Northern Ireland Seabird Report 2020

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Northern Ireland Seabird Report 2020

NI 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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Northern Ireland Seabird Report 2020

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Editorial

Katherine Booth Jones

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This is the eighth edition of the Northern Ireland Seabird Report, covering 2020. This report is the published outcome of the work of the Northern Ireland Seabird Network of volunteers, 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 are our surveyors. Some work for government bodies, such as NIEA, and others on behalf of Non-Governmental Organisations (NGOs), such as the Royal Society for the Protection of Birds (RSPB), Ulster Wildlife or the National Trust. All are important contributors through the provision of data for 2020 and previous years, and provide advice and guidance from their expert staff. I am 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. I would like to thank everyone who has contributed to this report and to encourage more people to join the Seabird Network. I would also like to thank NIEA for their continued financial support for both the Seabird Coordinator role and for the production of this annual report.

This 2020 report on breeding seabirds in Northern Ireland follows the format of the preceding reports. However, this year has of course been an extraordinary one with regards to the challenges we have all faced as a result of the COVID-19 pandemic, and in many cases surveys were not possible for some species and locations. With this caveat, I have kept the colony-level detail from previous years, even where data are absent or have changed little since our last 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 Joint Nature Conservation Committee (JNCC) and their online Seabird Monitoring Programme (SMP) report (https://jncc.gov.uk/our-work/smp-report-1986-2018/).

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. I am very grateful to the authors for giving their time to produce these articles.

Naturally this summary does not report all data, but all records collected are of real value in understanding our local seabirds. A report such as this is only as robust as the data that we can collect, so if you have additional seabird population data, either recent or historic, then please share it with the Northern Ireland Seabird Coordinator (myself) and JNCC, for the benefit of seabirds in Northern Ireland. Due to the disruption caused by the pandemic, the 'Seabirds Count' census period has been extended to 2021, which will be its final year. I am hopeful that surveying conditions will have improved for the 2021 season and I encourage any readers with an interest in seabirds to volunteer their time to monitor seabirds in the coming year if it is safe to do so.

Seabird monitoring overview

JOHN HARDING / BTO

Seabird colony censuses in the UK and Ireland

There have been three 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*, Common 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 Europeam Commission (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 (SNH), Countryside Council for Wales (CCW), Natural England (NE), 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 Special Protection Areas (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/), has been developed by the SMP Partnership and is coordinated by JNCC. Data collection for the current census is being undertaken between 2015 and 2021, after delays caused by the COVID-19 pandemic. Also postponed from 2020 to 2021, the Marine Protected Areas Management and Monitoring Programme (MarPAMM, http://www.mpa-management.eu/) project will be supporting the Seabird Count census in Northern Ireland and western Scotland, COVID-19 restrictions permitting. MarPAMM is a €6.4 million project is supported by the European Union's INTERREG VA Programme, managed by the Agri-Food and Biosciences Institute (AFBI). The project aims to develop tools to help manage marine and coastal

environments by collecting data on the distribution, abundance and movement of marine species and habitats, and modelling connectivity between species, habitats and the influence of climate change. In Northern Ireland, Rathlin Island and the steep cliffs of north Antrim will be surveyed using funds from MarPAMM, as these areas require intensive boat- and land-based survey techniques, which are very difficult to cover through volunteer effort. However, the continued support of the volunteer Northern Ireland Seabird Network who contribute to this report annually will be vital, especially to fill monitoring gaps.

The Seabird Monitoring Programme (SMP)

Since 1986, seabird populations in the UK and Ireland have been monitored through the SMP (https://jncc.gov.uk/our-work/seabird-monitoring-programme/) coordinated on behalf of partnership organisations by JNCC. 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 and, for a limited number of species, on diet and phenology, which 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.*, 2016), although there are no current RAS sites for seabirds in Northern Ireland.

The SMP generates annual indices of abundance and breeding success from these data, which are reported online (JNCC, 2020: https://jncc.gov.uk/our-work/smp-report-1986-2018/). 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 seabirds, both positively and negatively, and these effects should be monitored;
- the UK is internationally important for seabirds;
- seabirds are protected by European 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 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 data in Northern Ireland. The Coordinator works closely with JNCC to ensure monitoring data collected by volunteers feeds into the SMP database (http://jncc.defra.gov.uk/smp), 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 Royal Society for the Protection of Birds, the National Trust and the Northern Ireland Environment Agency. The Seabird Steering Group also advises on the programme of activities for the Coordinator, the development of the Northern Ireland Strategy for Seabird Monitoring, and the evolution of the Northern Ireland Seabird Network. The initial five-year plan has now

been extended to 2023 and the Seabird Coordinator role is 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.

The Northern Ireland Strategy for Seabird Monitoring

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 provides the context and sets minimum requirements for the annual monitoring of breeding seabirds in Northern Ireland to facilitate effective management of this natural resource. It focuses on the monitoring of populations and productivity in Northern Ireland while also facilitating further detailed studies of those populations. The main objectives are:

- 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; and
- to increase the number of people involved in seabird monitoring in Northern Ireland.

This strategy is now due to be revised, looking forward to seabird monitoring between 2020 and 2025.

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 sub-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 2020

Katherine Booth Jones

BTO NI Senior Research Ecologist and Seabird Coordinator

MIKE TOMS / 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 volunteers and site wardens 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]	BoCCI Status[2]	UK BoCC[3]	IUCN Red List[4] (Europe)
Northern Fulmar	N	AMBER	AMBER	Endangered
Manx Shearwater	N	AMBER	AMBER	Least Concern
European Storm Petrel*	N	AMBER	AMBER	Least Concern
Great Cormorant	N	AMBER	GREEN	Least Concern
European Shag	N	AMBER	RED	Least Concern
Great Skua	N	AMBER	AMBER	Least Concern
Black-legged Kittiwake	N	RED	RED	Vulnerable
Black-headed Gull	Y	AMBER	AMBER	Least Concern
Mediterranean Gull	N	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	Near Threatened
Great Black-backed Gull	N	GREEN	AMBER	Least Concern
Little Tern*	Y	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
Common Guillemot	N	AMBER	AMBER	Near Threatened
Razorbill	N	RED	AMBER	Near Threatened
Black Guillemot	N	AMBER	AMBER	Least Concern
Atlantic Puffin	N	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 (http://www.habitas.org.uk/priority/); [2]Birds of Conservation Concern in Ireland (Gilbert *et al.*, 2021); [3]UK Birds of Conservation Concern 4 (Eaton *et al.*, 2015); [4]International Union for Conservation of Nature's Red List of Threatened Species (Birdlife International, 2015) * 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 an international level: Kittiwake (Globally Vulnerable, IUCN), Puffin (Endangered, IUCN) and Razorbill (Near Threatened, IUCN). 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 being Amber- to Green-listed.

There are some notable differences between the All-Ireland BoCCI list and the UK Birds of Conservation Concern (Eaton *et al.*, 2015). In particular, Shag, Herring Gull and Roseate Tern are on the UK Red List, but on Amber in the Ireland list. Although data are lacking from important colonies at Rathlin Island and the Maidens in recent years, Shags appear to stable in Northern Ireland; likewise, while Kittiwakes have 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 moved 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 retains a precarious breeding status in Northern Ireland. Cormorants are Amber on the Ireland list compared to 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 is Red-listed in the Ireland list compared to Amber in the UK list, again due to its increased global conservation status (Birdlife International, 2015) since the last UK-level assessment.

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 Northern Fulmar.
Apparently Occupied Burrow	AOB	An apparently active and occupied burrow which may have a nest.
Individuals	Ind	Individual birds.

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, 2020: https://jncc.gov.uk/our-work/smp-report-1986-2018).

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 3.3.3 (R version 4.0.3). 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.

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 methods can also be found, in addition to methods for measuring breeding success. For an explanation of units, see Table 2.

Species	Unit	Notes
Northern Fulmar	AOS	Count between 09:00 and 17:30, and 15 May to 5 July. AOS are those ledges suitable for nesting with a bird present (Population–monitoring method 1, Walsh *et al.*, 1995).
Manx Shearwater	AOB	Late May to mid-June. Survey using tape playback between 09:00 and 17:00 (Population-monitoring method 2, Walsh *et al.*, 1995).
Great Cormorant	AON	Count period 15 May to 25 June (Population-monitoring method 1, Walsh *et al.*, 1995).
European Shag	AON	Count period 1 May to 25 June.
Great Skua	AOT	Count period late May to June.
Black-legged Kittiwake	AON	Count late May to mid-June. Only count completed nests with at least one adult attending.
All gull species	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, Walsh *et al.*, 1995).
All tern species	AON Ind	Count mid-June. Counts of adults on nests, or transects to count nests. Alternatively, flush counts of individual adults (Population-monitoring method 1, 2 or 3, Walsh *et al.*, 1995).
Common Guillemot	Ind	Count between 08:00 and 16:00, and from 1–21 June, with ~5 repeats if possible. Birds on tidal rocks or sea excluded.
Razorbill	Ind	Count between 08:00 and 16:00, and from 1–21 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, and from 26 March to 15 May.
Atlantic 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, Walsh *et al.*, 1995). Evening or early morning visits will produce highest counts.
European Storm Petrel	AOB	Storm Petrels do not currently breed in Northern Ireland, therefore no recommendations are specifically made here.

Breeding success in 2020 – a summary of the latest data available on breeding success in Northern Ireland. For species with sufficient data for visualisation (Fulmar, Shag, Kittiwake and Common Tern), 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 2020 can be found in Table 8 in the Appendix on page 80.

Priority gaps in 2021 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.

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

Site or species	Difficulties	Planned coverage
Rathlin Island	Rathlin Island is Northern Ireland's most important seabird site, hosting one of Great Britain and Ireland's largest Razorbill and Common Guillemot colonies. However, it is a large and complex site that requires a high level of survey experience to cover. RSPB monitor sub-sites annually.	Census coverage funded by MarPAMM in 2021, but it would benefit from regular monitoring and more comprehensive coverage.
Manx Shearwaters	The only extant colony in Northern Ireland is on the Copeland Islands. Access to the colony therefore requires a boat and the survey methodology required for Manx Shearwaters is very labour-intensive (Arneill, 2018; Perkins *et al.*, 2017; Perrins *et al.*, 2012).	No
Mew Island and Big Copeland, the Copeland Islands	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
Black Guillemot – islands in Strangford Lough, Co. Down.	The complex system of islands in Strangford Lough may hold breeding Black Guillemots, however surveying these requires a boat.	No
The Skerries, Co. Antrim	Access is difficult, requires a boat and permission from the owner via NIEA	Coverage arranged for 2021, but the islands would benefit from regular monitoring.
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 might be best surveyed using a drone.	Boat-based surveying arranged for 2021 but the island would benefit from regular monitoring and more comprehensive coverage.
European Storm Petrels	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 the Skerries and Sheep Island. Playback equipment and access to a boat are necessary to survey Storm Petrels.	No
North and South Rock, Outer Ards, Co. Down.	Small islands requiring a boat to observe.	No
The Maidens	Access by boat is difficult as the islands are surrounded by strong tides and there is no safe landing area.	No

Get involved

If you are interested in seabird monitoring in Northern Ireland or getting involved in a one-off survey for the final year of the Seabirds Count census, please get in touch with the Seabird Coordinator (katherine.boothjones@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.

Northern Fulmar

Fulmarus glacialis

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in BOCC4 (2015), EC Birds Directive – migratory species, Endangered – IUCN Red List (Europe).

KEVIN KIRKHAM

Overview

Summary: 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' (Robinson, 2005).

UK population size, abundance and breeding success trends: Fulmars are very common in northern Britain. The UK population of Fulmar increased between the 1969–1970 and 1985–1988 censuses (from ~291,000 to 517,000 pairs) but remained stable between 1985–1988 and 1998–2002 when 501,609 pairs were recorded. The latest UK breeding population estimate is 350,000 (195,000–680,000) (Mitchell *et al.*, 2004; Woodward *et al.*, 2020). 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 (Mitchell *et al.*, 2004). Annual SMP abundance indices suggest that Fulmars may now be in decline after reaching a population peak in 1996 (JNCC, 2020), declining by 38% since the last census. Fulmar has 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 has been steadily decreasing since 1986 (JNCC, 2020). Analysis of the SMP dataset by Cook & Robinson (2010) found that the mean breeding success of Fulmars was 0.39 chicks/AOS and had declined at a rate of 0.05 chicks per nest per year between 1986 and 2008. This equates to a decline in breeding success of 11%. Using available life history information (population size, clutch size, age at first breeding and survival rates of different age classes), Cook & Robinson (2010) predicted that the UK Fulmar population would decline by about 12% over 25 years.

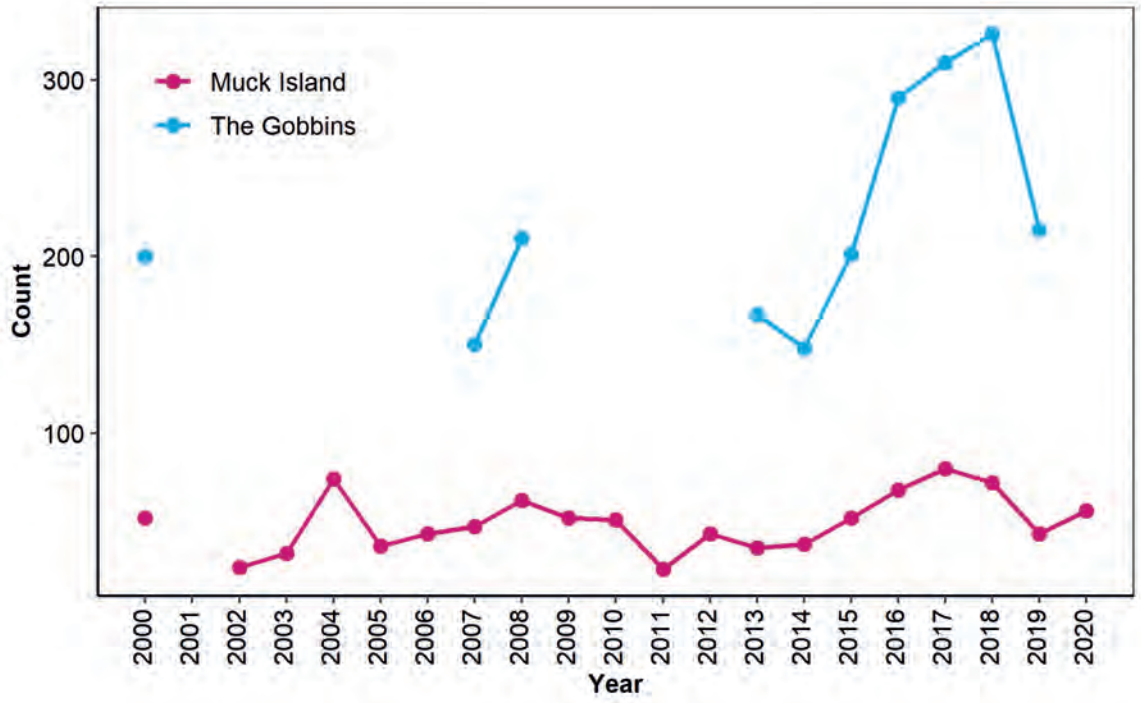
Northern Ireland population size, abundance and breeding success trends: In Northern Ireland, the Fulmar is a widespread breeding species, with the most important site being at Rathlin Island. Other notable sites are Downhill, Binevenagh, The Gobbins and Muck Island. Small numbers are scattered around the coast where suitable cliff habitat occurs. Between 1985–1988 and 1998–2002 censuses Fulmars increased in Northern Ireland from 3,540 to 5,992 breeding pairs (Mitchell *et al.*, 2004, JNCC, 2020). Since Seabird 2000, annual monitoring indicates that numbers in Northern Ireland have generally decreased, following the trend for the UK as a whole (JNCC, 2020). A full census, including Rathlin Island and the steep cliffs of the north coast of Co. Antrim, will be required to produce a more up to date Northern Irish population estimate. The collection of productivity data in Northern Ireland has been limited; therefore no meaningful average productivity figure can be produced.

Abundance in 2020

With the exception of Rathlin Island, the most significant colony to be not be counted this year was The Gobbins, which had declined sharply in numbers between 2018 and 2019 (Figure 1). Neighbouring Muck Island was surveyed, however, and numbers had increased slightly from 43 AOS in 2019 to 56 AOS in 2020. Although this population is smaller than that of The Gobbins, Fulmar numbers here have been relatively stable since the 1998–2002 census (Figure 1). Good coverage was achieved generally around the Co. Antrim coast this year. A low but relatively stable number of Fulmars was recorded at sites along the east coast, with the exception of a drop in numbers at Black Head from 31 to 19 AOS, potentially due to disturbance and

the netting of cliffs at the site (Ian Enlander, pers. comm.). Sites surveyed along the north coast supported relatively high numbers in comparison (Table 8, Appendix). In particular, the count of Fulmar AOS apparently more than doubled between 2019 (30 AOS) and 2020 (73 AOS) at Larribane.

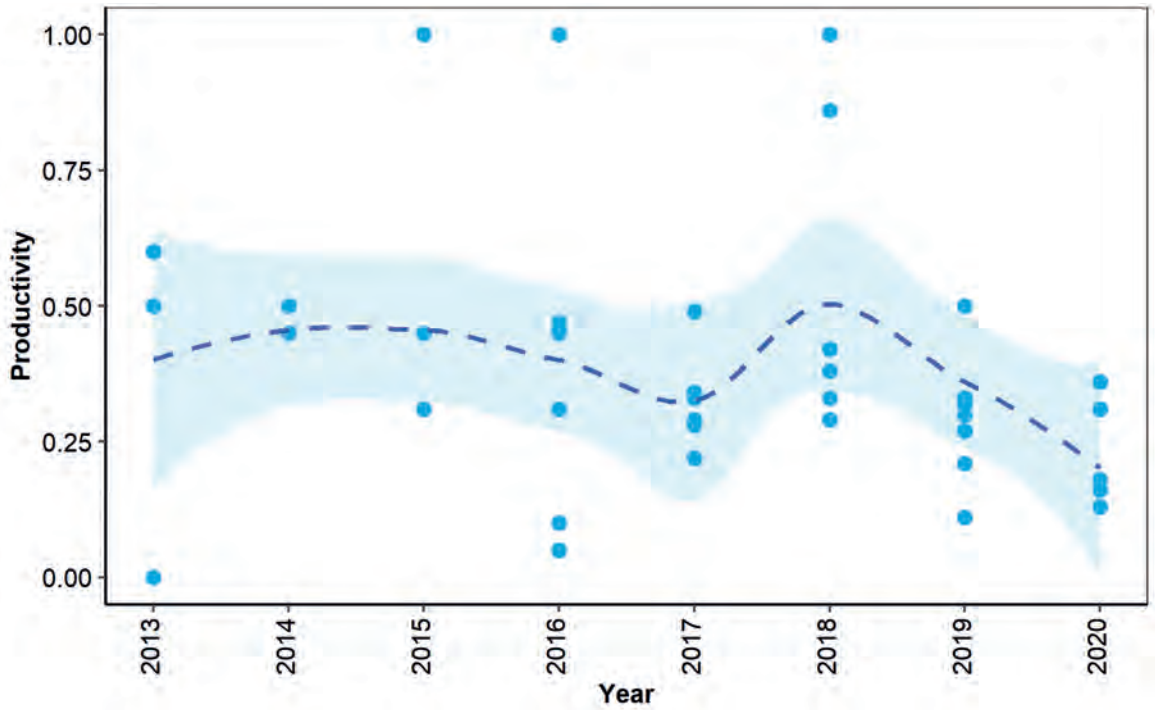
Figure 1: Fulmar counts (AOS) at Muck Island (red) and The Gobbins (blue), 2000–2020.



Breeding success in 2019

In 2020, Fulmar productivity was only monitored on four sites, all on the north coast of Co. Antrim, compared to the eight sites monitored in 2019. While Figure 2 shows an apparent downturn in productivity among Fulmar colonies in Northern Ireland, average productivity across the four north coast sites in 2019 and 2020 was similar (0.29 and 0.23, respectively), and the lack of data from other sites this year reduces the confidence in this trend. Over the past seven years, Fulmar productivity has been highly variable between Northern Irish colonies and breeding seasons (Figure 2).

Figure 2: Productivity (chicks/AOS) for Fulmar in Northern Ireland between 2013 and 2019. 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 2019 include: Ballygalley Head, Lighthouse Island, Maggy's Leap, Muck Island, Portmuck, The Gobbins, sections of the North Coast site, Park Head and Portnaboe.



Manx Shearwater

Puffinus puffinus

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in BOCC4 (2015), EC Birds Directive – migratory species, Least Concern – IUCN Red List (Europe).

RONALD SURGENOR

Overview

Summary: The Manx Shearwater is a burrow-nesting, tube-nosed seabird. The species is highly pelagic, spending most of the year at sea and only coming ashore under the cover of darkness to avoid avian predators. It is also the longest-living seabird recorded in the UK, with one individual recorded as at least 55 years old (Robinson, 2005).

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 last census, an estimated 299,678 AOS were counted in the UK (Mitchell *et al.*, 2004; Woodward *et al.*, 2020). However, the secretive lifestyle of the Manx Shearwater (burrow-nesting) makes it a difficult species to survey, and the breeding population 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. Formerly thought to hold around 100,000 AOB at the turn of the century (Smith *et al.*, 2001), a survey in 2011 suggested that the population was approximately 316,000 AOB (Perrins *et al.*, 2012).

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 0.62 chicks per pair per year between 1986 and 2018, and there is little year-to-year variation (JNCC, 2020).

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 last surveyed in 2007 (Stewart & Leonard, 2007). At that time, there were approximately 3,444 AOB (95% CI: 2,620–4,269) on Lighthouse Island and 1,406 AOB (95% CL: 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 European 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). Surveys have not been carried out since 2007 as they are labour intensive and costly, but a resurvey is urgently required to provide an up-to-date population estimate as part of the latest seabird census, and to inform conservation management.

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 (Mitchell *et al.*, 2004). Deane (1954) estimated 150 AOBs on Rathlin Island but the Operation Seafarer (1969–1970) figure was 1,000–10,000 AOBs (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, probably to extinction.

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 (0.62 chicks/AOS, JNCC, 2020), although extremely wet weather in 2007 resulted in a success rate of just 0.38 chicks per pair.

Abundance in 2020

There is no annual surveying of Manx Shearwaters in Northern Ireland, but a survey of the three Copeland Islands is urgently required.

Breeding success in 2020

No breeding success data were available for 2020 or 2019. 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

RONALD SURGENOR

European Storm Petrel

Hydrobates pelagicus

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in BOCC4 (2015), EC Birds Directive – listed in Annex 1 and as a migratory species, Least Concern – IUCN Red List (Europe).

JOE PENDER

Overview

Summary: The European Storm Petrel is a sparrow-sized tube-nosed seabird. Highly pelagic in habits, it only returns to land to breed. Storm Petrels eat mostly plankton and small fish, taken from the surface of the sea without alighting, the bird 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 European Storm Petrel was only comprehensively surveyed for the first time during Seabird 2000 (1998–2002) using a standard playback method (Mitchell *et al.*, 2004; Ratcliffe *et al.*, 1998), when 25,700 pairs were counted (Mitchell *et al.*, 2004). Due to the intensive and costly monitoring which would be required, there is little information available from which to derive UK or country level population trends since Seabird 2000 (JNCC, 2020). 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, Bingham, *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 and 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. 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 been conducted recently. The nearest colony is on Sanda Island, Scotland which is just 37 km to the east. The Skerries, off Portrush, is another potential breeding site. A survey of these locations is long overdue.

Great Cormorant

Phalacrocorax carbo

Conservation status: Amber-listed in the BOCCI4 2020–2026, Green-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Least Concern – IUCN Red List (Europe).

SARAH KELMAN / BTO

Overview

Summary: The Great Cormorant (Cormorant) is a widespread breeding species, often found in dense colonies. The characteristic open-winged posture adopted after fishing is due to the need to dry the bird's feathers, which are not waterproof (Robinson, 2005).

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, 2020). The UK breeding abundance index for Cormorants 1986–2018 indicates that the population increased between 1986 and 1995, but declined slightly after 2005 (JNCC, 2020). The latest UK winter population estimate is 64,500 (Frost *et al.*, 2019; Woodward *et al.*, 2020).

