	351 (1)	369 (1)	314 (1)	519 (1)	521 (1)	603 (1)	711 (1)	–
	North Antrim coast	207 (3)	279 (10)	236 (10)	293 (9)	332 (6)	141 (1)	423 (7)	499 (2)	366 (2)

	Outer Ards SPA	–	–	–	–	–	0 (1) *	–	–	–
	Rathlin Island SPA	–	–	–	313 (3)	–	–	13,767 (2)	74 (1) *	62 (1) *
	Sheep Island SPA	–	–	–	–	–	–	305 (2)	–	–
	Skerry Islands	–	–	–	–	–	–	58 (6) EST	–	–
	Strangford Lough SPA	–	–	–	0 (1) *	–	–	–	0 (1) *	–
Black–headed Gull (AON)	Antrim Town	–	15 (1) EST	–	–	–	–	–	–	–
	Belfast Harbour	450 (1) EST *	386 (1) *	717 (1)	607 (1)	560 (1)	806 (1) *	720 (1)	1,500 (1)	587 (1) *
	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Carlingford Lough SPA	1 (1) *	–	–	–	0 (1)	–	–	–	–
	Copeland Islands SPA	–	–	–	–	–	–	1 (1) EST	0 (1)	–
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	Larne Lough SPA	1,825 (1) *	3,201 (1) *	3,060 (1) *	2,895 (1)	2,618 (1)	2,000 (1)	2,236 (1)	4,178 (3) *	5,776 (3) *
	Lough Foyle	–	–	–	6 (2) EST	–	–	–	–	–
	Lough Galboly	0 (1)	–	–	–	–	–	–	–	–
	Lough Neagh and Lough Beg SPA	95 (1) *	11,764 (17) EST *	9,483 (15) EST *	8,967 (15) EST *	143 (1)	4,819 (10) EST * *	5,763 (12) EST *	14,088 (33) EST * *	107 (1) *
	Lough Vearty	5 (1)	0 (1)	0 (1)	–	–	–	–	–	–
	Lower Lough Erne	1,026 (1) *	1,238 (1) *	1,218 (1) *	1,371 (1)	1,718 (1)	–	1,416 (1)	1,255 (1)	–
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Moorlough Lake	66 (2)	0 (1)	–	93 (1)	–	–	67 (1) EST	58 (1) EST	–
	Muck Island	–	–	–	–	–	–	–	0 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	135 (1)	67 (1)	93 (1)	189 (2) *	239 (1)	0 (1) *	135 (2)	31 (3)	255 (1)
	Rathlin Island SPA	–	–	–	–	–	–	5 (1)	–	–
	Skerry Islands	–	–	–	–	–	–	0 (6)	–	–
	Strangford Lough SPA	1,265 (1)	1,312 (1)	1,271 (1)	1,267 (1)	1,305 (1)	–	2,274 (2) *	1,297 (1)	1,179 (2)
Mediterranean Gull (AON)	Belfast Harbour	–	2 (1) *	5 (1)	7 (1)	6 (1)	–	1 (1)	4 (1)	5 (1) *
	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Copeland Islands SPA	–	–	–	–	–	–	0 (1)	0 (1)	–
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	Larne Lough SPA	5 (1) *	5 (1) *	2 (1) *	5 (1)	1 (1)	1 (1)	3 (1)	4 (1)	5 (1) *
	Lough Neagh and Lough Beg SPA	–	1 (1)	–	2 (1)	–	–	–	–	–
	Lower Lough Erne	–	–	–	1 (1) *	–	1 (1) EST *	–	1 (1)	–
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–

	Muck Island	–	–	–	–	–	–	–	0 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	–	–	–	–	–	0 (1) *	–	–	–
	Skerry Islands	–	–	–	–	–	–	0 (6)	–	–
	Strangford Lough SPA	1 (1)	0 (1)	0 (1)	2 (1)	0 (1)	–	1 (1) EST	2 (1)	–
Common Gull (AON)	Antrim Town	–	15 (1) EST	–	–	–	–	–	–	–
	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Carlingford Lough SPA	1 (1) *	3 (1) *	6 (1) *	6 (1)	18 (2)	1 (1)	7 (2) *	–	–
	Causeway Coast	–	–	–	–	–	40 (1) EST	16 (1)	–	–
	Copeland Islands SPA	–	–	–	15 (1)	30 (1)	–	–	15 (1)	–