UK productivity remained fairly constant between 1991 and 2018, with nests fledging 1.81 chicks on average (JNCC, 2020).

Northern Ireland population size, abundance and breeding success trends: The increase seen between the 1985–1988 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. 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 no meaningful average productivity figure can be produced (JNCC, 2020).

Abundance in 2020

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 (Figure 3). Since then numbers have fallen but appeared to be increasing again in recent years. In 2020, delays caused by the COVID-19 pandemic meant that visits to the colony were later than is recommended (6th August), and it is likely that early breeders had already fledged young. Therefore, the count of 167 AON, the lowest since 1989 (Strangford Lough seabird nesting report on page 75), is likely to underestimate the total AON for 2020.

Numbers of Cormorants on Sheep Island declined between 2005 and 2015, before stabilising in more recent years. However, no counts were carried out in 2019 or 2020 (Figure 4). 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 (Figure 4), 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). Periodic counts of the numbers at The Gobbins cliffs dating back to 1969 (Figure 5) 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 could not be surveyed in 2020.

Figure 3: Cormorant count (AON) at Bird Island, Strangford Lough, 1986–2020. The dashed line represents the Locally Weighted Least Squares Regression trend in Cormorant numbers over time. The shaded region represents the 95% confidence interval around the trend.

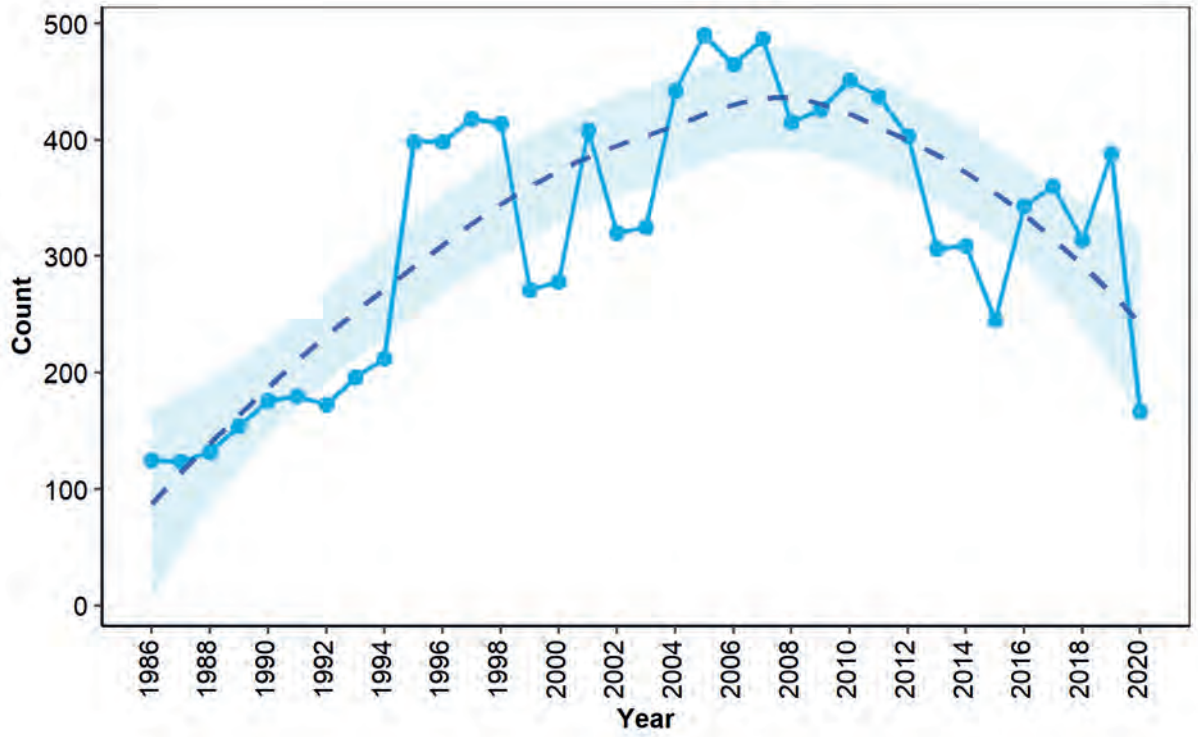


Figure 4: Cormorant counts (AON) at The Skerries and Sheep Island, 1985–2020. The Skerries were not surveyed before 2010 as it was believed that no Cormorants were present. The Skerries were not surveyed in 2016 or 2020, and Sheep Island was not surveyed in 2019 or 2020. The dashed line represents the Locally Weighted Least Squares Regression trend in Cormorant numbers over time at Sheep Island (no trend for The Skerries, due to missing data). The shaded region represents the 95% confidence interval around the trend.

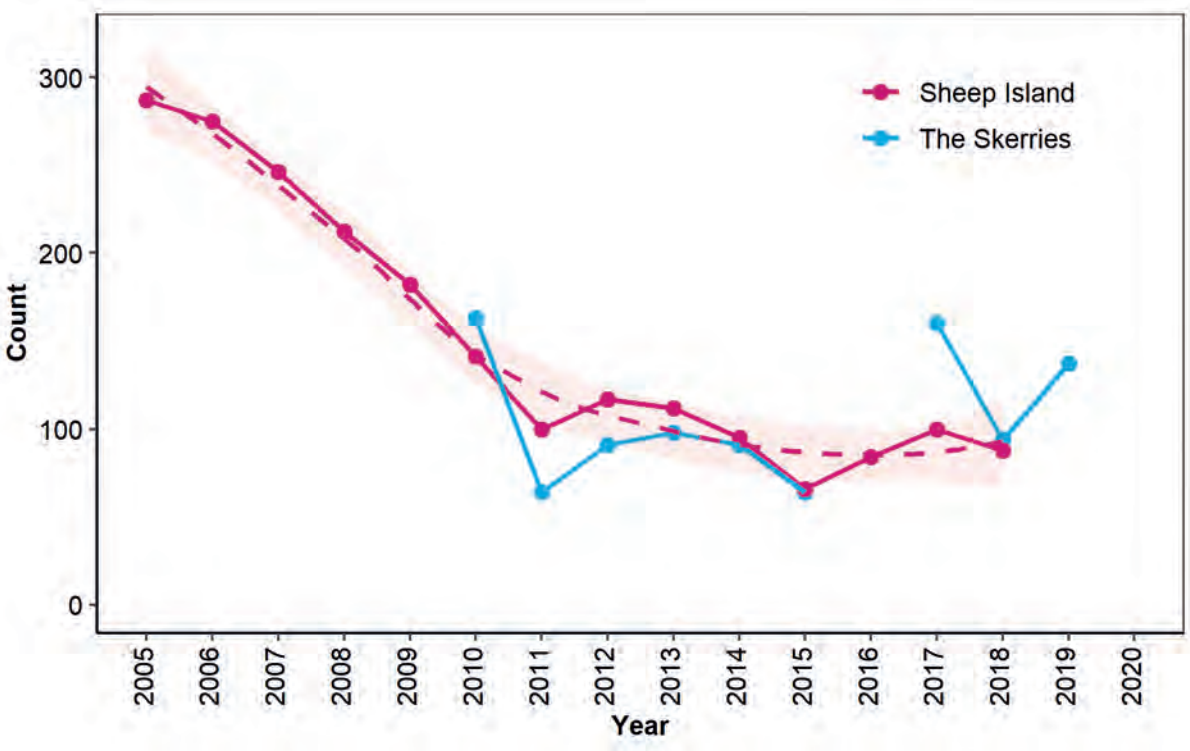
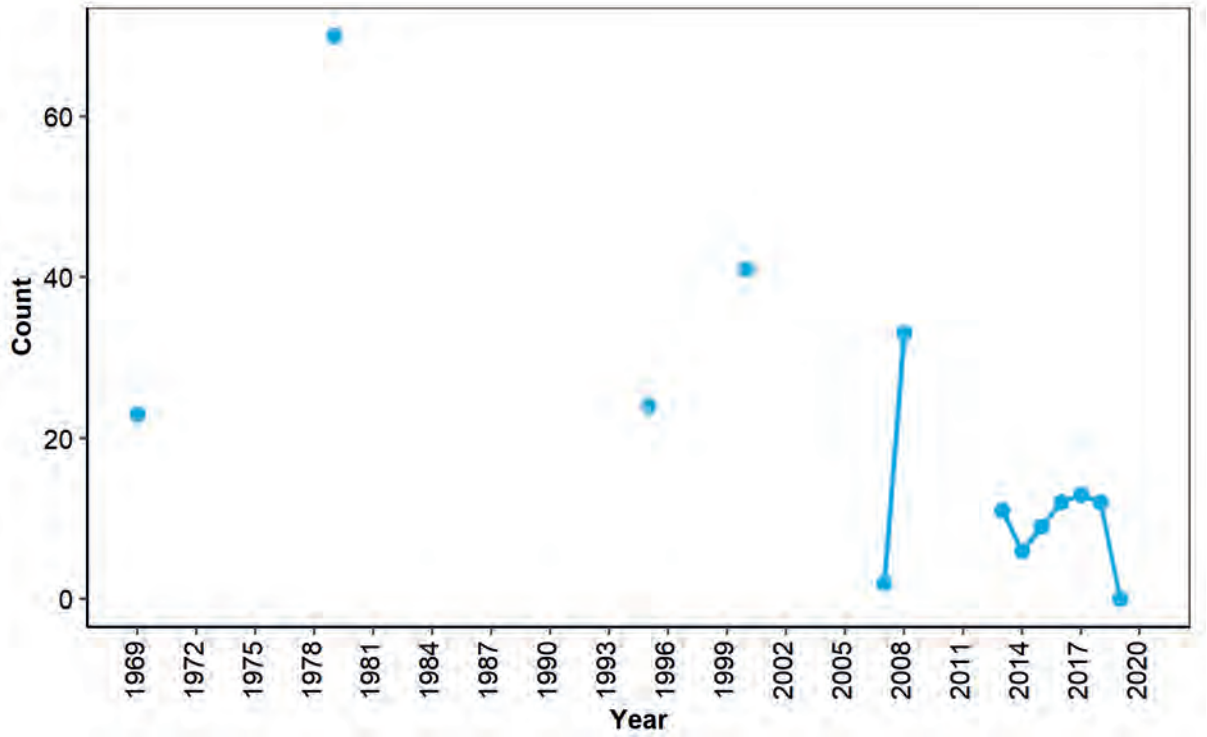


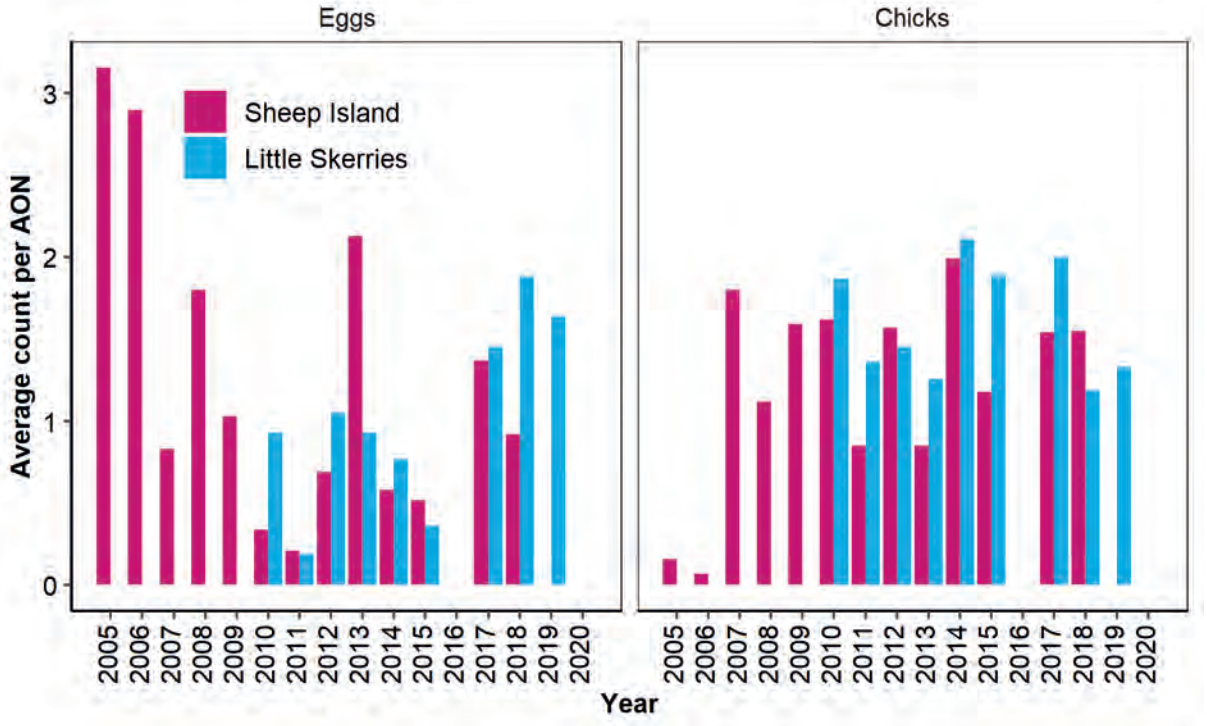
Figure 5: Cormorant numbers (AON) at The Gobbins, 1969–2020.



Breeding success in 2020

No Cormorants were monitored for breeding success in 2020. Due to their breeding asynchrony, many visits are required to colonies through the season to assess the productivity of Cormorants. However, NIEA make single-visit surveys to Sheep Island and the Skerries annually to count numbers of eggs and chicks in the Cormorant colonies (Figure 6). Little Skerries supported 1.64 eggs per AON and 1.33 chicks per AON in 2019, but productivity on Sheep Island was not monitored. In 2019, The Gobbins held 11 nests, which produced 11 chicks.

Figure 6. The average number of Cormorant eggs (left) and chicks (right) per AON observed by NIEA on breeding season visits to Sheep Island (red) and Little Skerries (blue)



European Shag

Phalacrocorax aristotelis

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Red-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Least Concern – IUCN Red List (Europe).

LINDSAY HODGES

Overview

Summary: 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 (Robinson *et al.*, 2005).

UK population size, abundance and breeding success trends: Over a third of the world population breeds in the UK and Ireland (JNCC, 2020). The UK population size was estimated to be 26,565 AON at the last census in 1998–2002 (Mitchell *et al.*, 2004). The UK breeding abundance index shows a 37% decline between 1986 and 2018, though this decline has been predominantly in Scotland with populations in England and Wales showing little change (JNCC, 2020). Latest estimates put the UK population at 17,500 (13,500–20,500) (Woodward *et al.*, 2020). Annual return rates of adults are usually in the order of 80–90% (JNCC, 2020) 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 (Frost *et al.*, 2019; Woodward *et al.*, 2020).

The shortage of sandeels is thought to have contributed to low productivity in some years, but on average between 1986 and 2008 Shag productivity at sample sites across the UK was estimated to be 1.21 chicks per pair (Cook & Robinson, 2010; JNCC, 2020). Population Viability Analysis calculations by Cook & Robinson (2010) suggests that if all demographic parameters remain the same (survival, clutch size, etc.) the UK population will decline by 9% over the next 25 years.

Northern Ireland population size, abundance and breeding success trends: In Northern Ireland, the Shag is a widespread breeding species, 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, 2020).

The collection of productivity data in Northern Ireland has been limited; therefore no meaningful average productivity figure can be produced (JNCC, 2020).

Abundance in 2020

Data are absent for several important Shag colonies in Northern Ireland in 2020, largely due to the difficulty of reaching the sites. Numbers at Muck Island, while small, have increased since 2014 from 16 AON to a peak of 38 AON in 2019 (Figure 7). This year, numbers dropped only slightly, to 31 AON. Although not counted in 2020, numbers at The Gobbins nearby were at their highest recorded in 2018 (Figure 7) having increased by 11% since Seabird 2000 (1998–2002). In 2019, the population on Rathlin Island continued its upward trend (Figure 8, Else & Watson, 2019). Shags stopped breeding in Strangford Lough in 2007 (Figure 9). The species has been recorded in small numbers at several new locations since 2013.

Figure 7: European Shag counts (AON) at Muck Island (purple) and The Gobbins (blue), 2000–2020. The dashed line represents the Locally Weighted Least Squares Regression trend in Shag numbers over time at Muck Island (no trend for The Gobbins, due to missing data). The shaded region represents the 95% confidence interval around the trend.

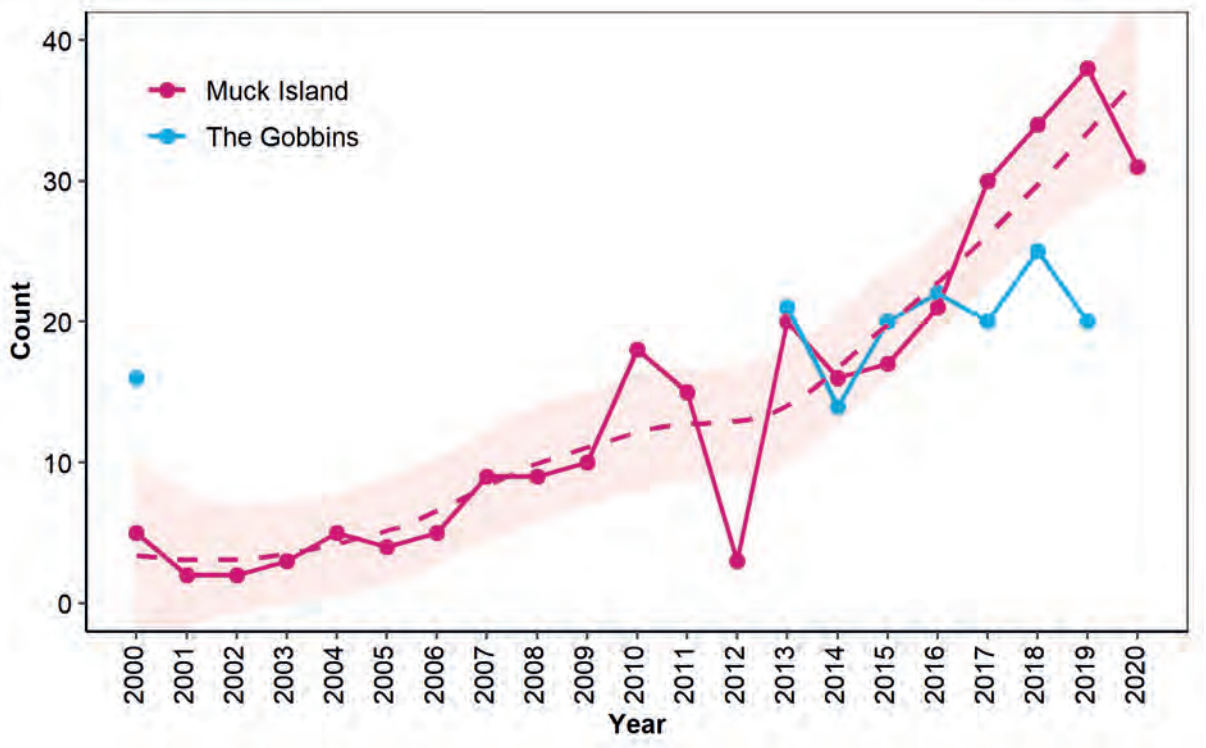


Figure 8: European Shag counts (AON) at Rathlin Island, 1985–2020. No data were available for 2019.

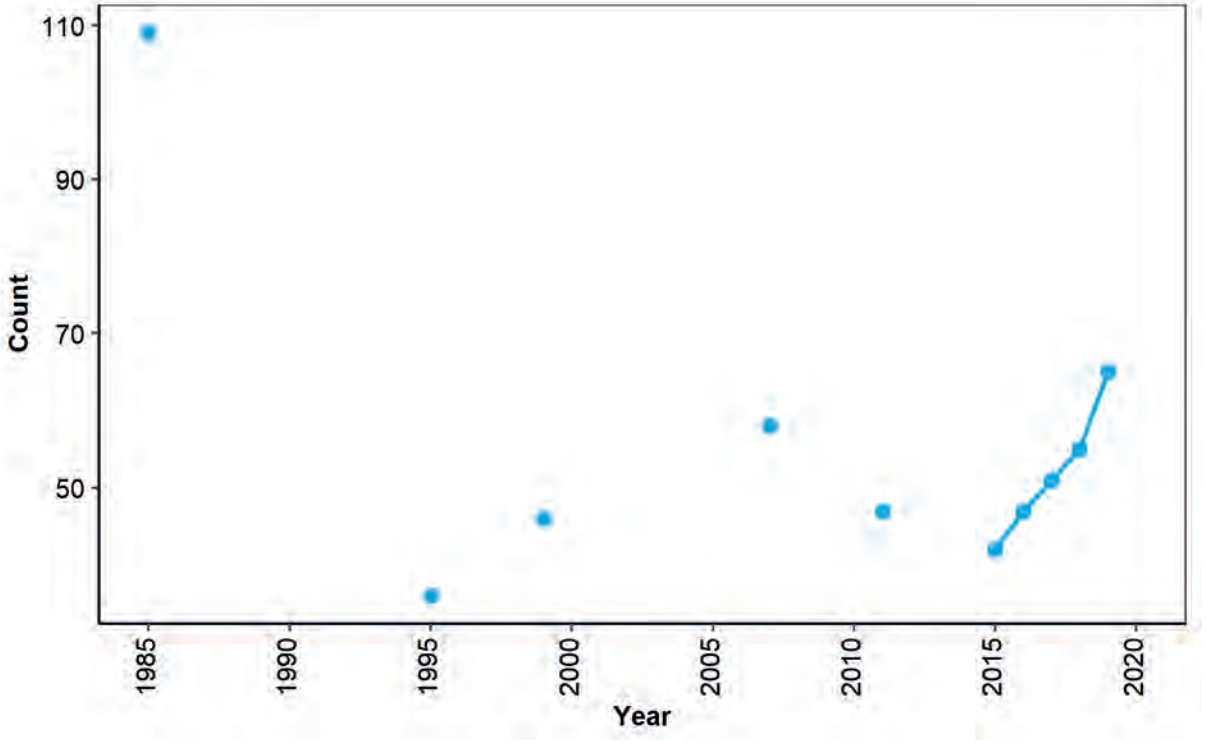
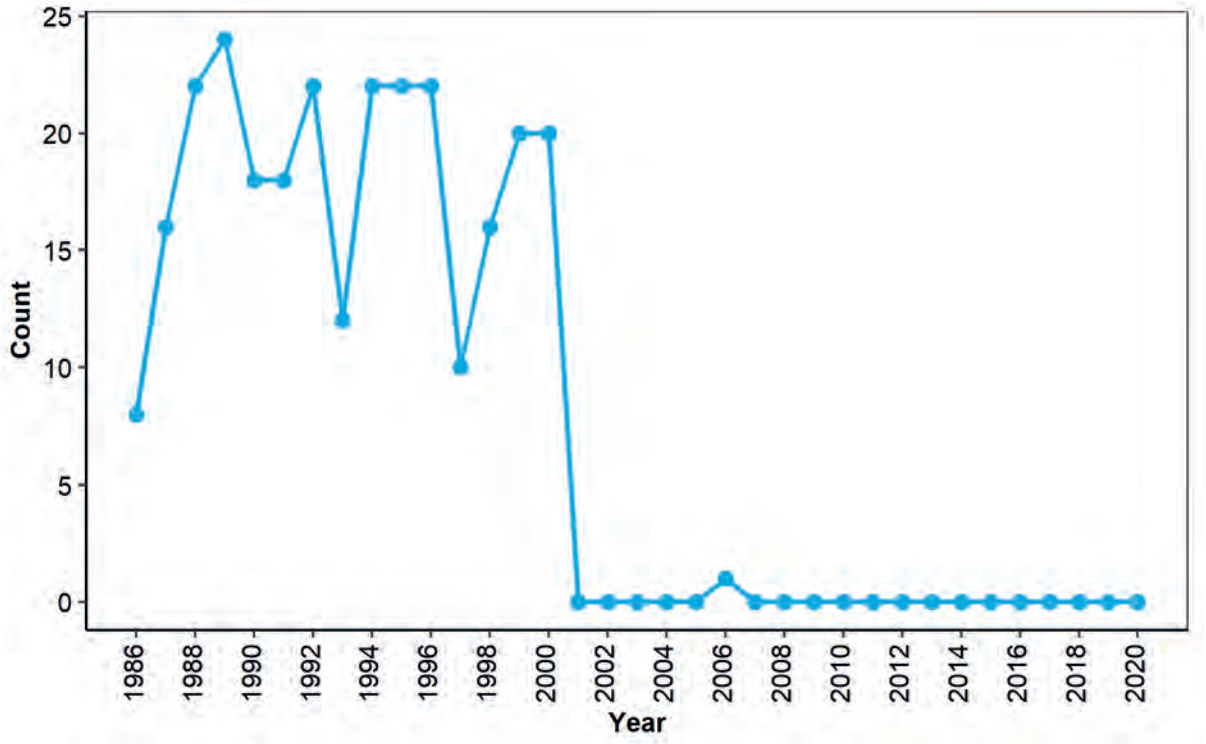


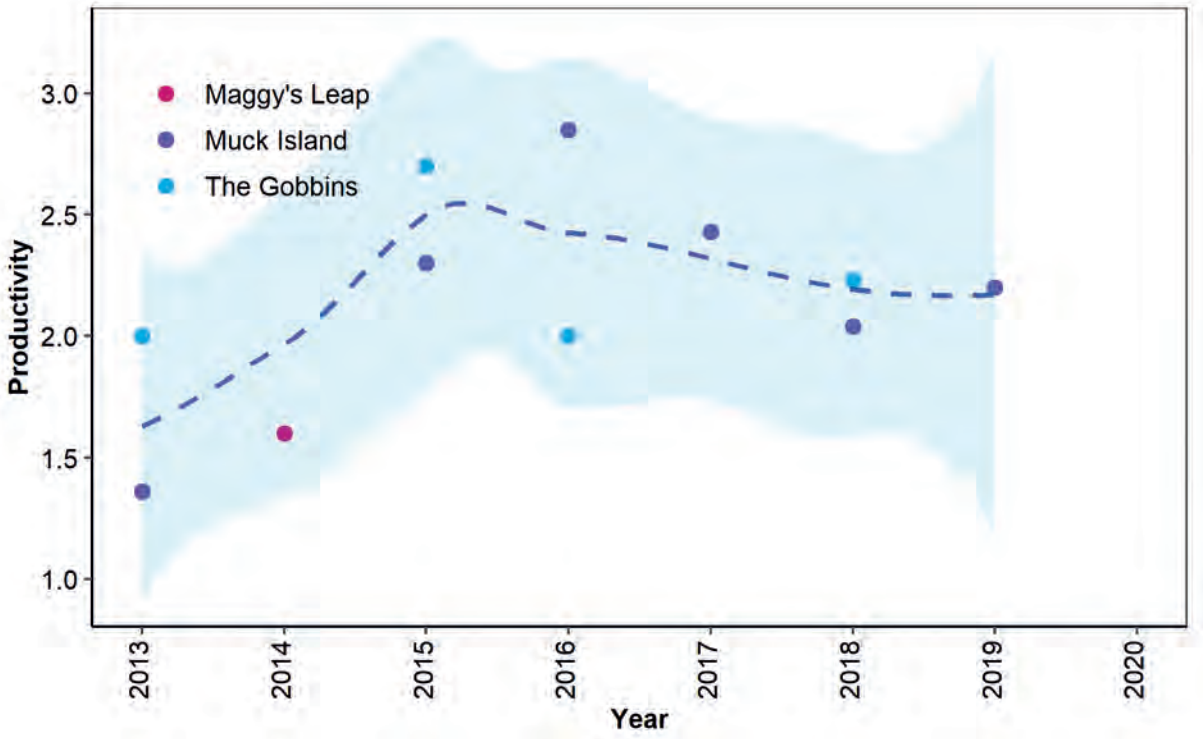
Figure 9: European Shag numbers (AON) at Strangford Lough, 1986–2020. Although surveys have taken place in all years, no Shags have been counted since 2006.



Breeding success in 2020

No productivity data for Shag were collected in 2020. In 2019, the Muck Island colony produced 44 chicks from 20 nests, a slightly higher figure than in the previous two years (Figure 10). Productivity data were not recorded at The Gobbins in 2019. Figure 10 shows the yearly productivity data for Shag at Muck Island, The Gobbins and one recording from Maggy's Leap, and shows that there is considerable variation between years and sites. 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.

Figure 10: Productivity (Chicks/AON) for European Shags 2013–2020 at Muck Island (dark blue), The Gobbins (pale blue) and Maggy's Leap (purple). No data were available for 2020. 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.



Great Skua

Stercorarius skua

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Least Concern – IUCN Red List (Europe).

STEPHEN DUNBAR

Overview

Summary: 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' (Robinson, 2005). 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: During the Seabird 2000 (1998–2002) census, the UK held 60% (9,634 AOT) of the world's population of Great Skua (Mitchell *et al.*, 2004). Orkney and Shetland are the core breeding areas, but the species has now spread through northern Scotland to the Western Isles (JNCC, 2020). The UK population is increasing, by 148% between the 1969–1970 and 1985–1988 censuses and by a further 26% by Seabird 2000 (JNCC, 2020). 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 has varied between 1.1 and 0.2 chicks per pair between 1986 and 2018 (JNCC, 2020).

Northern Ireland population size, abundance and breeding success trends: Great Skua is 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, 2020). 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.).

Abundance in 2020

While no official records are available for Rathlin in 2020, anecdotal accounts suggest that a single pair of Great Skua bred on the island once again, for the tenth consecutive year.

Breeding success in 2020

No breeding success information is available for 2020. However, although the pair did not breed successfully in 2017 or 2018, in 2019 the pair fledged one chick (Liam McFaul, RSPB, pers. comm.).

Black-legged Kittiwake

Rissa tridactyla

Conservation status: Red-listed in the BOCCI4 (2020–2026), Red-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Vulnerable – IUCN Red List (Europe).

ANDY CARDEN

Overview

Summary: The Black-legged Kittiwake (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, 2020).

UK population size, abundance and breeding success trends: 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). Furthermore, analysis of SMP trends suggest that between 2000 and 2018 there have been further declines of 50% (JNCC, 2020). 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 2018 it was 0.63 chicks per pair (JNCC, 2020).

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).

Research suggests that 0.80 chicks per pair are needed to maintain steady breeding populations of Kittiwakes (Coulson, 2017), a productivity value exceeded on average (0.93 chicks per pair, 95% CI 0.81-1.05) by Northern Irish Kittiwake colonies between 2014 and 2019 (Booth Jones, 2020).

Abundance in 2020

While monitoring was reduced for Kittiwake in 2020, important sites at Portrush, Muck Island and Maggy's Leap were visited, representing colonies on the north, east and south-east coasts of Northern Ireland. While there was a smaller sample to examine in 2020 due to the reduction in monitoring (Table 8, Appendix), all sites surveyed recorded small increases or stability in Kittiwake AON, following on from an increase seen across the colonies in 2019.

The colony at Portrush is divided into sites to ease counting, and only one of these 10 sites was monitored this year. However, numbers of Kittiwake at this site have increased annually since 2018 and contained 141 AON in 2020. In its 20th consecutive year of survey, the population of Kittiwake on Muck Island remained stable, hosting 521 AON (Figure 11). Overall, the trend for this site has increased over the last seven years. Numbers of Kittiwake in Maggy's Leap to Newcastle increased to 717 AON in 2020, following a pattern of increase since 2015 (Table 8, Appendix). Numbers at a productivity study plot within this site, Donard Cove, have reflected this overall pattern, recovering after a dip in numbers in 2018 (Figure 12).

Although there are no records for 2020, in 2019 The Gobbins held 1,145 AON, the highest count since 2007 and an increase of 68% over 2018 (Table 8, Appendix). At Strangford Lough, a peak of 466 AON was reached in 1996 before Kittiwake disappeared as a breeding species at the site. At Rathlin Island, Kittiwake numbers grew from 6,822 AON in 1985 to 9,917 AON in 1999, but at time of the latest survey in 2011 had dropped back to 7,922 AON, a decrease of 20% (Allen *et al.*, 2011).

Overall, populations at individual colonies are fluctuating, presumably in response to local feeding conditions. There is no clear pattern, with some colonies on both the north coast and Co. Down coast fairing badly (e.g. no Kittiwakes recorded in recent times at Castlerock and Strangford Lough), but other colonies remaining largely static or growing (e.g. Newcastle to Maggy's Leap, The Gobbins, Muck Island and on the North Antrim Coast; Table 8, Appendix).

Figure 11: Black-legged Kittiwake counts (AON) at Muck Island (purple) and The Gobbins (blue), 2000–2020. No data were available for The Gobbins in 2020. The dashed line represents the Locally Weighted Least Squares Regression trend in Kittiwake numbers over time at Muck Island (no trend for The Gobbins, due to missing data). The shaded region represents the 95% confidence interval around the trend.

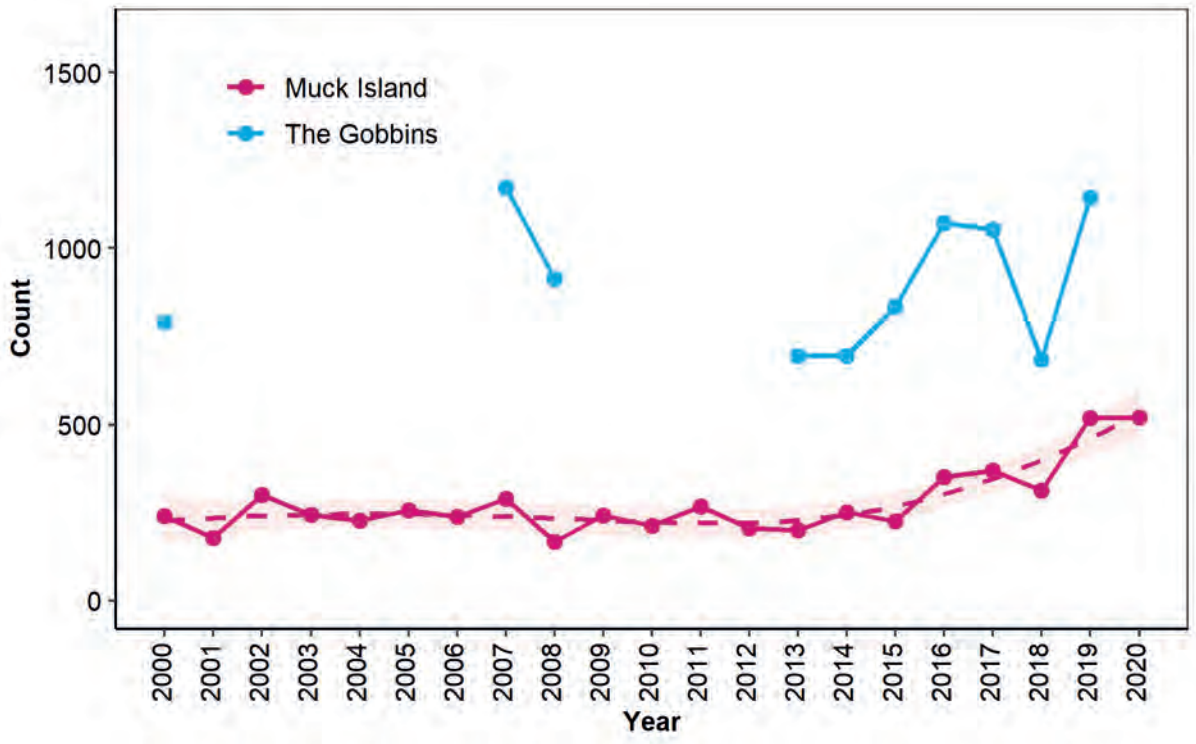
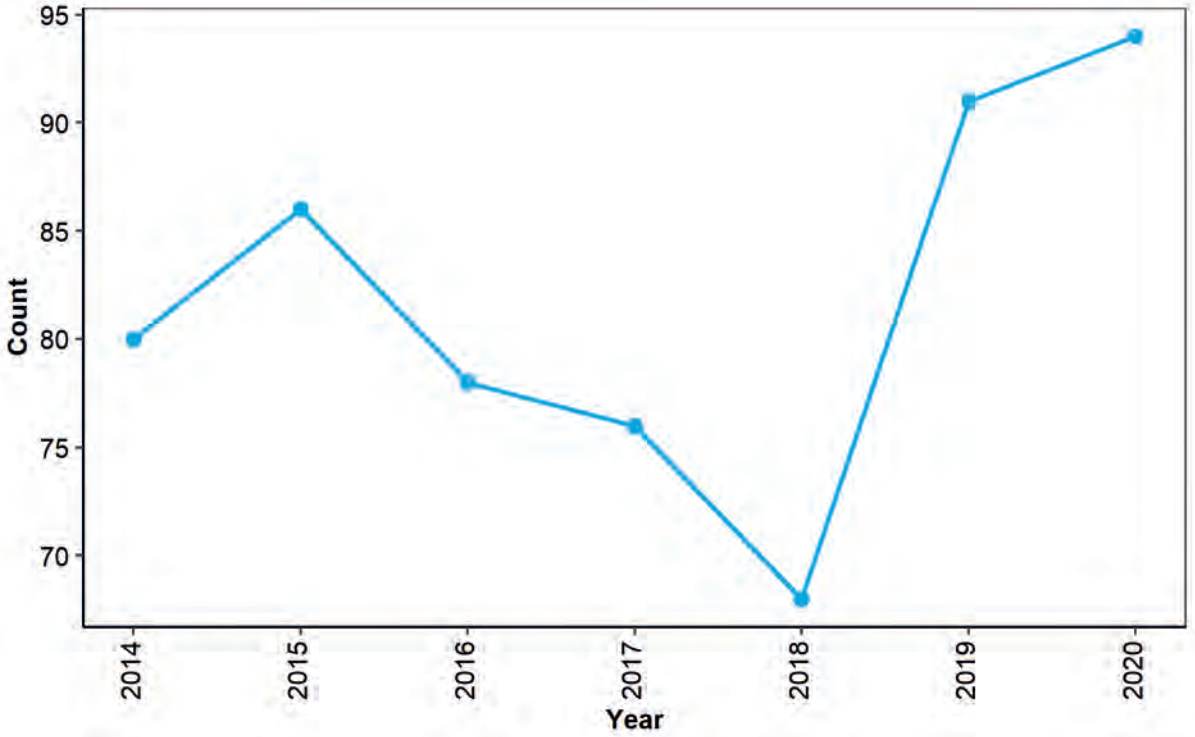


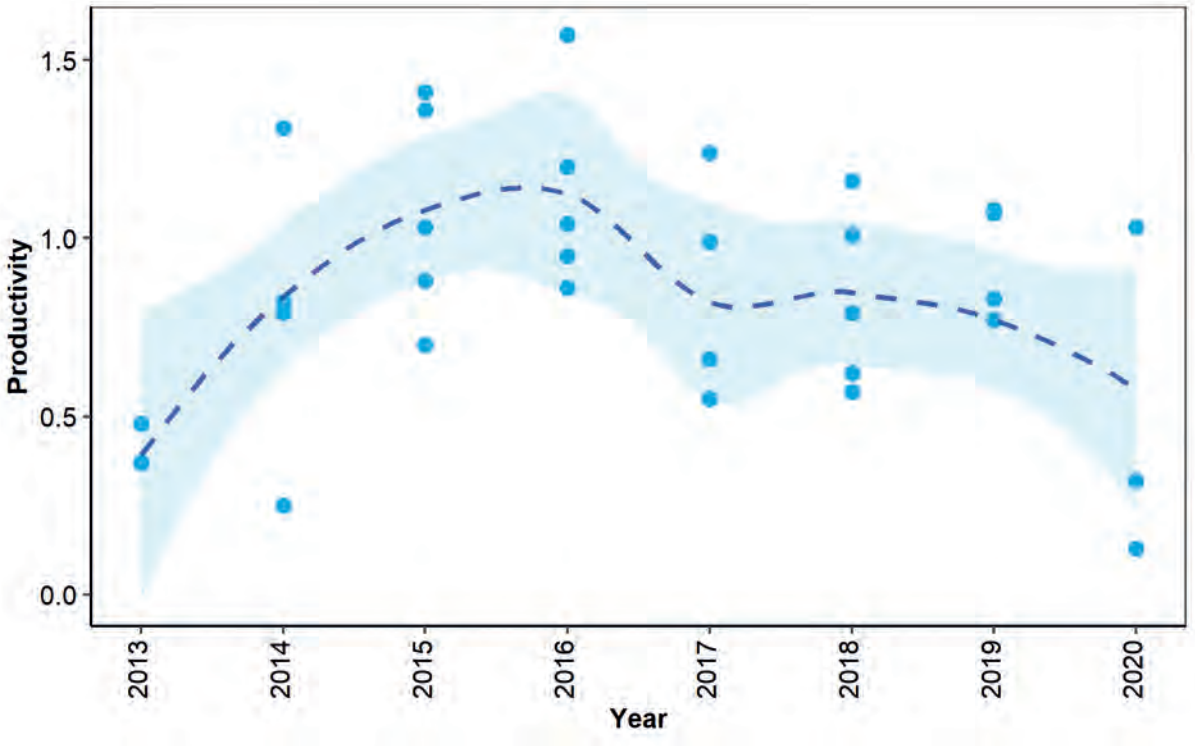
Figure 12: Black-legged Kittiwake counts (AON) at Donard Cove study plot, 2014–2020.



Breeding success in 2020

Only three sites were monitored for productivity in 2020: Muck Island, Donard Cove and Portrush. There appears to be a downward trend in breeding success since 2016, although more certainty around this could be gained by an increase in the number of sites monitored (Figure 13). In 2020, particularly poor seasons were had at Muck Island (0.32 chicks/nest) and Portrush (0.13 chicks/nest), and in the latter case the presence of a Peregrine (*Falco peregrinus*) was considered to have affected the colony this year (Cliff Henry, National Trust, pers. comm.). The productivity at Donard Cove (1.03 chicks/nest) was similar to that of 2019 when it experienced the best year on record. In 2019 at The Gobbins, a study of 490 AON produced 406 chicks (0.83 chicks/AON), an improvement over 2018 when the productivity was 0.57 chicks/AON, the lowest since 2014.

Figure 13: Kittiwake productivity (chicks/AON) 2013–2020 across five sites in Northern Ireland (Donard Cove, Muck Island, Portrush, Rathlin Island and The Gobbins). 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.



Black-headed Gull

Chroicocephalus ridibundus

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Least Concern – IUCN Red List (Europe), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

NEAL WARNOCK

Overview

Summary: The Black-headed Gull is a small gull, found throughout the UK both around the coasts and inland. The species is particularly abundant in the winter when the UK breeding population is joined by migrants from continental Europe (Wernham, 2002). Black-headed Gulls are now common in gardens, although similarly to other gull species, their urbanisation appears to be a recent phenomenon (Robinson, 2005).

UK population size, abundance and breeding success trends: 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). 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. Therefore, although Seabird 2000 showed an apparent increase, this was due to more comprehensive surveying that may have masked an actual population decline (JNCC, 2020). SMP trends suggest the population has increased by 32% since the last census (JNCC, 2020). 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 0–1.20 chicks per AON (JNCC, 2020), however the most recent UK productivity average was 0.73 chicks per pair in 2018.

Northern Ireland population size, abundance and breeding success trends: In Northern Ireland, the Black-headed Gull is a widespread breeding species present 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 no meaningful figure can be produced (JNCC, 2020). The potential impact of predators such as American Mink (*Mustela vison*) (Craik, 1997) or Eurasian Otters (*Lutra lutra*) on inland colonies in Northern Ireland are largely unstudied. Collecting productivity data is a high priority.

Abundance in 2020

The large colonies of Black-headed Gulls in Northern Ireland are surveyed by the RSPB and National Trust, both of which had their field seasons affected by the pandemic in 2020. Due to this, the usual level of surveying for Black-headed Gulls in Northern Ireland has been less complete than in previous years, and surveys were not as structured in some cases.

Numbers at Larne Lough grew from just 109 AON in 1987 to a high of 3,102 AON in 2016 (Figure 14; Table 8, 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 2020, Swan Island was not counted, and Blue Circle Island was only counted at a distance from a vantage point (estimated 2,000 AON, Figure 14), therefore it is difficult to compare this season with previous years.

Numbers of Black-headed Gulls increased by 44% to 806 AON between 2019 and 2020 at RSPB's Belfast Lough reserve. This is the highest record since 2017. At RSPB's Portmore Lough reserve, 104 AON were counted, down on the 2019 record of 143 AON.

Surveying for Black-headed Gulls was not possible in Strangford Lough, Outer Ards, Carlingford Lough, Lower Lough Erne in 2020 due to the delays in starting fieldwork. However, in 2019, the Strangford Lough population remained at historically low levels, at 1,305 AON (Figure 15). There are also breeding populations in Co. Fermanagh; Moorlough Lake supported 95 AOTs in 2018 but was not counted in 2019 or 2020, while Lower Lough Erne had 1,718 AON in 2019, an increase of 41% over 2018 (Table 8, Appendix).

Flush counts totalling 10,192 individuals in Lough Neagh were conducted late in the season, so do not necessarily reflect numbers of breeding adults. However, the Lough Neagh Partnership has plans to resume a surveying schedule of Black-headed Gulls and other seabirds in Lough Neagh in future years (see page 71 to learn more about the Lough Neagh Partnership). 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 8, Appendix; Bob Davidson and Stephen Foster, pers. obs). 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).

SARAH KELMAN / BTO

Figure 14: Black-headed Gull counts (AON) at Larne Lough, 1987–2020. A full count was not possible in 2020, therefore the purple point represents an incomplete count.