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	East Antrim Coast	–	–	22 (1)	–	0 (1)	–	3 (1) EST	–	–
	Larne Lough SPA	24 (1) *	27 (1) *	32 (1) *	37 (1)	9 (1)	22 (1)	28 (1)	45 (1)	47 (1) *
	Lough Galboly	0 (1)	–	22 (1)	–	13 (1) *	–	–	–	–
	Lough Neagh and Lough Beg SPA	–	–	–	–	–	–	2 (1)	–	–
	Lough Vearty	16 (1)	3 (1)	8 (1)	–	–	–	–	–	–
	Lower Lough Erne	164 (1) *	189 (1) *	143 (1) *	383 (2) *	337 (1)	–	–	238 (1)	–
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Moorlough Lake	0 (1)	–	–	–	–	–	–	–	–
	Muck Island	20 (1) *	–	51 (1)	–	–	34 (1) EST	23 (1)	28 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	0 (1)	1 (1)	8 (1)	10 (1)	5 (1)	0 (1) *	7 (1)	5 (1)	7 (1)
	Rathlin Island SPA	22 (1)	109 (2)	70 (2)	94 (3) *	21 (1)	–	99 (2)	42 (1)	37 (1) *
	Skerry Islands	–	–	–	–	–	–	0 (6)	–	–
	Strangford Lough SPA	229 (1)	333 (1)	322 (1)	293 (1)	346 (1)	–	274 (1)	320 (1)	–
Lesser Black–backed Gull (AON)	Antrim Town	–	600 (1) EST	–	–	–	–	–	–	–
	Belfast	–	–	–	101 (1) *	221 (1)	–	–	–	–
	Belfast Harbour	–	–	1 (1)	1 (1) EST *	1 (1)	–	–	–	–
	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Carlingford Lough SPA	–	–	–	–	2 (2)	–	0 (2) *	2 (1) *	–
	Causeway Coast	–	–	–	–	–	–	3 (2)	–	–
	Copeland Islands SPA	–	–	–	365 (1)	547 (1)	–	390 (1) EST	602 (1)	683 (1) EST

	Downhill	–	–	–	–	–	–	0 (6)	–	–
	East Antrim Coast	–	–	–	–	–	–	2 (1)	–	–
	Gun's Island – Northern Island	–	–	–	–	–	–	–	10 (1) EST	–
	Larne Lough SPA	–	–	–	–	0 (1)	–	–	–	–
	Lough Neagh and Lough Beg SPA	–	1,723 (17) EST	2,496 (12) EST	2,075 (19) EST	–	1,353 (8) EST *	2,870 (18) EST *	3,795 (25) EST *	–
	Lough Vearty	–	0 (1)	–	–	–	–	–	–	–
	Lower Lough Erne	1,211 (1) *	1,185 (1) *	1,316 (1) *	1,622 (1)	1,584 (1)	–	–	1,653 (1)	–
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Moorlough Lake	0 (1)	–	–	–	–	–	–	–	–
	Muck Island	–	–	–	–	–	13 (2) EST	11 (1)	19 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	–	–	–	–	–	0 (1) *	–	1 (1)	–
	Rathlin Island SPA	–	–	–	–	–	–	519 (1)	–	–
	Sheep Island SPA	–	–	–	–	–	–	88 (1)	–	–
	Skerry Islands	–	–	–	–	–	–	537 (6) EST	–	–
	Strangford Lough SPA	433 (1)	298 (1)	343 (1)	310 (1)	316 (1)	–	442 (1)	339 (1)	293 (1)
Herring Gull (AON)	Antrim Town	–	15 (1) EST	–	–	–	–	–	–	–
	Belfast	–	–	–	16 (1) *	39 (1)	–	–	–	–
	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Carlingford Lough SPA	–	–	–	–	2 (2)	–	24 (2) *	20 (1) *	15 (1) *
	Causeway Coast	–	–	–	–	–	–	47 (5)	–	–
	Copeland Islands SPA	–	–	–	483 (1)	483 (1)	–	585 (1) EST	680 (1)	869 (1) EST
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	East Antrim Coast	–	–	–	–	–	–	44 (2)	–	–
	Gun's Island – Northern Island	–	–	–	–	–	–	–	5 (1) EST	–
	Larne Lough to Portmuck	2 (1) *	2 (1)	1 (1)	–	–	–	–	–	–