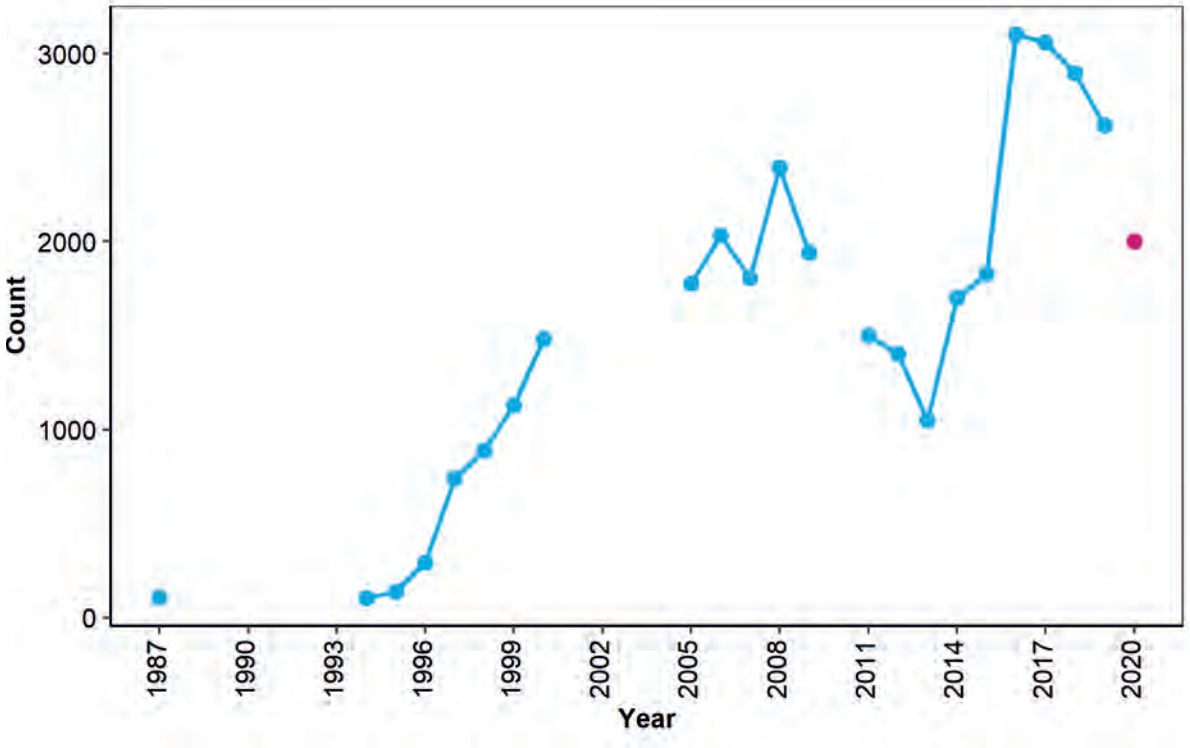
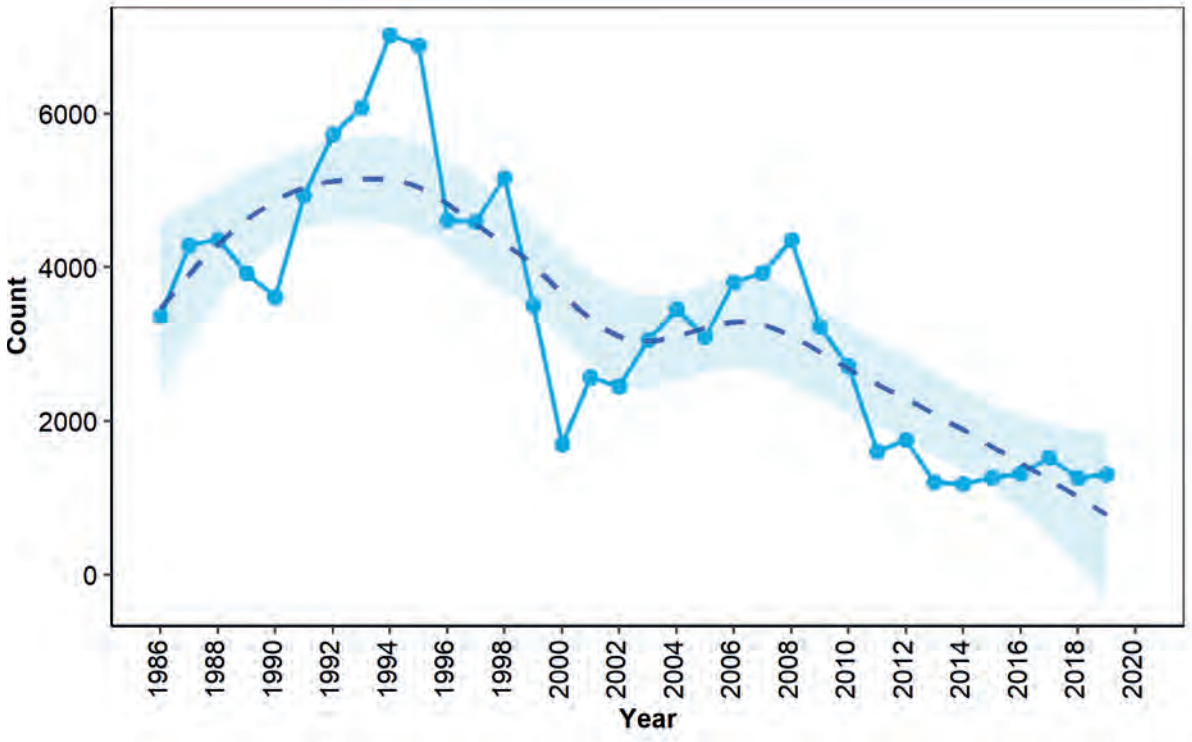


Figure 15: Black-headed Gull counts (AON) at Strangford Lough, 1986–2020. The dashed line represents the Locally Weighted Least Squares Regression trend in Black-headed Gull numbers over time at Strangford Lough. The shaded region represents the 95% confidence interval around the trend. No counts took place in 2020.



EDMUND FELLOWES / BTO

Mediterranean Gull

Larus melanocephalus

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – Annex 1 and migratory species, Least Concern – IUCN Red List (Europe).

JONATHAN CLARK

Overview

Summary: Slightly larger and stockier than the Black-headed Gull 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, 2020), with their 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 1985–1988 census there were over 100 AON during Seabird 2000 (1998–2002) and there are now approximately 1,200 AON across the UK (Holling *et al.*, 2017; Woodward *et al.*, 2020). Most large colonies are located in south and south-east England, although the distribution is expanding northward, with smaller colonies becoming established elsewhere. In the winter, numbers of Mediterranean Gulls increase to 4,000 individuals (British Trust for Ornithology, 2019; Woodward *et al.*, 2020).

Few productivity data are collected for Mediterranean Gulls, but they are thought to experience high breeding success, which contributes to their increasing population size (JNCC, 2020).

Northern Ireland population size, abundance and breeding success trends: The 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 no meaningful average productivity figure can be produced (JNCC, 2020).

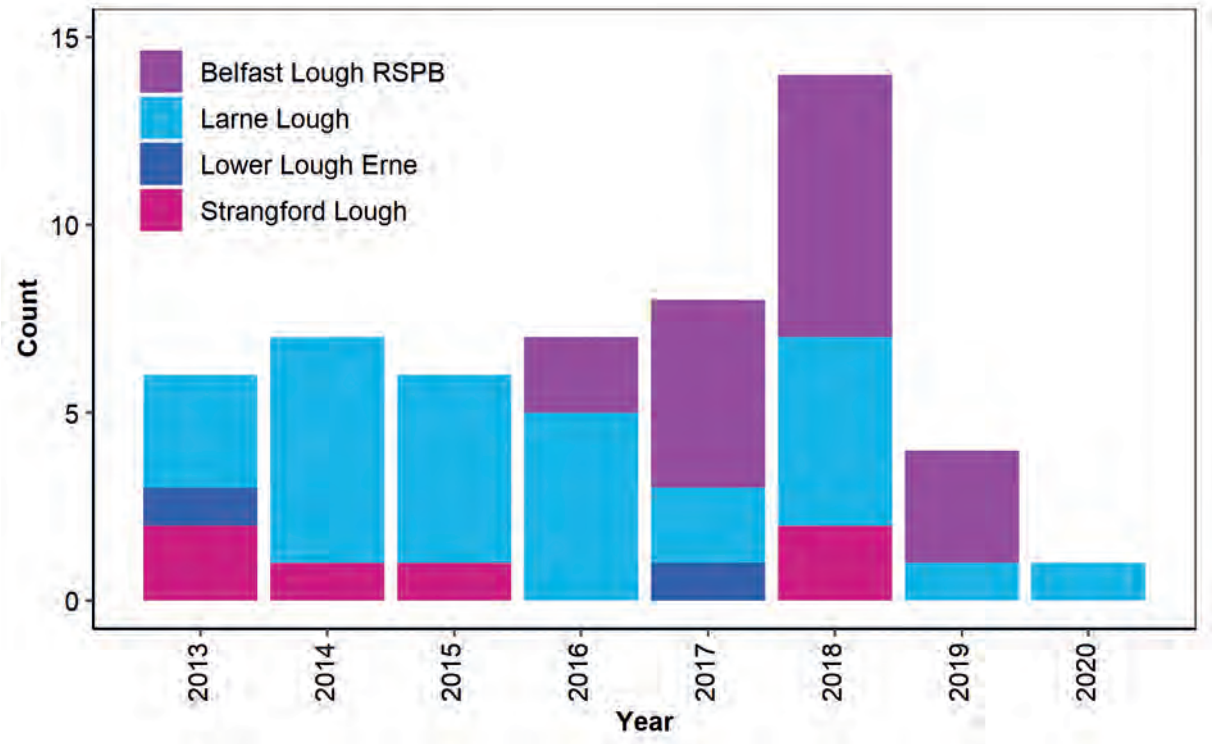
Abundance in 2020

Likely due to fieldwork restrictions, records of Mediterranean Gulls were only received from Larne Lough (one AON) and Lower Lough Erne (one individual, paired with a Common Gull, Brad Robson pers. comm) in 2020, although the presence of two adults at Belfast Lough RSPB reserve in May suggests that they may have bred there again this year.

Breeding success in 2020

Breeding success was only recorded at the single nest found in Larne Lough, which produced two chicks. The productivity of Mediterranean Gulls was estimated to be 1.75 chicks/AON at Larne Lough and 2.17 chicks/AON in Belfast Lough in 2018.

Figure 16: Cumulative Mediterranean Gull count (AON) in Northern Ireland, 2013–2020. No data were available for 2020 from Belfast Lough or Strangford Lough. Bars represent the total number of Mediterranean Gull pairs per year, and the colour represents the number in each site.



STEPHEN MAXWELL

Common Gull

Larus canus

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Least Concern – IUCN Red List (Europe).

RASMUS SLOTH PEDERSEN

Overview

Summary: 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 is the classic gull of sports fields, and birds can often be seen paddling their feet to encourage worms to surface in grassy areas (Robinson, 2005).

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. 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).

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 2018 average productivity was 0.40 chicks per pair (JNCC, 2020).

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 1985–1988 and 1998–2002 censuses, and small numbers have appeared at several locations, although unfortunately not formally monitored (Kerry Leonard, pers. obs.). 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 no meaningful average productivity figure can be produced (JNCC, 2020).

Abundance in 2020

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 shores 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.

Numbers of Common Gulls increased 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 (Figure 17). Due to restrictions on fieldwork, counts of Common Gull in Strangford Lough were not possible in 2020. In 2019, numbers of Common Gull were the highest since 2012 (346 AON).

Numbers of Common Gull at the smaller Larne Lough colony increased to 22 AON in 2020 but have been variable in recent years (Figure 18). A few Common Gulls breed at Carlingford Lough, and while these increased

to nine AON in 2019, they dropped to an estimated one AON in 2020 (Table 8, Appendix). Up to nine AON have been recorded annually in the Outer Ards since 1986 (Figure 19). While some coastline was visited in the Outer Ards in 2020, the key site for Common Gull, Cockle Island, was not counted in 2020. Counts were also not carried out in Lower Lough Erne this year. 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 8, Appendix), this was probably an underestimate (Brad Robson, RSPB, pers. comm.).

Figure 17: Common Gull counts (AON) at Strangford Lough, 1985–2020. No counts were made in 2001 or 2020.

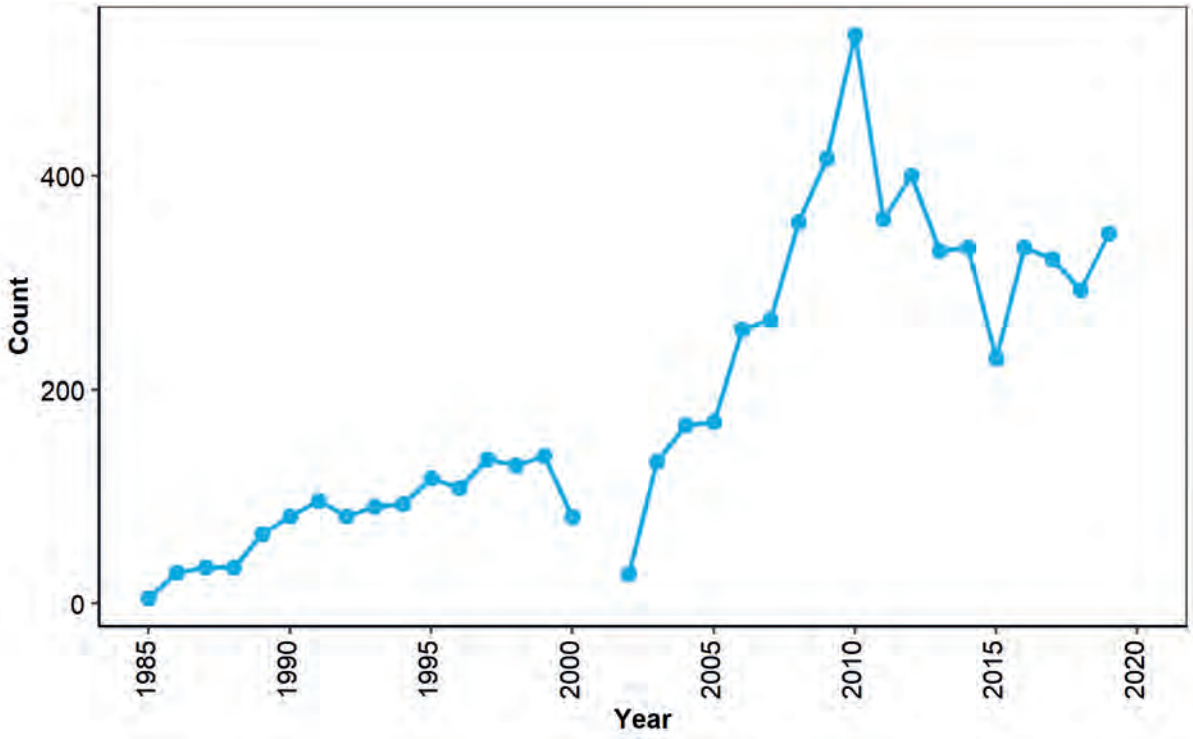


Figure 18: Common Gull counts (AON) at Larne Lough, 1995–2020.

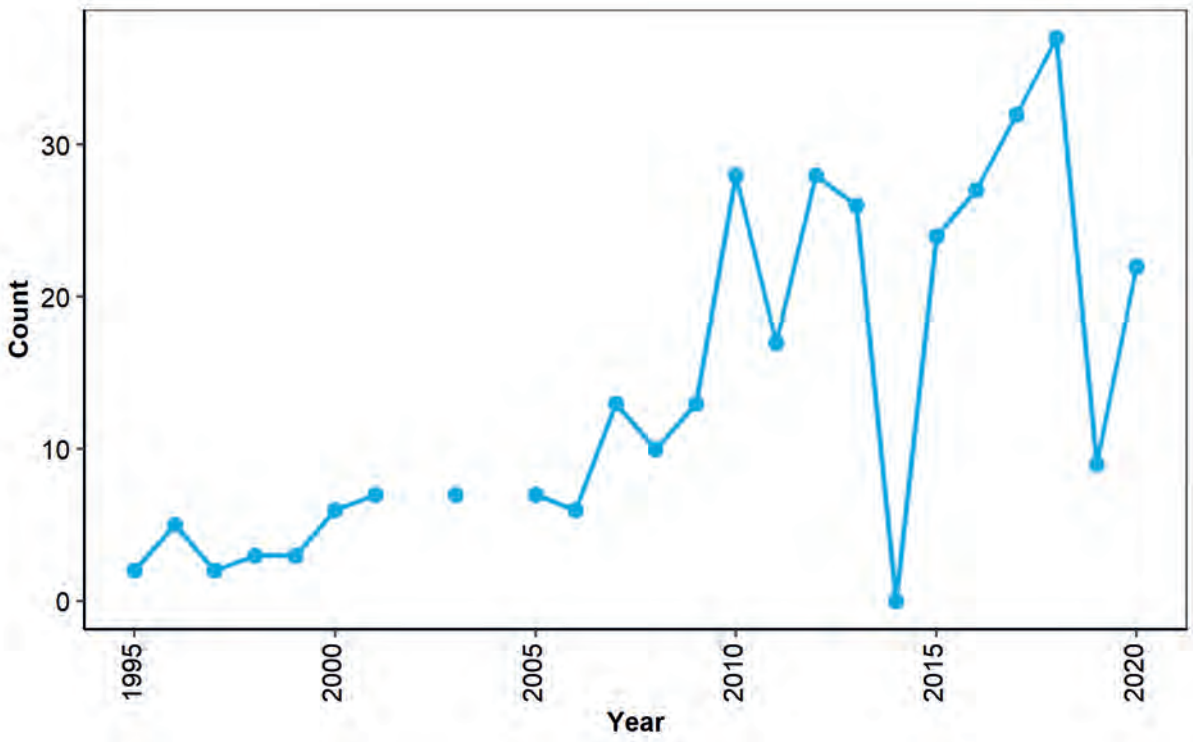
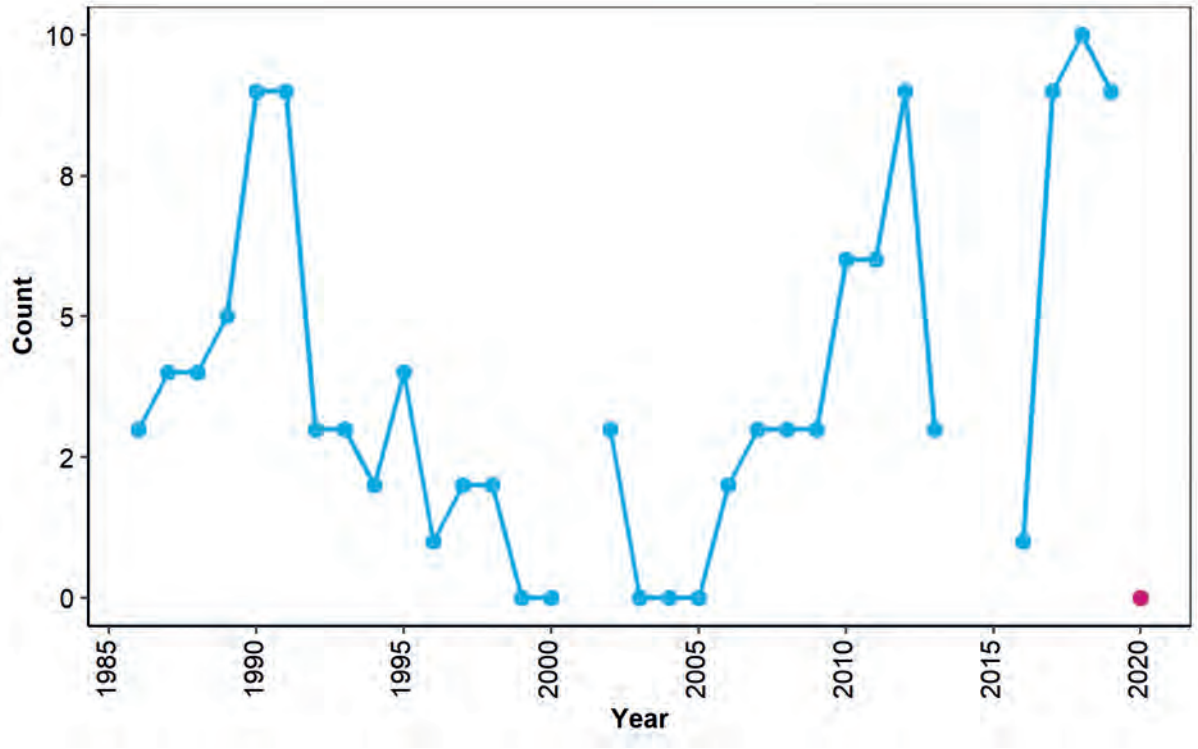


Figure 19: Common Gull counts (AON) in the Outer Ards, 1986–2020. Cockle Island was not counted in 2020, therefore the 2020 count (purple point) is incomplete.



Breeding success in 2020

The only breeding season data to be collected in 2020 was at Larne Lough, where 22 AON produced 13 chicks (0.59 chicks/AON). This was slightly lower than that of Green Island, Carlingford Lough in 2019, where nine AON fledged seven chicks (0.78 chicks/AON).

Lesser Black-backed Gull

Larus fuscus

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive –migratory species, Least Concern – IUCN Red List (Europe).

NEAL WARNOCK

Overview

Summary: Lesser Black-backed Gulls nest colonially and 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 (Mitchell *et al.*, 2004; Rock, 2002).

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, 2020). However, with the species' spread to inland urban sites, it is likely that some colonies remained uncounted. 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 2018 (JNCC, 2020). 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 1969–1970 and 1985–1988 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, 2020). 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. As many as 10,000 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 no meaningful average productivity figure can be produced (Seabird 2000).

Abundance in 2020

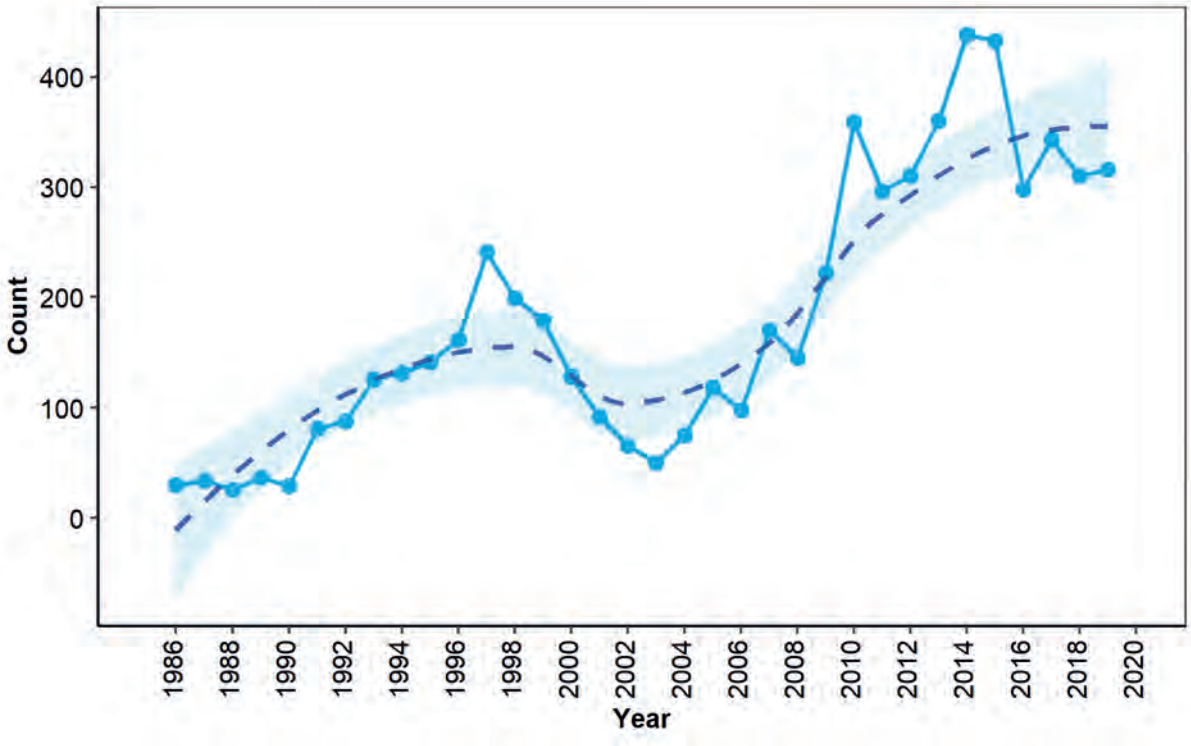
No colonies of Lesser Black-backed Gulls were surveyed for breeding numbers in 2020. Flush counts totalling 2,003 individuals in Lough Neagh were conducted late in the season, so do not necessarily reflect numbers of breeding adults. However, the Lough Neagh Partnership has plans to resume a surveying schedule of Black-headed Gulls and other seabirds in Lough Neagh in future years (see page 71) .

Numbers at Lower Lough Erne were high in 2019 at 1,584 AON, only a 2% decline on the previous year (Table 8, Appendix). Although not counted in 2019 or 2020, 2,496 and 2,052 individuals were also recorded at colonies on Lough Neagh in 2017 and 2018, respectively (Table 8, Appendix). The largest increases in numbers have been recorded on Tolan's Flat, Phil Roe's Flat and Padian Island (Allen & Mellon, 2018). Numbers at Strangford Lough were also stable between 2018 and 2019 (Figure 20).

The Copeland Bird Observatory surveyed all large gulls in 2018 and 2019. Increased coverage by surveyors of the vegetated upper slopes of the colony in 2019 led to an increased count of 547 AON over the count of 365 in 2018. It is likely that the latter count, which represents greater survey effort, is a more accurate estimate of the Lesser Black-backed Gull AON on Lighthouse Island, but the difference in counts between 2018 and 2019 demonstrates the importance of standardising effort across years to understand true population change.

The 1998–2002 census recorded at total 63 Lesser Black-backed Gull nests on rooftops in Belfast city centre and Belfast harbour. In 2018 and 2019, NIEA-funded vantage-point surveys provided updated figures based on observations carried out from two of the tallest buildings in the city (unpubilshed data, Booth Jones *et al.*, 2019). In 2019, at least 221 AON were observed from the vantage points, over double the previous year's count (Table 8, Appendix). It is unlikely that this represents an increase in actual numbers of gulls between the years, but a consequence of longer observation times and clearer conditions. Due to the complexity of the roof-scape and the limited number of vantages, observed Lesser Black-backed Gull AON are likely to be a distinct underestimate of the total number present in central Belfast. Urban nesting appears to be an increasing phenomenon in Northern Ireland, and records of roof nesters from volunteers would be welcome.

Figure 20: Lesser Black-backed Gull counts (AON) in Strangford Lough, 1986–2020. 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 2020

No colonies were monitored for breeding success in 2020. A very small sample of three nests followed as part of the NIEA-funded urban gull tracking work in Belfast city centre in 2019 produced five large chicks, although these could not be followed to fledging age (1.67 chicks/AON).

Herring Gull

Larus argentatus

Conservation status: Amber-listed in the BOCCI4 (2020–2026); Red-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Near Threatened – IUCN Red List (Europe), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

KEVIN KIRKHAM

Overview

Summary: 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 south-west England (Robinson, 2005).

UK population size, abundance and breeding success trends: Herring Gulls suffered a catastrophic decline in the late 1980s, largely due to botulism (Mitchell *et al.,* 2004). Between the 1969–1970 and 1985–1988 censuses, Herring Gulls declined by 43% and declined a further 13% by 1998–2002, to 130,230 AON (JNCC, 2020). However, with the species' spread to inland urban sites, it is likely that some colonies remained uncounted. Based on existing UK demographic parameters (survival, clutch size, etc.) Cook & Robinson (201) 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 (JNCC, 2020).

Northern Ireland population size, abundance and breeding success trends: The population in Northern Ireland declined by 96% between the 1985–1988 and 1998–2002 censuses to just 709 AON (Cramp *et al.*, 1974; JNCC, 2020; Mitchell *et al.*, 2004). 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 massive 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. Like the Lesser Black-backed Gull, the Herring Gull is increasingly being recorded as a roof-nesting bird throughout the UK (Mitchell *et al.*, 2004). 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 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 no meaningful average productivity figure can be produced (JNCC, 2020).

Abundance in 2020

No major colonies of Herring Gulls were surveyed in 2020. In 2019, the colony in Strangford Lough remained stable, with 1,273 AON (Figure 21; Table 8, Appendix). The major colony spanning the three Copeland Islands has not been surveyed since 2012. However, in 2018 and 2019 volunteers from Copeland Bird Observatory conducted a full survey of Lighthouse Island, with 483 AON being counted in both years. The population estimate is a 110% increase on the 2012 count (206 AON). Small numbers have bred inland at Lower Lough Erne since records began in 2000, but dropped slightly to three AON in 2019 (Figure 22).

An NIEA-funded vantage-point survey from two of the tallest buildings in Belfast in 2018 and 2019 (unpublished data, Booth Jones *et al.*, 2019) found that the very small population of eight AON recorded in the 1998–2002 census had increased to at least 16 AON in 2018 and 39 in 2019. It is unlikely that there was an increase in actual numbers of gulls between 2018 and 2019, rather that higher numbers were observed in 2019 as a consequence of longer observation times and clearer conditions. 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.

Figure 21: Herring Gull numbers (AON) at Strangford Lough, 1986–2020. 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.

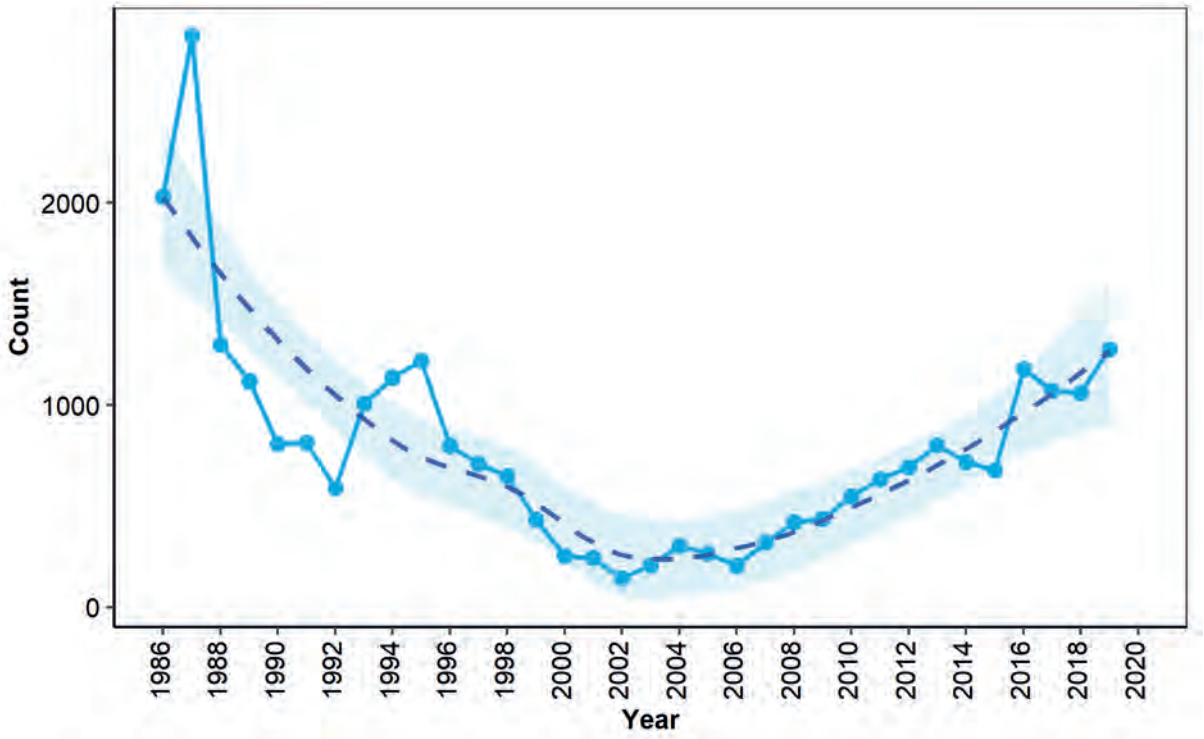
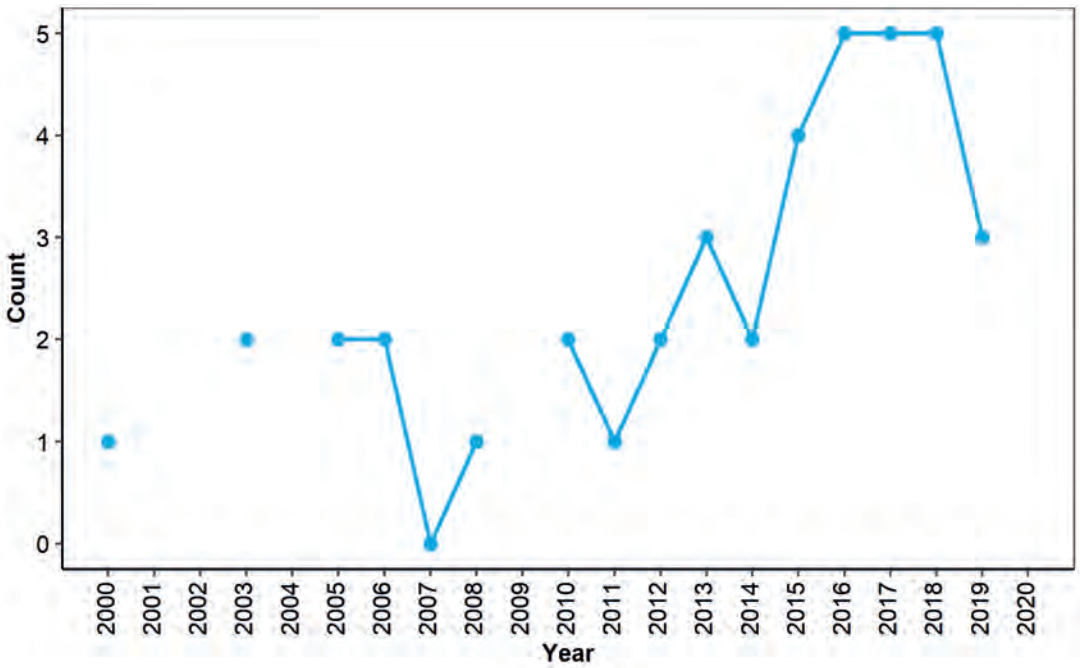


Figure 22: Herring Gull counts (AON) at Lower Lough Erne, 2000–2020. No data were collected in 2020.



Breeding success in 2020

No colonies were monitored for breeding success in 2020. A very small sample of three nests, followed as part of a gull tracking study for NIEA in 2019, raised eight large chicks (2.67 chicks/AON), but these were not followed through to fledging.

Great Black-backed Gull

Larus marinus

Conservation status: Green-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Least Concern – IUCN Red List (Europe).

STEPHEN MAXWELL

Overview

Summary: 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 (Robinson, 2005). 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 (Robinson, 2005).

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, 2020). 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, while recent estimates are similar to this at 15,000 (7,200–19,000) pairs (Mitchell *et al.*, 2004; Woodward *et al.*, 2020). 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, 2020).

Northern Ireland population size, abundance and breeding success trends: The population of Great Black-backed Gull in Northern Ireland declined by 74% from 240 AON to 71 AON between the 1969–1970 and 1998–2002 censuses (JNCC, 2020). However, Northern Irish population appears to have more than doubled since the last census and they have also increased by 38% in the Republic of Ireland (JNCC, 2020), resulting in a downgrading from Amber-listed to Green-listed in the latest Birds of Conservation Concern Ireland (Gilbert *et al.*, 2021). 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. obs.). 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 no meaningful average productivity figure can be produced (JNCC, 2020).

Abundance in 2020

Surveys of some of the large Great Black-backed Gull colonies in Strangford Lough and Outer Ards were not possible in 2020. In 2019, there were 107 AON in Strangford Lough (Figure 23), the majority of these (87 AON) found at Great Minnis's Island. Burial Island in the Outer Ards held 42 AON in 2019. The only Great Black-backed Gulls to be recorded in 2020 were on Muck Island (four AON) and although the Lough Neagh counts were late in the season, two pairs of adults were recorded, both with fledgling chicks.

Figure 23: Great Black-backed Gull counts (AON) at Strangford Lough, 1986–2020. 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.

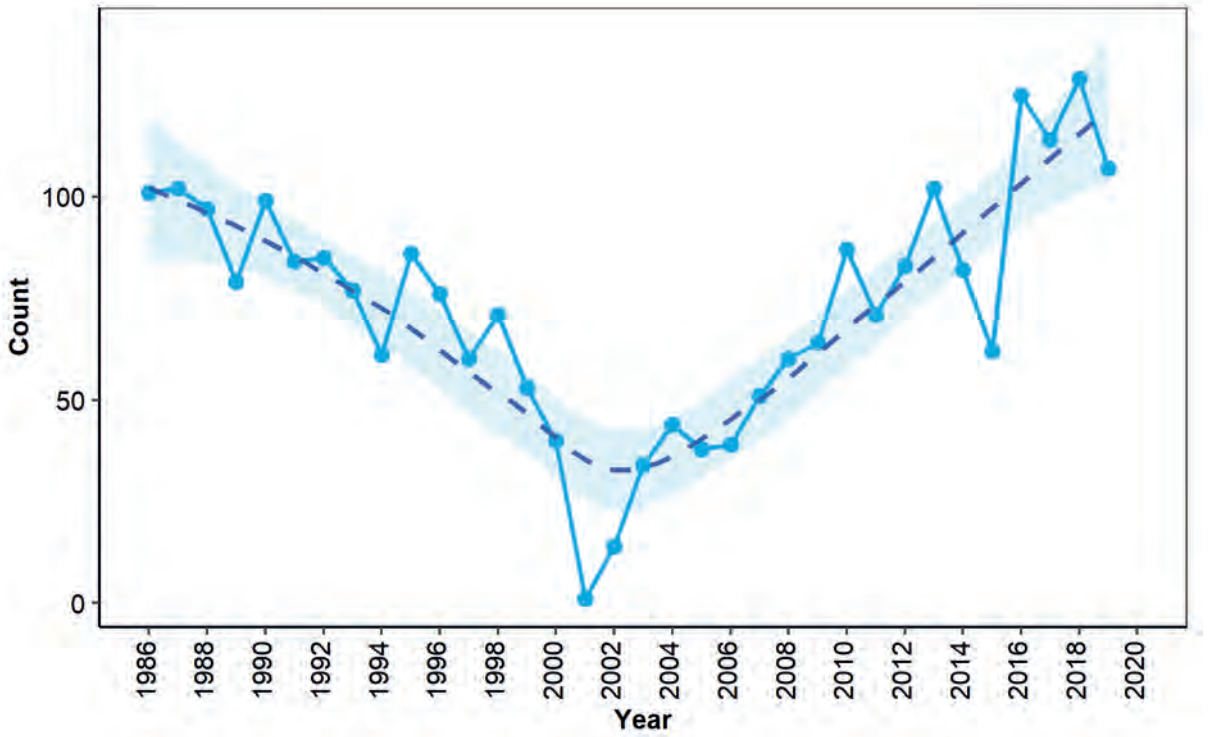
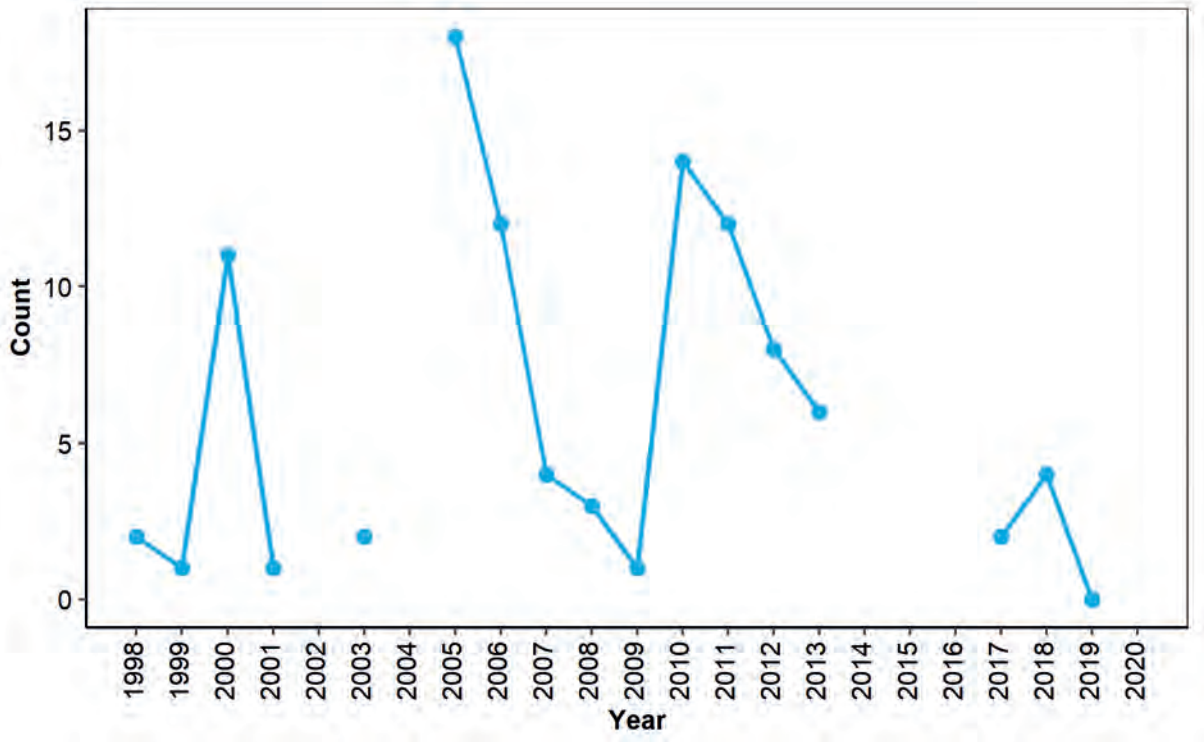


Figure 24: Great Black-backed Gull numbers (AON) at Carlingford Lough, 1985–2020. No data were collected in 2020.



Breeding success in 2020

No nests of Great Black-backed Gull are monitored in Northern Ireland currently.

Little Tern

Sternula albifrons

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – listed in Annex 1 and as a migratory species, Least Concern – IUCN Red List (Europe), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

PHILIP CROFT / BTO

Overview

Summary: Little Tern is the UK's smallest breeding tern species. The species is exclusively coastal, usually nesting on beaches, where their eggs are so well camouflaged they are almost invisible (Robinson, 2005).

UK population size, abundance and breeding success trends: Numbers of Little Tern in the UK declined (-23%) between the 1985–1988 census and the most recent census (1998–2002). Although the population of 1,927 AON was higher during Seabird 2000 than during the original census of 1969–1970 (JNCC, 2020), recent estimates suggest the population size has reduced to 1,450 pairs (Holling & the Rare Breeding Birds Panel, 2017; Woodward *et al.*, 2020).

The breeding success of Little Terns varies steeply from year to year. The average breeding success was 0.51 chicks per pair between 1986 and 2008 (Cook & Robinson, 2010; JNCC, 2020).

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

Abundance in 2020

No breeding attempts were reported in 2020.

Sandwich Tern

Thalasseus sandvicensis

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – Annex 1 and migratory species, Least Concern – IUCN Red List (Europe).

STEPHEN MAXWELL

Overview

Summary: 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, 2020). 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, 2020). Census data indicate that the UK population increased by 33% between the 1969–1970 and 1985–1988 censuses, but that numbers then declined by 15% by 1998–2002 (JNCC, 2020). However, analysis of SMP data since the last census estimates that the population has increased by 12% between 2000 and 2018, and the most recent population estimate is 14,000 (13,000–15,000) pairs (JNCC, 2020; Woodward *et al.*, 2020). The UK breeding abundance index indicates that numbers are now similar to those in 1986 but that numbers can fluctuate greatly from year to year (JNCC, 2020).

UK productivity averaged 0.66 between1986 and 2008, but in the most recent year available (2018) averaged 0.54 chicks per pair per year (JNCC, 2020).

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 most recent 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 of any seabird species in Northern Ireland.

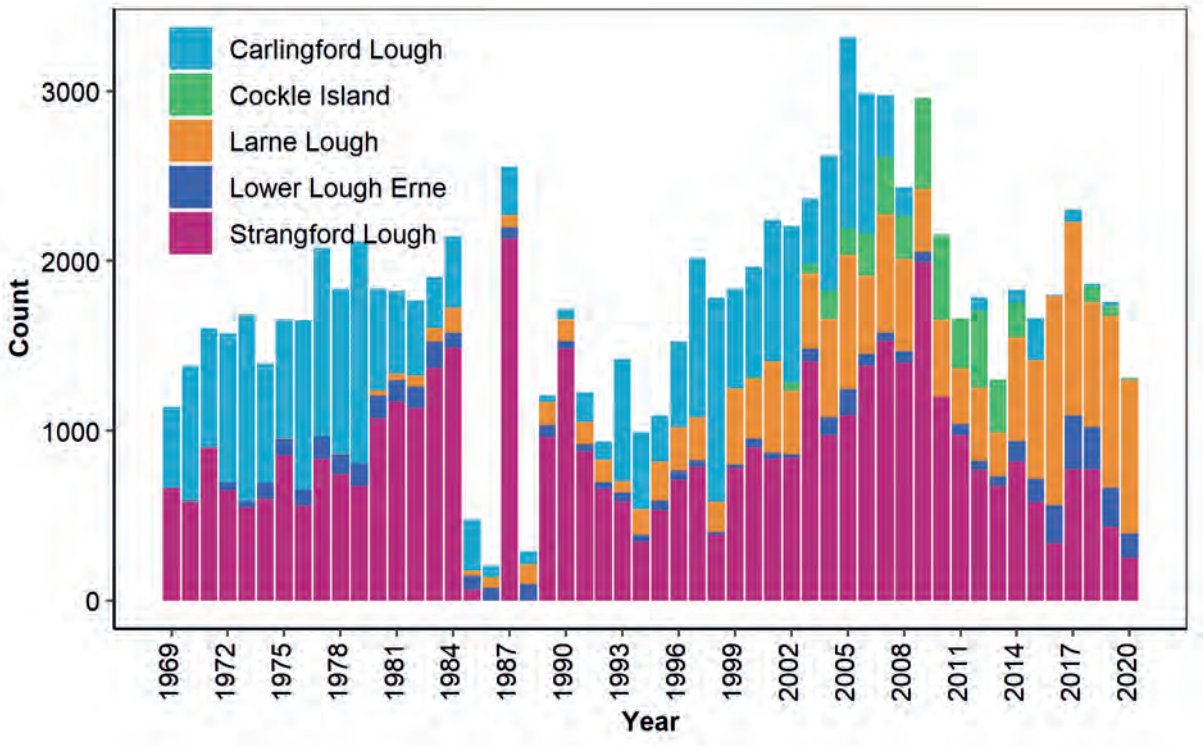
The collection of productivity data in Northern Ireland has been limited, but between 1990 and 2018 the mean breeding success was 0.30 chicks per pair per year (JNCC, 2020).

Abundance in 2020

Presenting the total populations for the main coastal colonies together (Figure 25) is advantageous as terns may move colony 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.). This year counts were very low, dropping by 42% between 2019 and 2020 to 252 AON (see page 75 for Strangford Lough nesting report). Numbers at Cockle Island also fell by 77% to just 14 AON. Swan Island was not surveyed in Larne Lough, so the count of 900 AON on Blue Circle Island, estimated from a vantage point, represents only a partial count (Figure 25; Table 8, Appendix). Sandwich Terns were not counted in Carlingford Lough in 2020.

Figure 25: Cumulative Sandwich Tern counts (AON) at Carlingford Lough, Cockle Island, Larne Lough, Lower Lough Erne and Strangford Lough, 1969–2020. Sandwich Terns were not counted in Carlingford Lough in 2020. Bars represent the total number of Black-headed Gull pairs per year, and the colour represents the number in each site.



Breeding success in 2020

Many colonies could not be monitored for breeding success in 2020. While vantage point surveys estimated productivity at 0.42 chicks/AON from approximately 900 AON on Blue Circle Island in Larne Lough, this is not a reliable estimate as many chicks will hide in vegetation and are likely to be hidden from view (Matthew Tickner, RSPB, pers. comm.). No productivity data were collected from the neighbouring Swan Island this year. In Strangford Lough, Sandwich Terns had a very poor breeding season, producing 0.21 chicks/AON for all islands surveyed in the lough, compared to 0.64 chicks/AON in 2019.

Breeding success has been monitored intermittently at Lower Lough Erne since 1990. The success rate has rarely been greater than 0.50 chicks/AON and usually much lower (Brad Robson, RSPB, pers. comm.). It was not possible to assess detailed productivity information for Sandwich Tern in Lower Lough Erne in 2020. Despite improving breeding success at Carlingford Lough from 2011–2015 due to an intensified programme of monitoring and conservation, productivity has been low in recent years, caused by the suspected predation of eggs and young by Otter (Matthew Tickner, RSPB, pers. comm). However, in 2019, 24 nests produced 20 chicks, which is the highest breeding success recorded at the site (Table 6).

Table 6: Productivity (chicks/AON) of breeding Sandwich Terns at Carlingford Lough between 2014 and 2019. No productivity data were collected in 2020.

Year	Productivity
2014	0.66
2015	0.56
2016	0.00
2017	0.00
2018	0.15
2019	0.83

Common Tern

Sterna hirundo

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – listed in Annex 1 and as a migratory species, Least Concern – IUCN Red List (Europe).

JON LEES

Overview

Summary: Despite the name, the 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, 2020; Robinson, 2005).

UK population size, abundance and breeding success trends: Although the UK population rose slightly between the 1969–1970 and 1985–1988 censuses, numbers fell to 11,838 AON by Seabird 2000 (1998–2002), a similar number as recorded in the first census (JNCC, 2020) and the latest UK population estimate, 11,000 AON (Mitchell *et al.*, 2004; Woodward *et al.*, 2020). Analysis of SMP data since the last census estimates the population has increased by 15% between 2000 and 2018 (JNCC, 2020).

Productivity fluctuates between years as it is heavily influenced by weather conditions, predation and foraging success. Between 1986 and 2018, UK breeding success varied between approximately 0.15 and 0.90 chicks per pair per year and in 2018 averaged 0.57 chicks per pair per year (JNCC, 2020).