	Lough Neagh and Lough Beg SPA	–	0 (16)	–	–	–	–	2 (1)	–	–
	Lower Lough Erne	4 (1) *	5 (1) *	5 (1) *	5 (1)	3 (1)	–	–	3 (1)	–
	Maggy's Leap	–	–	–	–	1 (1)	–	–	–	–
	Maggy's Leap to Newcastle	–	–	–	–	–	1 (1)	0 (1) *	–	0 (1) *
	Muck Island	–	–	–	–	–	17 (1) EST	18 (1)	25 (1)	–

	North Antrim coast	–	–	–	–	–	–	1 (7)	–	–
	Outer Ards SPA	–	–	–	187 (2) *	199 (1)	0 (2) *	4 (1)	4 (2)	–
	Portrush Harbour	–	–	–	2 (1)	–	–	–	–	–
	Rathlin Island SPA	–	–	–	–	–	–	83 (1)	–	–
	Sheep Island SPA	–	–	–	–	–	–	55 (1)	–	–
	Skerry Islands	–	–	–	–	–	–	229 (6) EST	–	–
	Strangford Lough SPA	679 (1)	1,177 (1)	1,070 (1)	1,062 (1)	1,273 (1)	–	1,389 (1)	1,523 (1)	1,920 (1)
Great Black–backed Gull	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
(AON)	Carlingford Lough SPA	2 (1) *	2 (1) *	2 (1) *	4 (1)	0 (1)	–	0 (2) *	–	–
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	Larne Lough to Portmuck	2 (1) *	1 (1)	2 (1)	2 (1)	–	–	–	–	–
	Lough Neagh and Lough Beg SPA	–	1 (1)	1 (1)	1 (1)	–	2 (2) EST *	544 (5) EST	16 (7) EST *	–
	Lower Lough Erne	2 (1) *	4 (1) *	4 (1) *	2 (1)	3 (1)	–	1 (1)	2 (1)	–
	Maggy's Leap	–	–	2 (1)	–	1 (1)	–	–	–	–
	Maggy's Leap to Newcastle	–	–	–	–	–	1 (1)	0 (1) *	2 (1) EST *	0 (1) *
	Muck Island	1 (1) *	–	2 (1)	2 (1)	–	4 (1)	11 (1)	4 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	–	–	–	40 (1)	42 (1)	0 (1) *	–	–	–
	Rathlin Island SPA	–	–	–	–	–	–	12 (1)	–	–
	Sheep Island SPA	–	–	–	–	–	–	7 (1)	–	–
	Skerry Islands	–	–	–	–	–	–	4 (6) EST	–	–
	Strangford Lough SPA	62 (1)	125 (1)	114 (1)	129 (1)	107 (1)	–	143 (1)	127 (1)	149 (1)
	The Maidens	–	–	–	8 (1) EST	–	–	–	5 (1) EST	–
Sandwich Tern	Larne Lough	694 (2)	1,229 (2)	1,141 2)	732 (2)	1,010 (2)	900 EST (1)	1,113 (2)	1,254 (2)	
(AON)	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Carlingford Lough SPA	250 (1) *	7 (1) *	71 (1) *	13 (1)	48 (2)	–	104 (2) *	–	39 (1) *
	Copeland Islands SPA	–	–	–	–	–	–	0 (1) *	0 (1) *	–
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	Larne Lough SPA	694 (1) *	1,229 (1) *	1,141 (1) *	732 (1)	1,010 (1)	900 (1)	1,116 (2)	1,254 (1)	2,004 (3) *
	Lower Lough Erne	138 (1) *	226 (1) *	316 (1) *	250 (1)	230 (1)	143 (1) EST *	126 (1)	102 (1)	–
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Muck Island	–	–	–	–	–	–	–	0 (1)	–

	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	0 (1)	0 (1)	145 (2)	92 (2) *	0 (1)	14 (3) *	14 (1)	48 (1)	128 (1)
	Skerry Islands	–	–	–	–	–	–	0 (6)	–	–
	Strangford Lough SPA	581 (1)	337 (1)	775 (1)	776 (1)	434 (1)	252 (1)	217 (1)	310 (1)	251 (1)
Common Tern	Belfast Channels	–	12 (1)	13 (1)	0 (1)	17 (1)	83 (3) EST *	32 (1) EST	–	–
(AON)	Belfast Harbour	344 (1) *	418 (1) *	367 (1)	385 (1) EST *	672 (1)	80 (1) *	485 (1)	360 (1)	92 (1) *