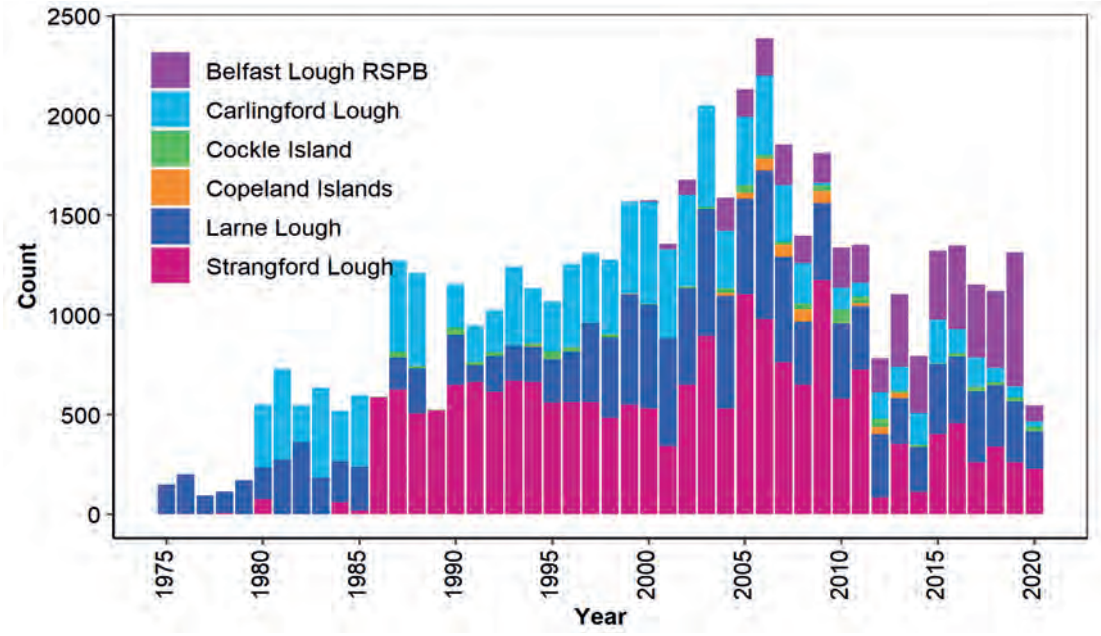
Northern Ireland population size, abundance and breeding success trends: Common Tern is the most widespread breeding tern species in Northern Ireland, with both coastal and inland populations. Historical data for the main Northern Ireland colonies are incomplete. In the late 1980s, there was a sudden increase in Common Terns to over 1,000 AON; by the early 21st Century, there were over 2,000 AON. Since this peak the population has again declined and the most recent 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 0.68 chicks per pair per year between 1999 and 2018 (JNCC, 2020).

Abundance in 2020

The number of Common Terns recorded as nesting in Northern Ireland more than halved from a total of 1,513 AON in 2019 to only 678 AON in 2020 (Table 8, Appendix). This reflects a genuine decline driven by losses at Larne (-38%, 187 AON) and Belfast (-88%, 80 AON) Loughs rather than disruption to surveys, as the RSPB and National Trust were able to carry out standard monitoring for the largest colonies in 2020. This annual total of Common Terns in the coastal colonies (Belfast Lough RSPB, Carlingford Lough, Cockle Island, Copeland Islands, Larne and Strangford Lough) is the lowest count in Northern Ireland since 1989 (Figure 26). The drastic decline at RSPB Belfast Lough was caused by an American Mink (*Neovison vison*) getting onto the reserve. Common Terns also declined at inland colonies; 36 AON were recorded at Lower Lough Erne and 68 at Portmore Lough in 2020 (Table 8, Appendix). In Lough Neagh, 75 individual Common Terns were recorded by flush counts late in the season, and therefore do not necessarily reflect numbers of breeding adults or AON in the Lough Neagh islands. However, the Lough Neagh Partnership have plans to resume a surveying gulls and terns in Lough Neagh in future years (see page 71 to learn more about the Lough Neagh Partnership). The only monitored sites to increase their numbers of Common Terns this year were Cockle Island from 21 AON in 2019 to 25 AON in 2020, and Belfast city centre, where there was a slight increase in numbers nesting on the Lagan tern raft, from 17 in 2019 to 29 AON in 2020.

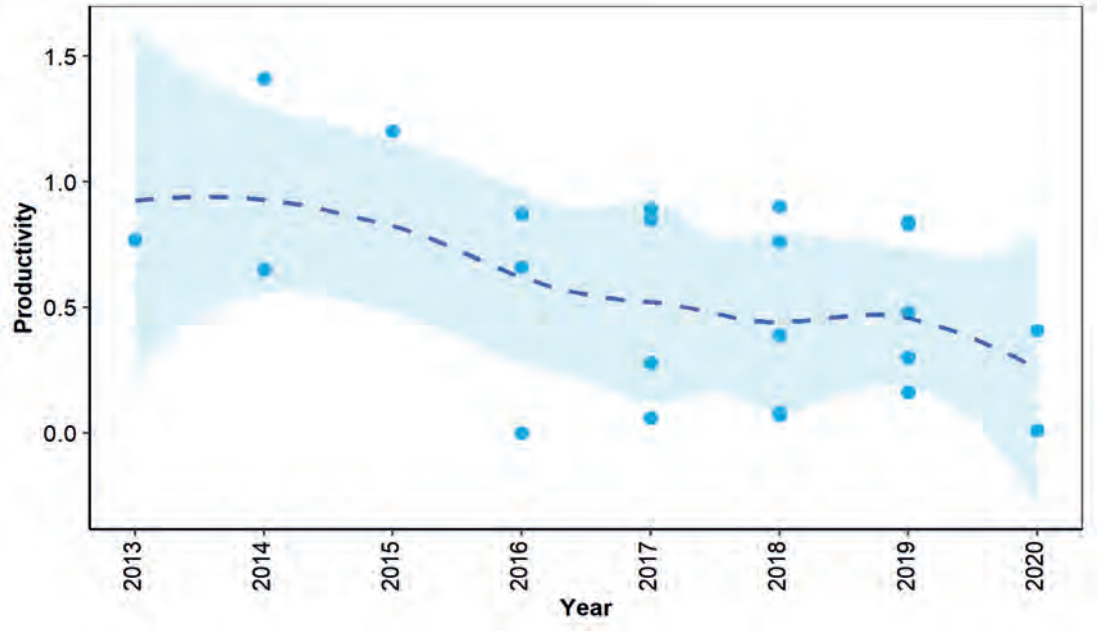
Figure 26: Cumulative Common Tern numbers (AON) at Belfast Lough RSPB, Carlingford Lough, Cockle Island, Copeland Islands (not counted since 2013), Larne Lough and Strangford Lough, 1975–2020. Bars represent the total number of Common Tern pairs per year, and the colour represents the number in each site.



Breeding success in 2020

Productivity data were only collected from the Lagan tern raft in Belfast and from Larne Lough in 2020, therefore the downward trend in productivity observed in Figure 27 must be taken with a note of caution. At Larne Lough only one fledgling was observed from 187 AON, although surveys were only conducted at Blue Circle Island and from a vantage point. On the Lagan tern raft 11 chicks were produced from 28 AON (0.41 chicks/AON).

Figure 27: Common Tern productivity (chicks/AON) 2013–2020 across five sites in Northern Ireland (Belfast Harbour RSPB, Carlingford Lough, Lagan Tern Raft, Larne Lough, Portmore Lough RSPB and Strangford Lough). 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.



Roseate Tern

Sterna dougallii

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Red-listed in the BOCC4 (2015), EC Birds Directive – listed in Annex 1 and as a migratory species, Least Concern – IUCN Red List (Europe), Northern Ireland Priority species (Northern Ireland Biodiversity Strategy 2002).

TOM CADWALLENDER / BTO

Overview

Summary: Roseate Tern is whiter than the Common Tern in colouration, and sometimes has a pinkish tinge, likely obtained from the carotenoid astraxanthin found in their diet (Hays *et al.*, 2006). Roseate Terns were nearly hunted to extinction for the millenary trade in the 19th Century, and 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, 2020).

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 118 AON (Holling & and the Rare Breeding Birds Panel, 2010). In Scotland, the main colony at the Firth of Forth appears to have been extirpated, partly due to competition for nesting sites with gulls, and now only single pairs appear in mixed tern colonies in Scotland (JNCC,2020).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, 2020). It may have benefitted from emigration from other sites, as well as the provision of nest sites and protection from predators (JNCC, 2020). 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 was recorded to have nested in 2018 (Holling & and the Rare Breeding Birds Panel, 2010). 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 0.55 and 1.20 chicks per pair per year (JNCC, 2020).

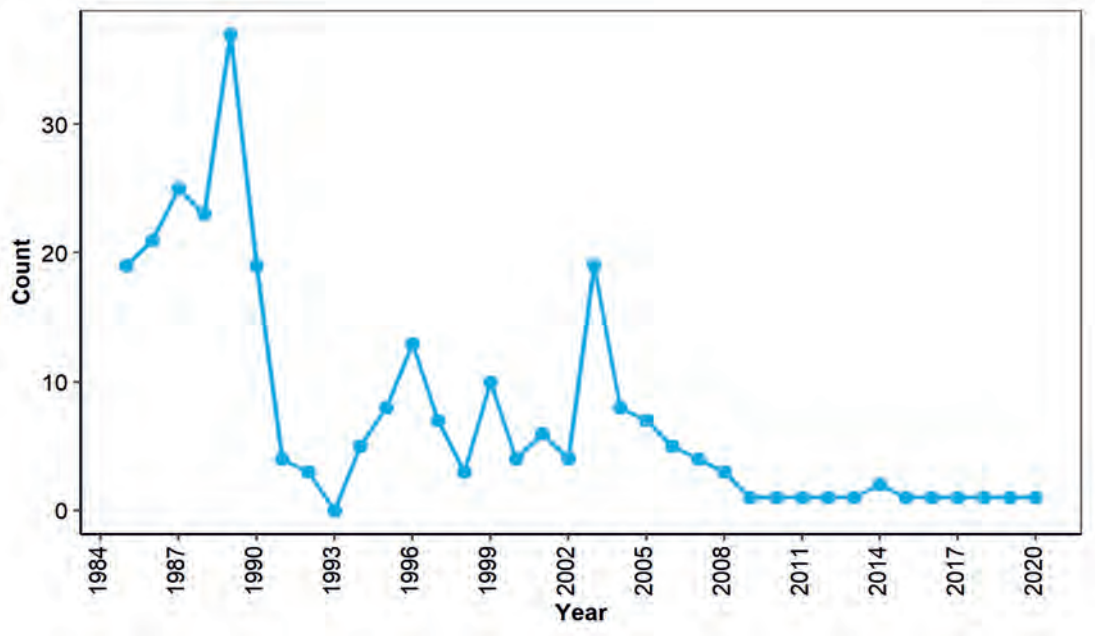
Northern Ireland population size, abundance and breeding success trends: Historically Mew Island in the Copeland Group was one of the major sites for Roseate Tern in Ireland (Thompson, 1851). However, the species ceased to breed in Northern Ireland around 1880 before apparently re-colonising in the first 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. Numbers of Roseate Terns were also highest in the late 1980s in Larne Lough but the species has clung on as a breeding species there since this time, albeit in very small numbers. Between the 1985–1988 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, productivity in Northern Ireland between 1991 and 2018 was 0.66 chicks fledged per pair per year (JNCC, 2020).

Abundance in 2020

In 2020, there was again a single pair at Larne Lough (Figure 28).

Figure 28: Roseate Tern population counts (AON) at Larne Lough, 1985–2020.



Breeding success in 2020

The pair at Larne Lough fledged one chick in 2020.

Arctic Tern

Sterna paradisaea

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – listed in Annex 1 and as a migratory species, Least Concern – IUCN Red List (Europe).

LINDSAY HODGES

Overview

Summary: 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, 2020).

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 1969–1970 and 1985–1988 censuses, though there is uncertainty as to the true magnitude of this change due to questions of compatibility of methods between censuses. At the last census, the population was estimated to be 53,380 AON, a decrease of 31% since 1985–1988 (Mitchell *et al.*, 2004). Since the last census, SMP trend data suggest the population has further decreased by 13% (JNCC, 2020). 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, 2020).

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 1969–1970 and 1985–1988, and again by 78% to 767 AON by Seabird 2000 (1998–2002, JNCC, 2020). Since the last census, Arctic Tern numbers peaked in 2006 at 1,854 AON, which included counts of all major colonies.

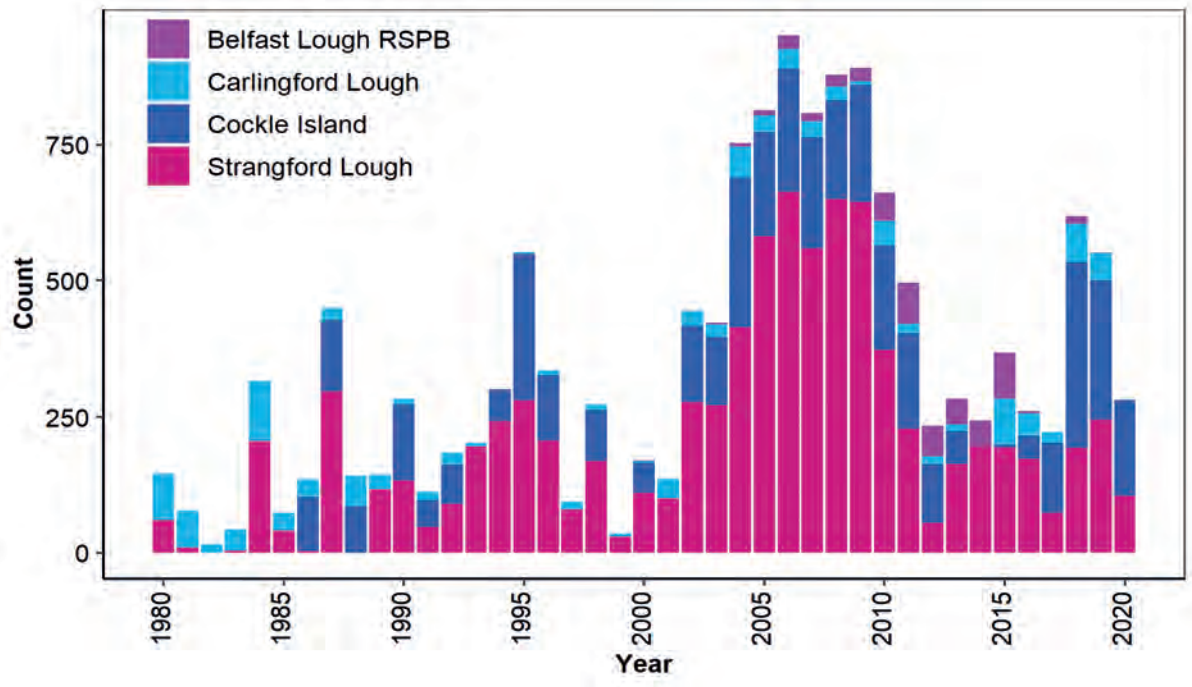
Between 1991 and 2018, Arctic Tern breeding success in Northern Ireland was similar to that elsewhere in the UK, producing an average of 0.31 chicks per pair per year (JNCC, 2020).

Abundance in 2020

Colonies of Arctic Terns around Northern Ireland are highly variable in their size year-to-year (Figure 29). Numbers present at Strangford Lough have plummeted in the past decade, falling from a high of 663 AON in 2006 (Figure 29). While numbers increased in 2018 and 2019, in 2020 the count dropped again by 57% to 105 AON (Table 8, 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 only a single breeding pair in 2019 and none in 2020 (Table 8, Appendix). The Cockle Island population boomed in 2018 but has fallen since to 177 AON (Table 8, Appendix). Arctic Terns were not fully counted at Carlingford Lough this year, due to fieldwork restrictions.

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. 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 8, Appendix). In 2019, 150 individuals were present on Lighthouse Island, 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.).

Figure 29: Cumulative Arctic Tern counts (AON) at Belfast Lough RSPB, Carlingford Lough, Cockle Island and Strangford Lough 1980–2020. Arctic Terns were not counted at Carlingford Lough in 2020. Bars represent the total number of Arctic Tern pairs per year, and the colour represents the number in each site.



Breeding success in 2020

No Arctic Tern productivity data were collected in 2020. In 2019, the 50 AON at Green Island, Carlingford Lough produced an estimated 24 chicks (0.48 chicks/AON, Matthew Tickner, RSPB, pers. comm.) an improvement over the 0.04 recorded in 2018. Likewise, breeding success was higher in 2019 than in 2018 in Strangford Lough, where a total of 252 AON across multiple islands produced 190 chicks (0.75 chicks/AON, Wolsey, 2019). This is in stark contrast to 2018 when Arctic Terns had an extremely low productivity of 0.01 chicks/AON due to the effects of Storm Hector and significant predation by large gulls and Otters.

Common Guillemot

Uria aalge

Conservation status: Amber-listed in BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Near Threatened – IUCN Red List (Europe).

CHRISTINE CASSIDY

Overview

Summary: The Common Guillemot (Guillemot or Common Murre) is one of the most abundant seabirds in the northern hemisphere (JNCC, 2020). 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, 2020).

UK population size, abundance and breeding success trends: 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, 2020). Between the 1969–1970 and 1998–2002 censuses, the numbers of individuals recorded rose from 611,281 to 1,416,334. The most recent estimates put the population size at approximately 950,000 individuals (Mitchell *et al.*, 2004; Woodward *et al.*, 2020). SMP trend data suggest the population has remained stable since the last census, with only a 1% change detected (JNCC, 2020).

The average breeding success of Guillemots in the UK between 1986 and 2008 was 0.66 chicks per pair, and declined by 0.02 chicks per pair per year over this period, which is likely to be a factor in the species' recent decline (Cook & Robinson, 2010; JNCC, 2020).

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 1969–1970 and 1985–1988 censuses, the numbers of Guillemots appeared to remain stable, but had more than doubled to 98,546 individuals by Seabird 2000 (JNCC, 2020). 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 probably makes Rathlin the largest colony in the UK and Ireland. Recent 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 no meaningful average productivity figure can be produced (JNCC, 2020).

Abundance in 2020

The only Guillemot colony to be surveyed in 2020 was at Muck Island, where numbers of Guillemot continued their generally positive trend since 2007 to reach 3,107 AON, the highest count on record for the island (Figure 30). While no surveying was carried out on The Gobbins in 2020, in past years the trend at this neighbouring site has generally matched that seen on Muck Island (Figure 30).

On Rathlin Island, the RSPB carry out annual comparative counts of study plots to monitor population levels (Figure 31). While no data are available for 2019 or 2020, in 2018, 3,454 Guillemots were counted in the study plots, representing a stable count since 2015.

Figure 30: Common Guillemot counts (individuals) at Muck Island and The Gobbins, 2000–2020. No data were collected at The Gobbins in 2020.

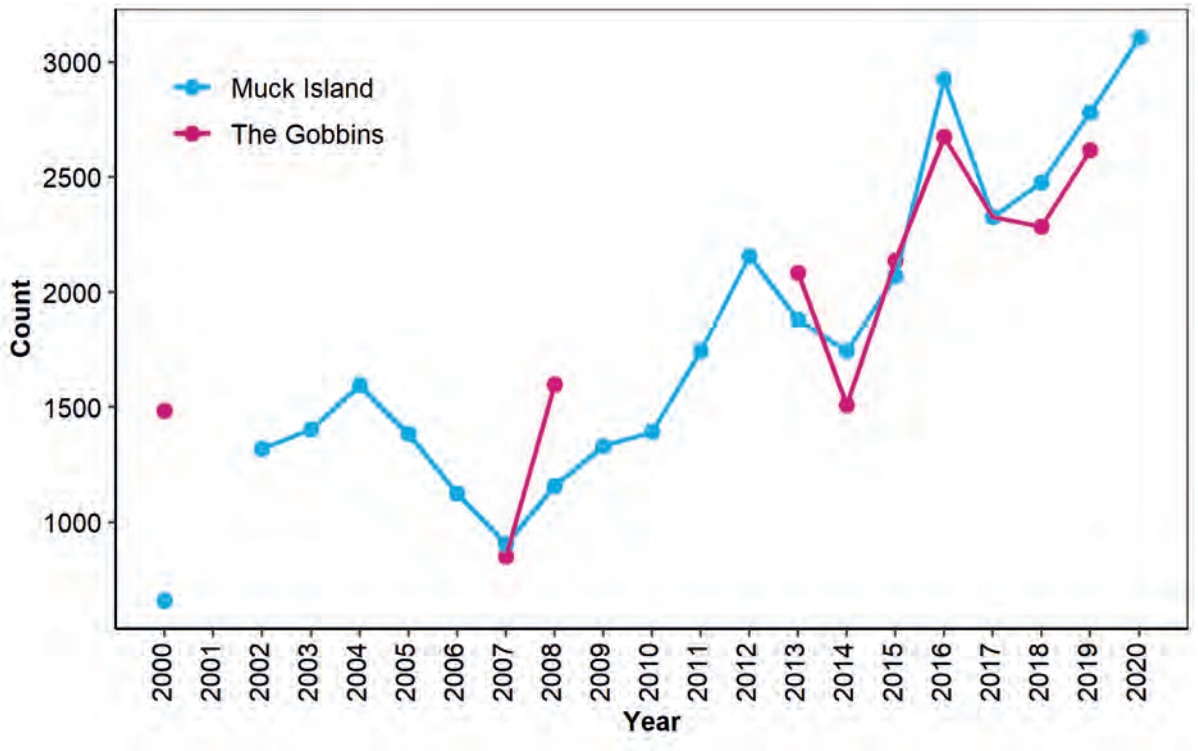
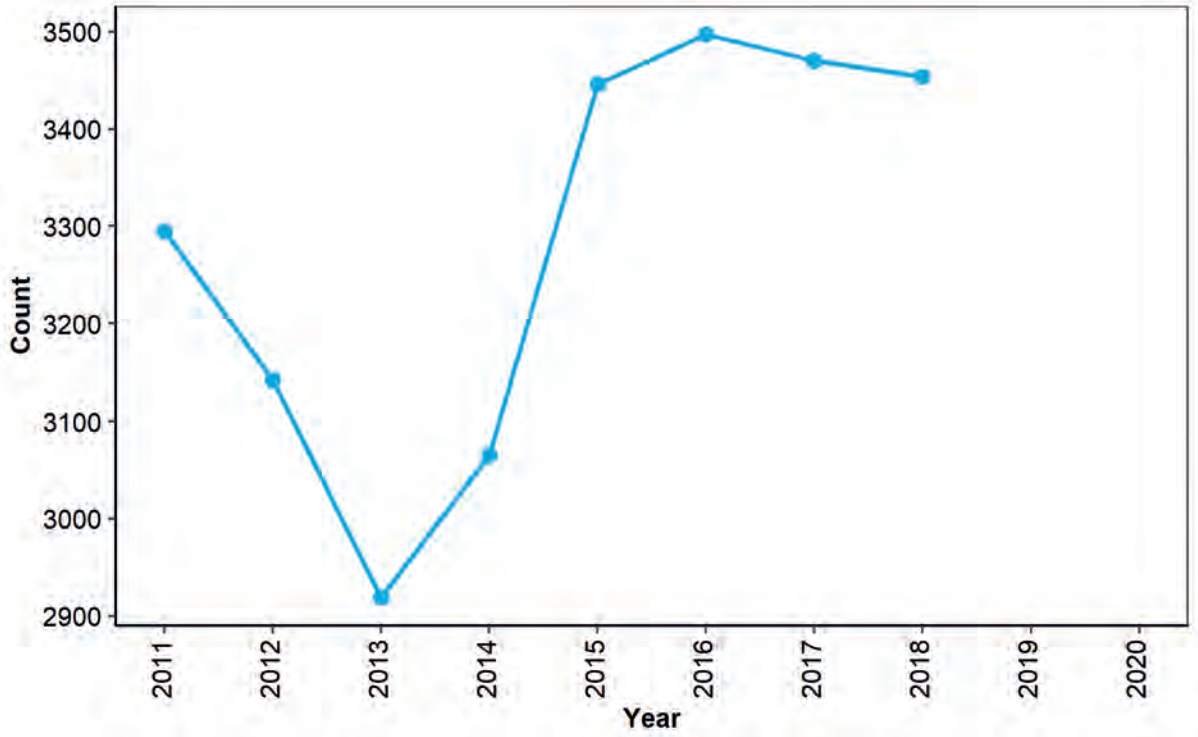


Figure 31: Common Guillemot study plot counts (individuals) at Rathlin Island, 2011–2020. No data were available for 2019 or 2020.



Breeding success in 2020

In 2019 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 (2020–2026), Amber-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Near Threatened – IUCN Red List (Europe).

JON LEES

Overview

Summary: 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. Their eggs are individually marked for easy recognition on busy ledges (Robinson, 2005).