	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Carlingford Lough SPA	220 (1) *	123 (1) *	147 (1) *	70 (1)	56 (2)	25 (1) EST *	168 (2) *	96 (1) *	40 (1) *
	Copeland Islands SPA	–	–	–	–	–	–	0 (1) *	0 (1) *	–
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	Larne Lough SPA	353 (1) *	333 (1) *	355 (1) *	307 (1)	303 (1)	187 (1) *	256 (2)	258 (3) *	228 (3) *
	Lough Galboly	0 (1)	–	–	–	–	–	–	–	–
	Lough Neagh and Lough Beg SPA	84 (1) *	318 (17) EST *	433 (6) EST *	504 (7) EST *	128 (1)	143 (3) EST * *	514 (15) EST * *	623 (14) EST *	23 (1) *
	Lough Vearty	–	0 (1)	0 (1)	–	–	–	–	–	–
	Lower Lough Erne	30 (1) *	41 (1) *	51 (1) *	52 (1)	54 (1)	36 (1) EST *	26 (1)	33 (1)	21 (1) *
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Moorlough Lake	4 (2)	–	–	2 (1) EST	–	–	9 (1) EST	12 (1) EST	–
	Muck Island	–	–	–	–	–	–	–	0 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	3 (2) *	18 (1)	203 (2)	17 (1)	21 (1)	25 (3) *	13 (1)	26 (2)	23 (1)
	Skerry Islands	–	–	–	–	–	–	0 (6)	–	–
	Strangford Lough SPA	402 (1)	457 (1)	262 (1)	340 (1)	262 (1)	228 (1)	317 (2) *	449 (1)	273 (1)
Roseate Tern (AON)	Belfast Harbour	–	–	–	–	0 (1)	–	–	–	–
	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Carlingford Lough SPA	0 (1) *	0 (1) *	0 (1) *	0 (1)	0 (1)	–	–	–	–
	Copeland Islands SPA	–	–	–	–	–	–	0 (1) *	0 (1) *	–
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	Larne Lough SPA	1 (1) *	1 (1) *	1 (1) *	1 (1)	–	1 (1)	1 (2)	1 (1)	1 (1) *
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Muck Island	–	–	–	–	–	–	–	0 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	–	–	–	0 (1) *	–	0 (2) *	–	–	–

	Skerry Islands	–	–	–	–	–	–	0 (6)	–	–
	Strangford Lough SPA	–	–	–	–	–	0 (1)	–	0 (1) *	–
Arctic Tern (AON)	Belfast Harbour	83 (1) *	4 (1) *	–	15 (1) EST *	1 (1)	–	–	3 (1)	13 (1) *
	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Carlingford Lough SPA	85 (1) *	41 (1) *	20 (1) *	70 (1)	100 (2)	–	–	–	43 (1) *
	Copeland Islands SPA	–	–	–	150 (1) EST	220 (2) EST	200 (1) EST	0 (1) *	–	82 (1) EST
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	Larne Lough SPA	1 (1) *	0 (1) *	0 (1) *	0 (1)	0 (1)	–	–	–	–
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Muck Island	–	–	–	–	–	–	–	0 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	135 (2) *	43 (1)	517 (3)	343 (2) *	255 (1)	177 (3) *	216 (1)	245 (3)	171 (1)
	Sheep Island SPA	–	–	–	–	–	–	2 (1)	–	–
	Skerry Islands	–	–	–	–	–	–	0 (6)	–	–
	Strangford Lough SPA	194 (1)	173 (1)	73 (1)	193 (1)	245 (1)	105 (1)	201 (1)	173 (1)	154 (1)
Guillemot (IND)	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Causeway Coast	–	–	–	–	–	–	278 (3)	–	–
	Copeland Islands SPA	–	–	–	–	–	–	0 (1) *	0 (1) *	–
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	East Antrim Coast	–	–	–	–	–	–	0 (2)	–	–
	Larne Lough to Portmuck	2,137 (1) *	2,675 (1)	2,326 (1)	2,284 (1)	2,617 (1)	–	–	–	–
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Muck Island	2,070 (1) *	2,926 (1)	2,554 (1)	2,478 (1)	2,782 (1)	3,107 (1)	2,340 (1)	2,868 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	–	–	–	–	–	0 (1) *	–	–	–
	Rathlin Island SPA	–	–	–	3454 (3)	–	–	150,187 (2)	691 (1) *	630 (1) *
	Sheep Island SPA	–	–	–	–	–	–	703 (1)	–	–
	Skerry Islands	–	–	–	–	–	–	0 (6)	–	–
	Strangford Lough SPA	–	–	–	–	–	–	–	0 (1) *	–
Razorbill (IND)	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
	Causeway Coast	–	–	–	–	–	–	361 (7)	–	–
	Copeland Islands SPA	–	–	–	–	–	–	20 (1) EST	–	–

	Downhill	–	–	–	–	–	–	0 (6)	–	–
	East Antrim Coast	–	–	–	–	–	–	0 (1)	–	–
	Larne Lough to Portmuck	506 (1) *	858 (1)	560 (1)	882 (1)	679 (1)	–	–	–	–
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Muck Island	671 (1) *	1,048 (1)	799 (1)	1,419 (2)	1,118 (1)	–	605 (1)	314 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	–	–	–	–	–	0 (1) *	–	–	–
	Rathlin Island SPA	–	–	–	683 (3)	–	–	22,567 (2)	130 (1) *	136 (1) *
	Sheep Island SPA	–	–	–	–	–	–	221 (1)	–	–
	Skerry Islands	–	–	–	–	–	–	30 (6) EST	–	–
	Strangford Lough SPA	–	–	–	–	–	–	–	0 (1) *	–
Black Guillemot (IND)	Annalong Harbour – Tysties	–	39 (1)	–	34 (1)	58 (1)	38 (1) EST *	58 (1) EST	21 (1) EST *	–
	Ardglass – Tysties	–	16 (1)	18 (1)	–	–	–	14 (2) EST	5 (1) EST	–
	Ballycastle – Tysties	–	12 (3)	–	–	–	–	10 (2) EST	–	–
	Ballyhalbert – Tysties	–	2 (1)	0 (1)	–	1 (1)	–	–	–	–
	Ballyhalbert to Portavogie –Tysties	–	0 (1)	0 (1)	–	–	–	–	–	–
	Ballymartin Coast – Tysties	–	0 (1)	–	–	–	–	0 (1) *	–	–
	Ballywalter – Tysties	–	8 (1)	2 (1)	–	8 (1)	–	–	–	–
	Ballywalter to Ballyhalbert – Tysties	–	–	0 (1)	–	–	3 (1) EST	–	–	–
	Bangor – Tysties	–	56 (1)	–	76 (1)	57 (1)	–	75 (1) EST	89 (1) EST	–
	Bangor to Groomsport – Tysties	–	0 (1)	0 (1) *	10 (1)	–	–	–	–	–
	Belfast (Harbour) – Tysties	–	113 (1)	113 (1)	–	–	8 (1) EST	58 (3) EST	133 (4)	115 (4)
	Belfast to Grey Point – Tysties	–	0 (1)	0 (1) *	7 (1)	–	–	7 (1) EST	–	–
	Bengore Head – Tysties	–	–	–	–	3 (1)	–	–	–	–
	Bloody Bridge to Newcastle – Tysties	–	–	–	9 (1)	26 (1)	6 (1) EST	–	49 (2) EST	–
	Carlingford Lough – Tysties	–	46 (3)	37 (3)	47 (3)	42 (2)	–	37 (4) EST *	22 (3)	50 (5) *
	Carrickfergus	–	15 (1)	15 (1)	–	–	–	–	–	–
	Carrickfergus to White Head – Tysties	158 (1) *	135 (2)	198 (2)	140 (1)	93 (1)	–	163 (1) EST	137 (3) EST	–
	Copeland Islands – Tysties	–	–	–	100 (1)	60 (1)	–	60 (1) EST	70 (3) EST	69 (2)
	Copeland Islands SPA	–	–	–	–	–	–	–	–	30 (1)
	Donaghadee – Tysties	–	8 (1)	6 (1)	–	9 (1)	–	–	–	–
	Donaghadee to Millisle – Tysties	–	0 (1)	–	–	–	–	–	–	–

Downhill	–	–	–	–	–	–	–	–	12 (2)
Fair Head – Tysties	–	0 (2)	–	–	–	–	–	–	–