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 (JNCC, 2020; Mitchell *et al.*, 2004). By Seabird 2000 (1998–2002), the estimated population size was 187,052 individuals, a 21% increase on the previous 1985–1988 census. The latest 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 has fluctuated over the last 25 years but is still well above 1980s levels (JNCC, 2020).

Although productivity has increased slightly since 2008, the average breeding success of Razorbills in the UK between 1986 and 2008 was 0.55 chicks per pair, and declined by 0.01 chicks per pair per year over this period (Cook & Robinson, 2010; JNCC, 2020).

Northern Ireland population size, abundance and breeding success trends: Between the 1969–1970 and 1985–1988 censuses, the numbers of Guillemot increased by 58%, and had more than doubled to 24,084 individuals by Seabird 2000 (JNCC, 2020). 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), making it the second largest colony of Razorbills in the UK at the time (JNCC, 2020). Razorbill has 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 no meaningful average productivity figure can be produced (JNCC, 2020).

Abundance in 2020

The number of Razorbills was at the highest level ever recorded on Muck Island in 2019 at 1,118 individuals; however, in 2020 numbers had fallen by 22% to 871 individuals (Figure 32). Numbers at The Gobbins decreased by 23% between 2018 and 2019, to 679 individuals (Figure 32), but no counts were carried out in 2020. 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.

No data are available for the Rathlin Island study plots in 2019 or 2020, but in 2018, 548 individuals were recorded, which was the lowest count since the establishment of the plots (Figure 33).

Figure 32: Razorbill counts (individuals) at Muck Island (blue) and The Gobbins (pink) 1987–2020. No data were available for The Gobbins in 2020.

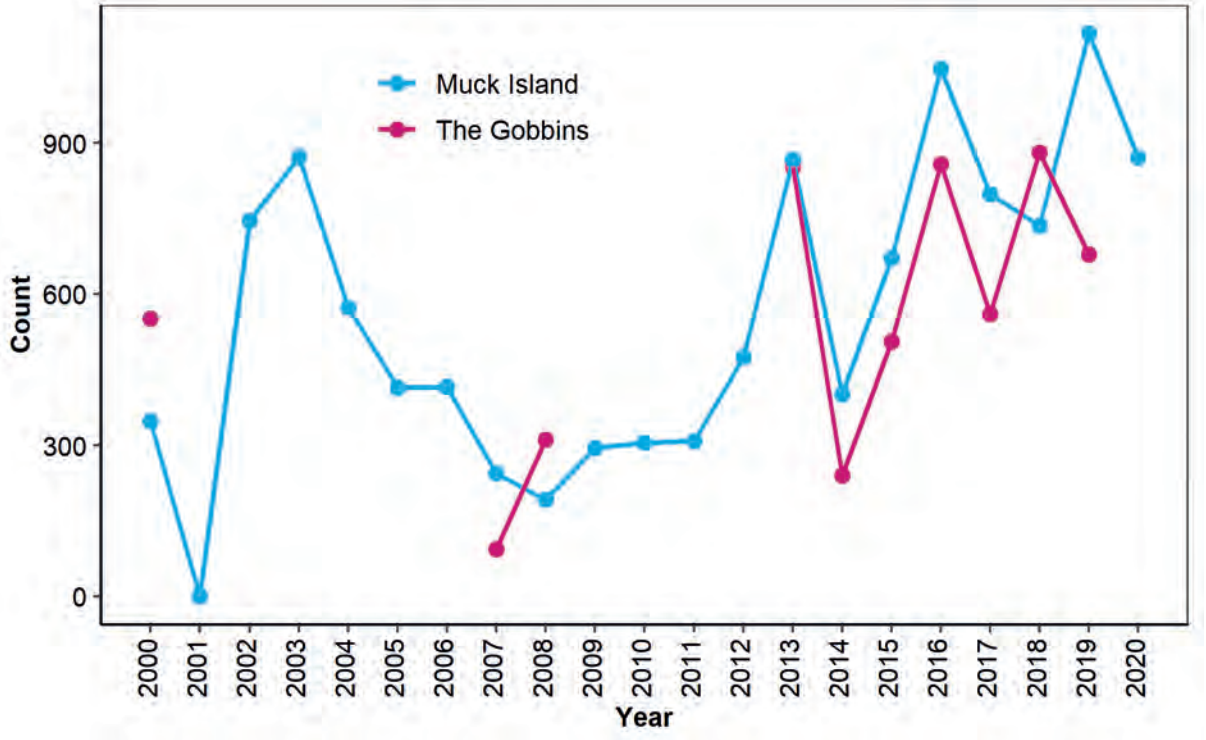
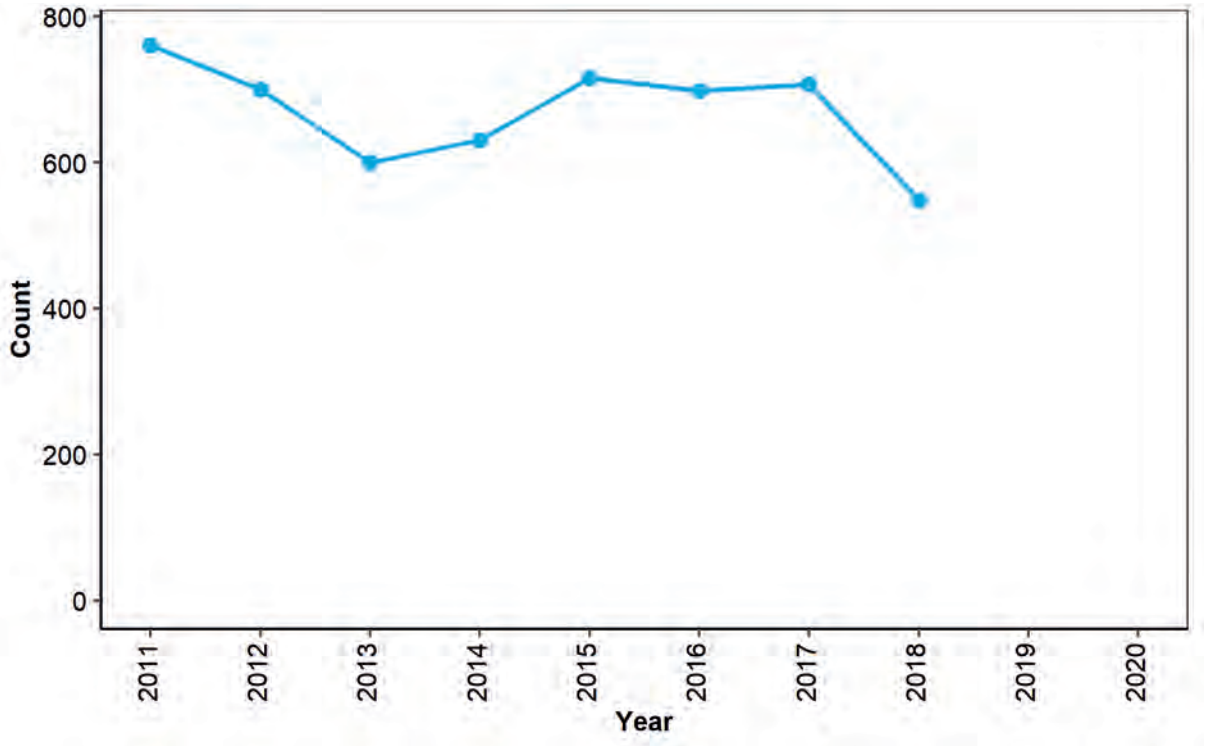


Figure 33: Razorbill study plot counts (individuals) at Rathlin Island, 2011–2020. No data were available for 2019 or 2020.



Breeding success in 2020

No Guillemot productivity data were available in 2020, but in 2019 a sample of 17 nests (not a formal SMP plot) were monitored on Rathlin Island near the West Light, producing six successful fledglings (0.35 chicks/nest, Else & Watson, 2019).

Black Guillemot

Cepphus grylle

Conservation status: Amber-listed in the BOCCI4 (2020–2026), Amber-listed in the BOCC4 (2015), Least Concern – IUCN Red List (Europe).

JON LEES

Overview

Summary: The striking Black Guillemot (or 'Tystie') is a circumpolar auk which in the UK has historically been a predominantly Scottish species. The birds 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 1969–1970 census to create a robust population estimate for Black Guillemot. Numbers appeared to remain stable between the 1985–1988 census (37,745 individuals) and Seabird 2000 (38,714 individuals) (JNCC, 2020), however recent estimates put 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, 2020).

Northern Ireland population size, abundance and breeding success trends: Between the censuses in 1969–1970 and 1985–1988 Black Guillemot expanded its 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, 2020). 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 fortunes for Black Guillemot in Northern Ireland (JNCC, 2020).

The breeding success of Black Guillemots in Northern Ireland is mostly monitored through a study colony in Bangor, Co. Down. On average between 1986 and 2015 productivity was 0.98 chicks per nest (JNCC, 2020).

Abundance in 2020

Due to early lockdown restrictions, the number of sites surveyed for Black Guillemots was greatly reduced this year. Counts of Black Guillemots from around the coast of Northern Ireland in 2020 are recorded in Table 7. Although the population remains stable there has been a change in distribution within counties Down and Antrim since Seabird 2000 (1998–2002). Some areas have seen increases (for example, the Copelands and Inner Belfast Lough), while others have seen decreases (for example outer Belfast Lough). The Rathlin Island population has also decreased since 2003 (Figure 34), although increased very slightly in 2019.

Figure 34: Black Guillemot counts (individuals) at Rathlin Island, 1999–2020. No data were available for 2020.

Table 7: Black Guillemot numbers (individuals, unless specified) at sites in Northern Ireland in 2020.

Master site	Site	Count
Larne to Toor Head	Glenarm Harbour	58
Larne Lough and Island Magee	The Maidens	16
Muck Island	Muck Island	42
Copeland Islands	Old Lighthouse Island	18 AON
Ballywalter to Ballyherbert	Ballywalter to Ballyherbert	3
Strangford Lough	Strangford Mainland – Ballymoran	0
	Strangford Mainland – Quaterland	0
Annalong Harbour	Annalong Harbour 1	38 Ind 22 AON

Breeding success in 2020

No productivity data were collected for Black Guillemot in 2019. In 2018 the Black Guillemot colony in Bangor Harbour had an overall productivity of 1.08 chicks per nest (Shane Wolsey, pers. comm.).

Puffin

Fratercula arctica

Conservation status: Red-listed in BOCCI4 (2020–2026), Red-listed in the BOCC4 (2015), EC Birds Directive – migratory species, Endangered IUCN Red List (Europe).

CHRISTINE CASSIDY

Overview

Summary: The Atlantic Puffin (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. Their 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 1969–1970 and, 1985–1988 censuses, and by a further 19% to 580,714 AOB by Seabird 2000 (JNCC, 2020). However, due to its burrow-nesting habits and often remote breeding sites, Puffin is a difficult species to monitor. Therefore, data collection is biased 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, 2020).

The breeding success of Puffins has been variable throughout the recording period, but since the late 1990s it has been generally lower than breeding success in the late 1980s and early 1990s (JNCC, 2020). More recently in 2018, average breeding success was 0.70 chicks per pair (JNCC, 2020).

Northern Ireland population size, abundance and breeding success trends: Although there was an apparent increase of 86% in Puffin AOB between the 1969–1970 and 1985–1988 censuses, Puffins had declined by 40% to 1,610 AOB by Seabird 2000 (JNCC, 2020). 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 on Rathlin, which 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.

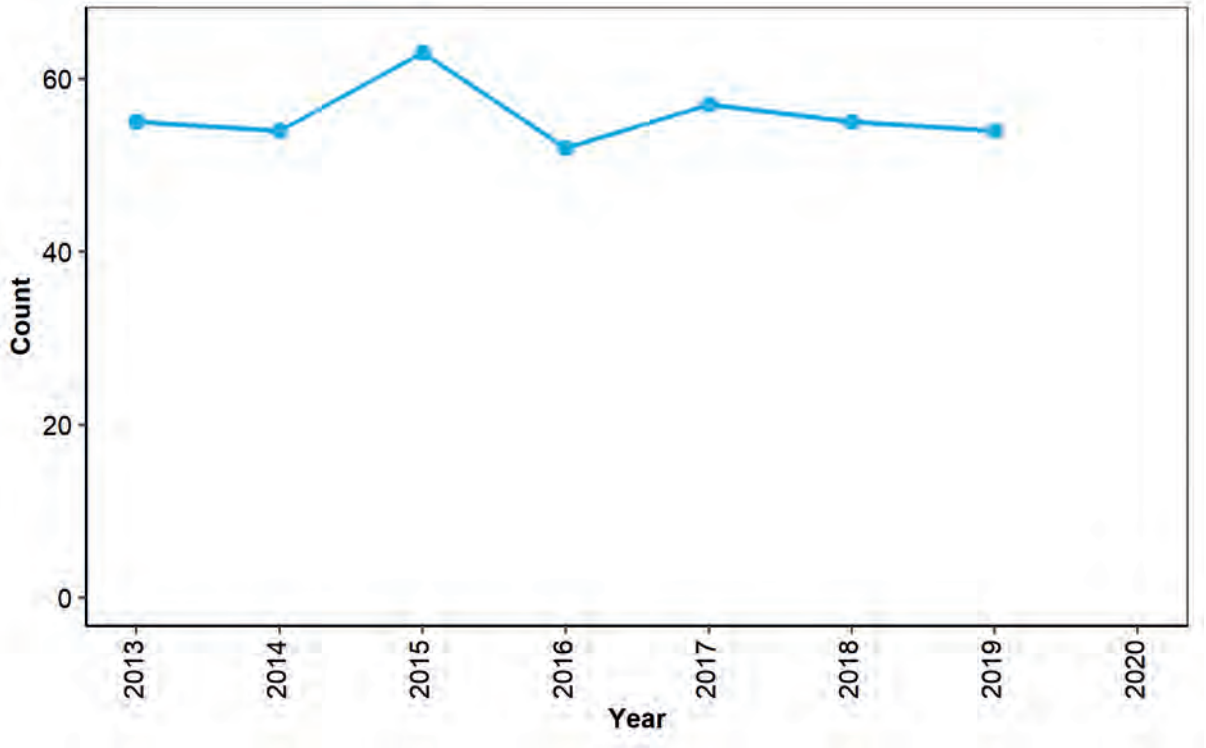
The collection of productivity data in Northern Ireland has been limited; therefore no meaningful average productivity figure can be produced (JNCC, 2020).

Abundance in 2020

Only two sites were surveyed for Puffin in 2020, and these were not counted in the pre-laying season as recommended for counts of individual Puffins (April to May, JNCC, 2020). One individual was observed on Muck Island in June, and 106 individuals were counted from Lighthouse Island in the Copeland Islands in June, and 144 individuals in July (Copeland Bird Observatory, pers. comm.). The higher count taken later in the season is likely to include non-breeding and immature birds. Counts at Lighthouse Island are similar to those observed in 2018 and 2019 (Table 8, Appendix).

In 2019, a peak count of 54 individuals was recorded at The Gobbins, in the same range as counts during 2013–2018 (Figure 35). At least 75 individual Puffins were observed at West Light on Rathlin Island in 2019 in early April, but numbers were very variable prior to the breeding period (Else & Watson, 2019).

Figure 35: Puffin counts (individuals) at The Gobbins, 2013–2020. No data were available for 2020.



Breeding success in 2020

No productivity data were collected in 2020. In 2016, two chicks fledged from the newly established colony on Lighthouse Island, but without an estimate of the number of active burrows the breeding success of the colony remains unknown. Despite yearly use of the colony by Puffins, there have been no confirmed fledglings since, due to the difficulty of recording breeding success on the island.

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Tracking Tysties: planning Black Guillemot tagging as part of the MarPAMM project

Daniel Johnston[1], Liz Masden[2], Katherine Booth Jones[1] & Liz Humphreys[1]

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NEAL WARNOCK

Northern Ireland supports around 1,100 Black Guillemots, approximately 3% the UK breeding population. Recent evidence suggests that some Black Guillemot colonies within Northern Ireland are in decline, yet the factors underpinning such changes remain unknown. To help protect seabird populations, a network of Special Protection Areas (SPAs) has been designated as part of the European Commission Birds Directive. However, because Black Guillemots are considered to be of Least Concern at the European level and are non-migratory, they do not apply under Annex 1 of the Directive. Therefore, independently defined Marine Protected Areas (MPAs), including six recently designated Nature Conservation MPAs in Scotland, and one Marine Conservation Zone (MCZ) in Northern Ireland, provide a mechanism though which to protect Black Guillemots.

The Marine Protected Areas Management and Monitoring (MarPAMM) project aims to support development of management plans for MPAs within the cross-border INTERREG VA, which comprises Northern Ireland, the Republic of Ireland (Border Counties) and Western Scotland. The project brings together statutory organisations, academic institutions, Non-Governmental Organisations and stakeholders with the aim of developing a toolkit for monitoring and managing numerous cross-border MPAs, several of which are likely to be relevant to Black Guillemot. However, improved knowledge of Black Guillemot foraging behaviour and habitat is required to inform the development of future management plans.

LINDSAY HODGES

Black Guillemot is a relatively understudied seabird, and new insights into its foraging ecology are continually being gained through modern Global Positioning System (GPS) tracking technology. The MarPAMM project aims to use a combination of GPS/Time at Depth Recorder (TDR) tags to examine Black Guillemot movement during the breeding season at two colonies in Northern Ireland: Bangor Marina and Lighthouse Island in the Copeland Islands. By combining these tracking data with environmental characteristics, such as depth, tides, sediment, marine flora, such as kelp, and diet, we aim to explore the factors associated with Black Guillemot foraging habitat requirements, improving our understanding of the ecology of this species in these areas.

Black Guillemot tagging was scheduled to begin in summer 2020 but was cancelled due to COVID-19 restrictions. Despite this, the easing of lockdown in July allowed for a field site reconnaissance trip to inform tagging plans for 2021. Both Bangor Marina and Lighthouse Island were visited with the aim of identifying the number and accessibility of nests. Daniel's visit to Lighthouse Island was generously hosted by the Copeland Island Observatory, who allowed him to shadow them as they carried out their annual Black Guillemot nest box checking and chick ringing. The visit to Bangor Marina was more limited, including a tour from the harbour master and visual inspection of the many numbered wall holes and nest boxes built by the recently deceased Julian Greenwood.

During the chick feeding stage, Black Guillemots return to the nest with single prey items clearly visible in their beak, making identification of prey possible. Prey are an additional indicator of the types of habitats foraged, and in Northern Ireland anecdotal accounts of Black Guillemot diet are often dominated by the distinctive Butterfish *Pholis gunnellus*. At both sites Daniel was able to observe some chick-feeding adults which, alongside Butterfish, surprisingly brought back an array of fish species, including gadoid, sculpin, and flatfish species, which may indicate a wide range of foraging habitats being used. The tracking data to be collected in 2021 will provide novel insights into the foraging ecology of Black Guillemots in Northern Ireland, helping to inform the development of appropriate management plans for this species and to ensure the successful delivery of cross-border MPAs as part of the MarPAMM project.

Thanks to Sam Massimino, David Galbraith, Wesley Smyth and the Copeland Bird Observatory for helping make the recce possible.

This work is part of the Marine Protected Areas Management and Monitoring Project (MarPAMM) project (https://www.mpa-management.eu/). This project has been supported by the EU's INTERREG VA Programme, managed by the Special EU Programmes Body.

In lockdown with Black Guillemots

Marc Vinas and Jessica Koquert
Northern Ireland Seabird Network.

KEVIN KIRKHAM

When we moved to the little village of Annalong in county Down four years ago, we were immediately amazed by the new variety of sea wildlife around us, as foreigners coming from inland Catalonia and France. The fauna looked very 'exotic' to us, from the resident Grey Seals (*Halichoerus grypus*), Eurasian Otters (*Lutra lutra*), and Harbour Porpoises (*Phocoena phocoena*) to the elegant 'Concorde'-like Gannets (*Morus bassanus*)and also the occasional passing Bottlenose Dolphins (*Tursiops truncatus*). But we have become fondest of the Black Guillemots, which we can see directly from the window of our house, overlooking the harbour colony.

The behaviour and characteristics of these birds has intrigued us. For example, we observed their striking plumage metamorphosis, from generally white during winter to entirely black, except for a white patch on the upper wing, during the breeding season. This completely fooled us as in our early days as beginner guillemot watchers, thinking initially we were watching two different species! We were also very entertained to follow their intricate nuptial parade, an elaborate courtship display, involving head bowing, whistling, pairs turning and swimming in circles. Finally, we loved their penguin-like appearance and thought that their name in French – Guillemot à miroir (guillemots with mirrors) – suited them beautifully when we observed them swimming swiftly just below the surface, so fast and agile, with their white patch reflecting the light.

MARC VINAS AND JESSICA KOQUERT

Even though we observed the Black Guillemots for years, we had never thought to attempt any monitoring or recording. However, our usual routine was disrupted by the lockdown in early 2020 following the COVID-19 pandemic. During this time, we were lucky enough to enrol onto the BTO Northern Ireland online interactive training webinar, the first of its kind due to the unusual circumstances. The three Saturday events in April gave our confinement its tempo. We soon became obsessed with listening to the bird song behind our house, completing 'homework' and getting up early to be on time for the dawn chorus. The BTO staff taking the webinars were as fun as they were knowledgeable. Also, the lack of human disturbance at that special time probably made our experience even more enjoyable, and it seemed easier to hear the birds singing.

Encouraged by BTO we decided to give monitoring a go and follow 'our' favourite Black Guillemots throughout the breeding season. We collected data following the Seabird Monitoring Programme (SMP) methods. Living so close to the harbour made it possible for us to monitor regularly from our window, although we were also going out to have a closer look and to avoid missing individuals hidden on blind sides. Following recommendations, we counted individual adults early in the morning from April (pre-breeding season).

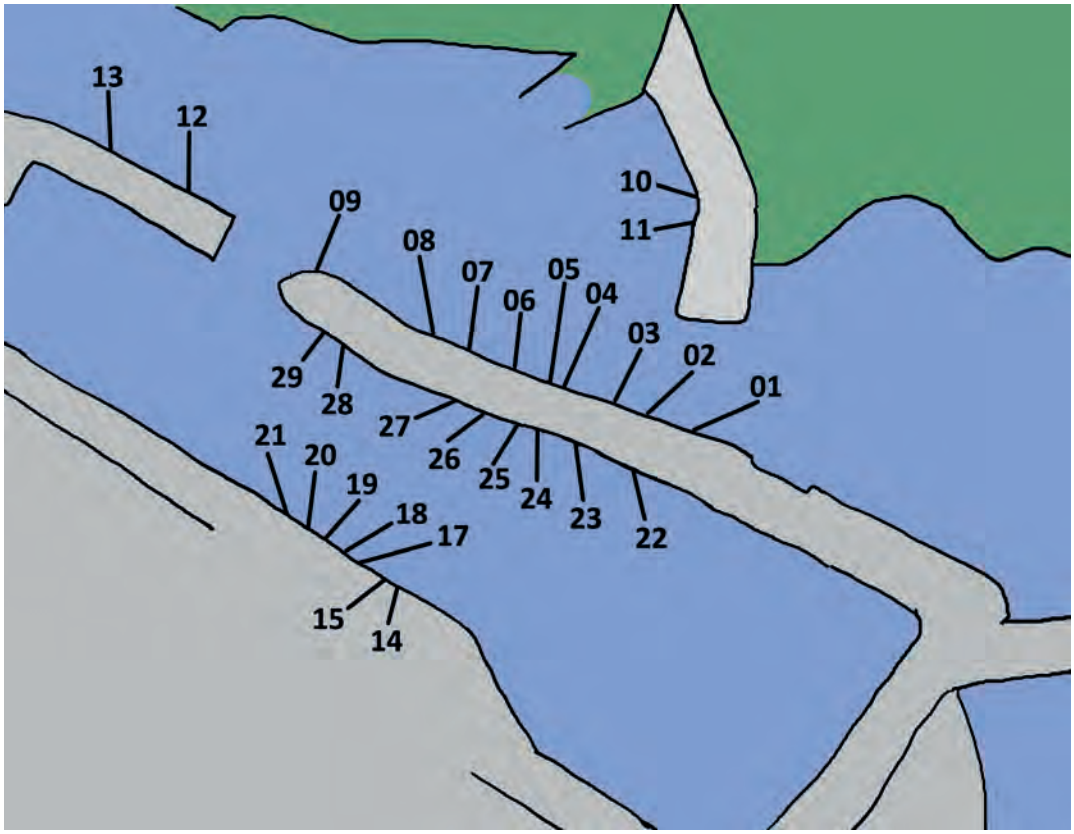
As we were getting more and more familiar with the study area and gaining experience, we were progressively more confident in the accuracy of our land-based counts. After several days of early morning counts, our best

estimate of the size of the colony was 38 individuals. All birds were with adult summer plumage, except one with dark bars visible in the white wing-patch, indicating a juvenile.