Giant's Causeway Coast	–	–	–	–	–	–	–	3 (3)	–
Grey Point to Bangor – Tysties	–	0 (1)	0 (1) *	–	1 (1)	–	4 (1) EST	11 (1) EST	–
Groomsport – Tysties	–	10 (1)	16 (1)	–	–	–	–	–	3 (1)
Groomsport to Donaghadee – Tysties	–	0 (1)	0 (1)	–	–	–	–	102 (6) *	111 (9) *
Gun's Island – Northern Island	–	–	–	–	–	–	–	5 (1)	–
Kilkeel Harbour – Tysties	–	–	–	12 (1)	–	–	14 (1) EST	–	–
Larne Lough and Island Magee – Tysties	–	195 (4)	111 (4)	161 (4)	92 (2)	16 (1) EST	55 (1) EST	83 (1) EST	103 (1)
Larne Lough SPA	–	–	–	–	–	–	–	–	49 (1) *
Larne Lough to Portmuck – Tysties	–	38 (3)	6 (1)	32 (3)	–	–	36 (2) EST	80 (4) EST	–
Larne to Torr Head – Tysties	–	8 (2)	78 (4)	84 (4)	9 (5)	58 (1) EST	70 (10) EST	121 (5) EST	–
Lough Foyle –Tysties	–	6 (2)	0 (3)	–	–	–	20 (1) EST	–	–
Magilligan to Castlerock – Tysties	–	–	–	–	16 (1)	–	10 (1) EST	16 (2) EST	–
Millisle – Tysties	–	0 (1)	0 (1)	–	0 (1)	–	–	–	–
Millisle to Ballywalter – Tysties	–	0 (1)	–	–	–	–	–	–	–
Mourne Coast	–	–	–	–	–	–	–	–	0 (1)
Mourne Coast – Tysties	–	–	–	25 (1)	11 (1)	–	–	–	–
Muck Island – Tysties	–	8 (1)	–	14 (1)	–	42 (1)	4 (1) EST	8 (1) EST	–
North Antrim coast	–	–	–	–	–	–	–	–	5 (2)
Outer Ards SPA	–	–	–	–	–	–	–	–	1 (1)
Portavogie – Tysties	–	12 (1)	2 (1)	–	12 (1)	–	–	–	–
Portbradden / Island Lean Quay / Carrickarede	–	7 (1)	–	–	0 (1)	–	16 (3) EST	–	–
Ramore Head to the White Rocks – Tysties	–	–	–	14 (1) EST	25 (1) EST	–	25 (2) EST	–	22 (2)
Rathlin Island – Tysties	–	112 (2) *	70 (1)	60 (1)	–	–	–	–	–
Rathlin Island SPA	–	–	–	–	–	–	27 (1)	158 (1)	197 (1) *
Runkerry to Benbane Head – Tysties	–	–	–	–	68 (3)	–	58 (2) EST	8 (2) EST	32 (3)
Skerry Islands – Tysties	–	–	–	–	–	–	54 (1) EST	–	–
South Down – Tysties	–	0 (2)	0 (2)	0 (1)	–	–	–	–	–
Strangford Lough – Tysties	–	17 (2)	30 (7)	35 (5) EST *	–	0 (2)	10 (2) EST	19 (3) EST	0 (1)
Strangford Lough SPA	–	–	–	–	–	–	–	–	8 (2)
Barmouth (River Bann) to Portrush Bay	–	11 (1)	–	22 (1)	26 (1)	–	17 (1) EST	16 (1) EST	15 (2)

	The White Rocks to Runkerry Point – Tysties	–	–	–	–	–	–	5 (1) EST	3 (2) EST *	–
	Whitehead Town – Tysties	–	0 (1)	0 (1)	1 (1)	0 (1)	–	1 (1) EST	0 (1)	–
Puffin	Binevenagh	–	–	–	–	–	–	0 (5)	–	–
(IND)	Copeland Islands SPA	–	–	–	21 (1) EST	106 (1) *	250 (2) EST *	68 (1) EST	53 (1) EST	25 (1)
	Downhill	–	–	–	–	–	–	0 (6)	–	–
	Larne Lough to Portmuck	63 (1) *	52 (1)	57 (1)	55 (1)	54 (1)	–	–	–	–
	Maggy's Leap to Newcastle	–	–	–	–	–	–	–	0 (1) *	–
	Muck Island	–	–	–	–	–	1 (1)	–	0 (1)	–
	North Antrim coast	–	–	–	–	–	–	0 (7)	–	–
	Outer Ards SPA	–	–	–	–	–	0 (1) *	–	–	–
	Rathlin Island SPA	–	4 (1)	–	3 (3)	–	–	408 (2)	2 (1) *	1 (1) *
	Sheep Island SPA	–	–	–	–	–	–	1 (1)	–	–
	Skerry Islands	–	–	–	–	–	–	0 (6)	–	–
	Strangford Lough SPA	–	–	–	–	–	–	–	0 (1) *	–

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