In Annalong, Black Guillemots use as nest-sites the gaps between the granite blocks in the harbour-walls. The aim of our monitoring was to measure the colony productivity (breeding success), which is rarely recorded for Black Guillemot in Northern Ireland (the only site to have regular productivity data collected is at Bangor Harbour).

To count AOS (Apparently Occupied Sites) we started to observe what nest cavities were used regularly by the Black Guillemots. Initially the birds were often spread out on the edges of the pier or on the harbour ladders, occupying elevated perches close to the cavities, defending energetically their spaces. Following this stage, some birds remained in their chosen crevices. After several days of observations, we were able to produce a map numbering all the AOS, totalling 29 (Figure 1). Progressively we discarded some of them, finally concluding with 22 AOS. By then we reached the early incubation period, late May. We began to observe that some of the pairs seemed to be changing over at the nest, indicating that perhaps some of them were already taking turns to incubate their eggs. Using a telescope we were sometimes able to see the eggs, light greyish with dark speckles, laid directly onto the ground of the cavity.

Figure 1: Potential Black Guillemot nest sites in Annalong Harbour.



After this initial flurry the activity subsided, and we starting to fear that something had gone wrong for the birds. Then, one morning the first Black Guillemot came back, carrying a fish crosswise in its bill. Shortly after, more Black Guillemots arrived and we were amazed watching them coming and going frenetically, bringing fish to the nests. This day was an important date for our monitoring. We recorded eight nest sites where fish were delivered, indicating that there was at least one chick demanding to be fed in each nest. It was particularly great to see the parents feeding at nest site number 9, a very narrow crevice that we called the 'keyhole'. There the adults had to use their best balancing skills to get a grip at the entrance and deliver the fish in.

We were happy to see that the feeding activity continued in all those nest sites for the following days and weeks, meaning that the chicks were thriving under the care of their parents. The chicks were growing quickly, and they began to be fairly visible from our viewing points. We were excited to see that at nest sites 9, 10 and 23 there were two chicks in each nest (the maximum number per year).

However, the chick at nesting site number 22 was the one that stole our hearts. It grew amazingly fast and because it occupied one of the biggest nest cavities it was easy to observe day-by-day. On the afternoon of the 15th July it gave us a surprise, jumping suddenly from the nest. It started to comfortably float around, comically

rolling and turning in the water, cleaning its feathers, moving legs and wings constantly. Minutes later it appeared to be in greater control of its movements, popping its head underwater and diving just like an adult.

A total of 11 Black Guillemot chicks fledged at different times on the following days from the total 22 Apparently Occupied Sites (productivity of 0.5 chicks/nest). As chicks are not able to fly initially, they just swim into the open sea. Research has shown that they will only return to their natal colony by age three or four years. Once all the nests were empty, the adult activity also tailed off, eventually leaving our viewing area for the season.

This year was very special for us, following the Black Guillemots during lockdown, and we are very happy to have contributed to the Seabird Monitoring Programme in Northern Ireland. We are looking forward to seeing 'our' Black Guillemots back, ready for the next breeding season here in Annalong harbour.

Declines in Belfast Lough's dominant winter gull species

Katherine Booth Jones, Neil Calbrade & Niall Burton
British Trust for Ornithology

EDMUND FELLOWES / BTO

Background

Gulls are of conservation concern in the UK and Ireland (Gilbert *et al.*, 2021, Colhoun & Cummins, 2013; Eaton *et al.*, 2015). Despite increases in the urban breeding populations of some species, for example Herring Gull and Lesser Black-backed Gull (Booth Jones, 2020; Booth Jones *et al.*, 2020; Calladine *et al.*, 2006; Raven & Coulson, 1997), populations in natural colonies have declined (JNCC, 2020; Mitchell *et al.*, 2004). However, during the winter months the population of gulls swells with migrants from mainland Europe (Wernham, 2002), and as a result the UK hosts internationally important populations of non-breeding gulls during the winter (Burton *et al.*, 2013; Woodward *et al.*, 2020). While focus on abundance change often concerns breeding populations of seabirds, winter populations of Black-headed Gulls and Common Gulls have declined over the last 20 years (Frost *et al.*, 2020).

Northern Ireland's sea loughs are important sites for wintering waterbirds, including gulls. However, they are also important in terms of human use, both for industry (e.g. shipping, aquaculture, and transport) and for recreation (walking, fishing, and sea bathing). Concerns arise where human-use and gulls come into conflict, for example over the potential for water contamination by roosting gulls (Calladine *et al.*, 2006; Fogarty *et al.*, 2003; Hatch, 1996), or where human activities may disturb gulls while foraging or roosting around the shore of the lough. The aim of this work was to analyse existing spatial data to quantify numbers of gulls in Belfast Lough during the winter and to assess where concentrations of gulls were occurring, to provide information on where human-gull conflicts may arise.

Methods

Data were sourced from the most recent Winter Gull Roost Survey (WinGS, 2003/04–2005/06) and the Wetland Bird Survey (WeBS) Core Count and Low Tide Count schemes (2013/14–2019/20). WinGS and WeBS surveys provide complementary approaches to identifying important areas, as WeBS represent daytime counts while WinGS represent night-time roosts. Gulls are more dispersed during the day, and therefore we would expect to record lower numbers in the WeBS data. WinGS was the latest in a series of periodic surveys aiming to estimate the numbers of winter gulls wintering in the UK and its constituent countries and at important sites. The WeBS Core Count scheme is the principal scheme of the Wetland Bird Survey and aims to monitor the populations and trends of non-breeding waterbird species in the UK through monthly counts across the year. At coastal sites, counts are usually undertaken at high tide. The WeBS Low Tide Count scheme provides information on the distributions of waterbirds on estuaries at low tide, with the aim of identifying key feeding areas; counts are undertaken monthly from November to February. Count methods for WinGS, WeBS Core and Low Tide counts can be found on the BTO website (www.bto.org).

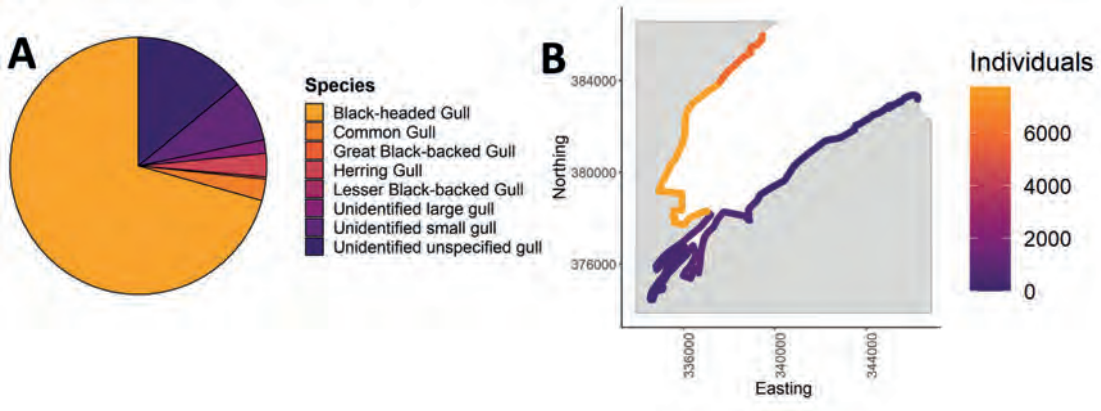
Results

WinGS: In total, 15,645 individual gulls were counted in Belfast Lough, and the majority of these were Black-headed Gulls (11,055). Herring Gulls (459) and Common Gulls (421) were the next most frequently recorded gull species in the lough (Figure 1A). The total proportion of large gulls, including Great Black-backed Gulls, Herring Gulls, Lesser Black-backed Gulls and unidentified large gulls was low (5%) compared to the proportion

of small gulls, including Black-headed Gulls, Common Gulls and unidentified small gulls (81%) that made up the total present in Belfast Lough. Many gulls could not be identified to the species level, and these made up 23% of the total number of gulls counted (including unidentified small gulls, unidentified large gulls and unspecified unidentified gulls).

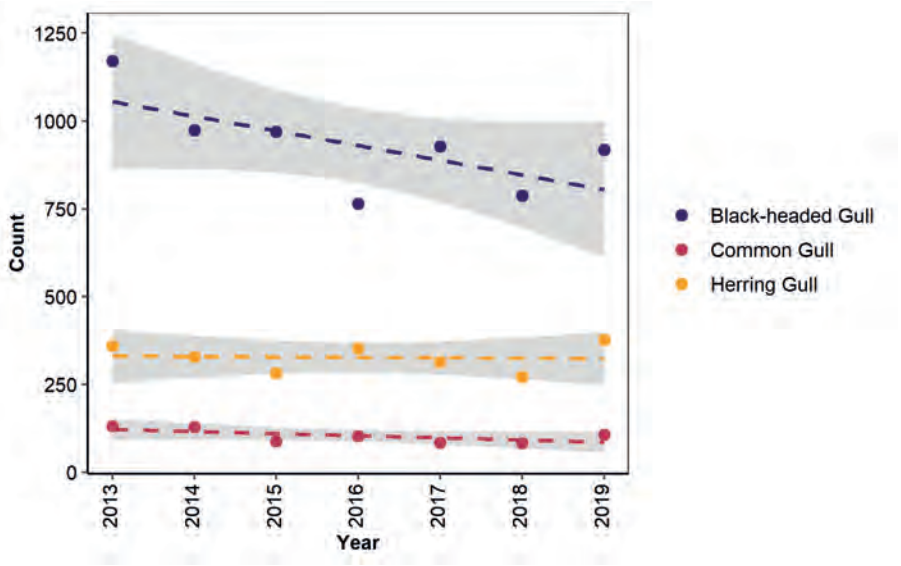
The north-west shore of Belfast Lough held the most gulls during the WinGS counts (Figure 1B). In particular, the shore between Green Island (J 386 852) and the Belfast ferry terminal (J 369 788) held the highest number of Black-headed Gulls and Common Gulls making it the most important roosting area for these species around the lough (7,750). However, no other species of gull were counted in this sector. No gulls were counted from Kinnegar (J 391 790) to Grey Point (J 457 833).

Figure 1: A: Pie chart representing the proportion of each gull species category across all WinGS sectors of Belfast Lough counted in January 2005. B: Counts of individual gulls of all species at WinGS sectors around Belfast Lough, as counted in January 2005.



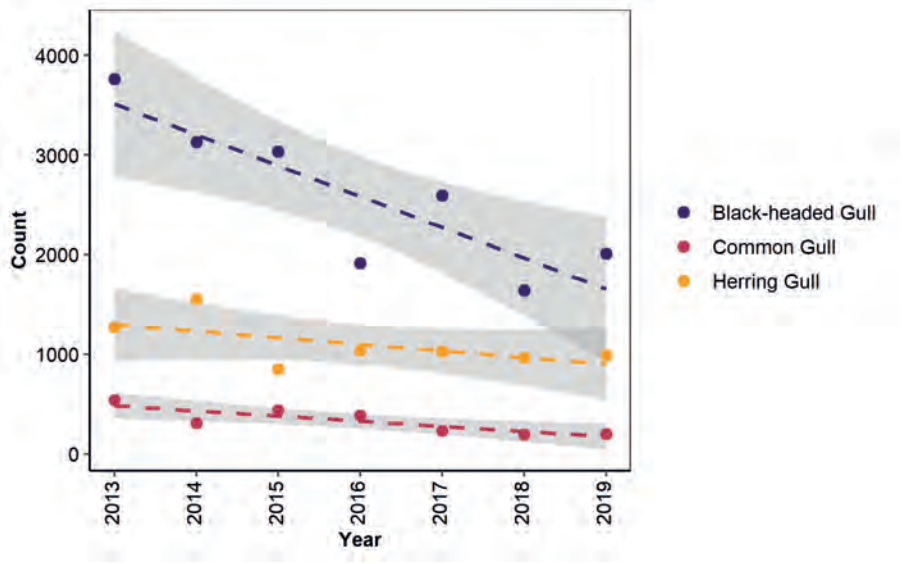
WeBS – Core Counts: By far the most commonly recorded gull species in the Core Counts was the Black-headed Gull (Figure 2). However, their numbers appear to have declined in Belfast Lough since 2013, when the annual average was 1,170 individuals. In contrast, numbers of Herring Gull and Common Gull appear to have remained stable in Belfast Lough (Figure 2). The WeBS sector with the biggest proportion of gulls was BP Pools and Victoria Park, which held 41% of all the gulls counted on the sectors in the lough in the winter of 2017/18, and in particular supported large numbers of Black-headed Gulls.

Figure 2: Winter WeBS Core Counts of Black-headed Gull, Herring Gull and Common Gull, the most numerous gulls in Belfast Lough, between 2013/14 and 2017/18. Counts are summed averages of sectors between Whiteabbey and Ballymacormich Point. The dashed line represents the linear regression trend in summed mean counts over time. The shaded region represents the 95% confidence interval around the trend. 2013 = the winter of 2013/14, etc.



WeBS – Low Tide Counts: The number of gulls counted in WeBS low tide sectors around Belfast Lough fell between 2013/14 and 2019/20. This decline appears mainly driven by a fall numbers of Black-headed Gulls (Figure 3). As with the WeBS Core Count numbers, numbers of Herring and Common Gulls appeared to remain relatively stable between survey winters (Figure 3). Concentrations of Black-headed Gulls were focused near the mouth of the River Lagan, while Herring Gulls appeared to favour sectors further out towards the edges of the lough.

Figure 3: Average winter WeBS Low Tide counts of Black-headed Gull, Herring Gull and Common Gulls, the most numerous gulls in Belfast Lough, between 2013/14 and 2019/20. Counts are summed averages of Low Tide sectors. The dashed line represents the linear regression trend in summed mean counts over time. The shaded region represents the 95% confidence interval around the trend. 2013=2013/14, etc.



Discussion

Black-headed Gulls were the dominant gull species along the shoreline of Belfast Lough (Figures 1, 2 and 3). However, both WeBS Core (high tide) Counts and Low Tide Counts also indicated that numbers of Black-headed Gulls had declined over the 2013/14 to 2019/20 period.

Breeding Black-headed Gulls are Amber listed in Ireland (Gilbert *et al.*, 2021). A drop in winter numbers may in part be related to changes in breeding populations (Banks *et al.*, 2009). For example, Lough Neagh held 30,000 Black-headed Gull pairs in the 1980s (Allen & Mellon, 2018), while the most recent full count of the lough only found 8,906 individuals – likely fewer than 4,400 pairs (Booth Jones & Wolsey, 2019). Likewise, Strangford Lough's breeding Black-headed Gull population has dropped from a peak of 7,023 pairs in 1994 to 1,305 pairs in 2019 (Booth Jones, 2020). However, Black-headed Gulls are migratory outside the breeding season and it has been estimated that the UK holds 60% of the European population of Black-headed Gull during the winter (Burton *et al.*, 2013); therefore, declines may also be linked to population changes elsewhere in Europe. Because of this it is difficult to say whether there are specific factors in Belfast Lough that caused a drop in winter numbers of Black-headed Gulls during the study period. Stability in the populations of other gull species using the lough suggests that this may be a problem unconnected with conditions in Belfast Lough. WeBS trends for Northern Ireland show a decline after 2006/07 through to 2016/17, but a levelling of numbers since then (Frost *et al.*, 2020).

In contrast to the WinGS count in January 2005 when gulls were concentrated on the north-west shore, winter averages of WeBS Low Tide data showed that gulls were more concentrated in the sectors close to Belfast harbour and the mouth of the River Lagan between 2013/14 and 2017/18. This may be a result of averaging across the winter months for the WeBS survey, erasing between-month differences in distribution, or may indicate a change in conditions around the lough between WinGS and the WeBS study periods. However, it may also reflect the difference in the gulls' use of sectors. WinGS focused on recording evening gull roosts, whereas Low Tide surveys are more reflective of foraging distribution, as birds hunt for food on the area exposed by the tide. Therefore, different areas of the lough are likely to be important to gulls at different times of day and for different reasons, and these may change with the tidal cycle. Hence, while the north-east shore may be a focus for potential human-

gull conflicts when gulls are roosting, areas closer to the city in the south of the lough may be more likely to experience conflicts while gulls are foraging. However, the detailed habitat use of gulls in Belfast Lough through tidal and diurnal cycles is still unknown and would require a more detailed field study to assess daily movements around the lough.

Belfast Lough is an incredibly important hub for Northern Ireland in terms of human use, providing the space for recreational activities such as walking, cycling, boating and dog-walking, and commercial activities such as aquaculture, shipping and transport. Due to the concentration of human and gull activities in the lough, there is potential for conflict. Human activities in the lough may cause disturbance to the important bird communities using the lough, while gulls may be causing water contamination issues. This study has shown, using historical data, that areas of conflict are more likely to occur where gulls concentrate on the north-east shore and around the Belfast harbour area. The lough was formerly one of the most important sites in Northern Ireland for wintering Black-headed Gulls, and while factors causing their decline may not be entirely local, more information on their habitat use and the impact of disturbance activities on foraging and roosting birds would enable a better understanding of the conservation issues facing wintering populations in Northern Ireland.

Acknowledgements

Thanks to the Agri-Food and Bioscience Institute, Northern Ireland Water and the Northern Ireland Environment Agency who funded this work.

Data were provided by WeBS, a Partnership jointly funded by the British Trust for Ornithology, Royal Society for the Protection of Birds and Joint Nature Conservation Committee, in association with The Wildfowl & Wetlands Trust, with fieldwork conducted by volunteers. Although WeBS data are presented within this report, in some cases the figures may not have been fully checked and validated. Therefore, for any detailed analyses of WeBS data, enquiries should be directed to the WeBS team at the British Trust for Ornithology, The Nunnery, Thetford, IP24 2PU (webs@bto.org)

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Update on monitoring gulls and terns on the Lough Neagh islands

Peter Harper & Ciara Laverty
Lough Neagh Partnership

MOSS TAYLOR / BTO

Background

Bob Davidson and Stephen Foster submitted an interesting article to the Northern Ireland Seabird Report 2016 tracking the history of seabird monitoring on Lough Neagh (Leonard & Wolsey, 2017). After DAERA withdrew their funding for the Lough Neagh Reserve Management team in 2012 there were no formal surveys or management work undertaken on the lough however Bob and Stephen continued with voluntary surveys as and when they could and it was this data which informed the Northern Ireland Seabird Report. In 2018 the Lough Neagh Partnership secured funding from the Department of Agriculture, Environment and Rural Affairs (DAERA) to draft a Lough Neagh Shoreline Management Plan. This provided a strategic overview for management activity on the lough shoreline. Further funding was secured to commission consultants to produce a Lough Neagh Island Conservation Management Programme. This study was undertaken by Allen and Mellon Environmental in association with Bob Davidson and provided recommendations for the ongoing survey and management of 18 gull and tern at the following breeding sites:

- Brockish Bay
- Annaghmore islands
- Skady Tower complex
- Goat Island
- Torpedo Platform
- McGarrys or Lakeview Island
- Ram's Island
- Tolan`s Flat
- Padian Island
- Owen Roe or Phil Roe's Flat
- Croaghan Island
- Shallow Flat
- Coney Island Flat
- Coney Island
- Scaddy Island
- River Rock
- Taylors Rock
- Ballyronan Island

DAERA provided funding for the Lough Neagh Partnership to employ a Shoreline Environment Officer together with some equipment (but no boat!) later that year. Peter Harper took up post in late 2018 and recommenced regular survey work using his own boat in 2019. Early advice from Bob Davidson, Stephen Foster and Gun Club representatives was invaluable. However, it was late into the 2019 season before Peter was able to commence and before some data were collected and uploaded to the Centre for Environmental Data and Recording (CeDAR) and shared with DAERA.

As the Partnership began to establish a good working relationship with DAERA, further funding was found to employ Ciara Laverty as Lough Neagh Ranger to assist with the survey work. Although funding was not secured for the purchase of new boat, DAERA agreed to transfer one of their old diving boats (Modiolus II) and an original survey boat (an ancient 5 m flat bottom, aluminium Sea Nymph boat together with 10hp Mariner engine) to the partnership. Peter collected this from John Early at Peatlands Park and interestingly viewed another 5 m Lough Erne Fishing boat (very similar to the one that Bob Davidson described in his 2016 article) alongside it! One year on the Partnership is still waiting to take delivery of the Modiolus boat; however the old Sea Nymph was repaired and put to good use to help Ciara and Peter access shallow water sites along the southern shoreline. Further help came from Marcus Malley at Armagh Banbridge Craigavon Council who kindly agreed to allow the Partnership to store this boat safely in the Marina Yard.

Following the purchase of further health and safety equipment, completion of Royal Yachting Association Level II Powerboat, Marine Radio and Sea Survival training in late 2019/early 2020, it felt like the Partnership was ready to go and we were both looking forward to being able to complete a full 2020 breeding season survey. That was in February – then the coronavirus pandemic happened!

The Lough Neagh Partnership team out on the lough. Left: Ciara on board 'The Midgie', the old Sea Nymph, photo: Peter Harper. Right: Peter at Oxford Island, photo: Ciara Laverty.

Lockdown meant that all site visits during March, April and May were put on hold. Work continued with the adaption of risk assessments and staff protocols in response to the new circumstances until finally, in June, the Partnership staff took the decision to recommence surveys. Of the 18 sites considered in the Bob Davidson report, 15 islands have been surveyed on three separate occasions between early June and late August. Goat Island, Croaghan and Owen/Phil Roe's Flat were not surveyed as permission had not been secured from the owner/Gun Club.

Survey methods

Survey methods in 2019 and 2020 replicated those used by Bob and Stephen in their earlier surveys (Leonard & Wolsey, 2017). Staff undertook flush counts from a distance, and photographed birds flushed from each site (Walsh et al., 1995). Numbers were estimated while birds were in the air and then cross referenced against photographs on the computer later. Staff were careful to minimise disturbance to the breeding birds present, therefore surveys were only undertaken in fair weather (never greater than Force 4 winds or 12/13 knots maximum) and the boat was moored approximately 180–100 m from the colonies during counts. It is important to note however that in the last three years counts have not been possible during the peak breeding season for gulls and terns in the lough (Table 1), therefore counts are not standardised to the Seabird Monitoring Programme and not directly comparable as estimates of breeding numbers.

TORPEDO PLATFORM, LOUGH NEAGH. PHOTO: PETER HARPER.

Table 1: Results of flush counts from the Lough Neagh Management Plan in 2018 (Allen & Mellon, 2018), and Lough Neagh Partnership surveys in 2019 and 2020. Counts in 2018 were carried out on 20th April for gulls and 27th June for terns. In all years, numbers are estimates from flush counts of individuals. Change between 2019–2020 is the difference in estimated number of birds flushed only and is not a direct measure of change in breeding population of Lough Neagh (may contain non-breeding birds). BH = Black-headed Gull, HG = Herring Gull, LB = Lesser Black-backed Gull, GB = Great Black-backed Gull, MU = Mediterranean Gull, CN = Common Tern, CA = Cormorant.

Island	**2018** Bob Davidson & Stephen Foster (Allen & Mellon, 2018)	**2019** Peter Harper et al	**2020** Peter Harper & Ciara Laverty	**Change between 2019 & 2020** Blue = increase Red = decrease
Brockish Bay	BH 648	BH 317 (incl. 60 juvs) 7th July 2019	BH 400 LB 2 CN 5 7th July 2020	LB + 83 LB +2 CN +5
Annaghmore Islands	BH 400 (incl. 200 juveniles)	Did not survey	BH 99 7th July 2020	N/A
Skady Tower Complex	LB 160 BH 200	LB 200 BH 0 8th July 2019	LB 500 BH 0 CN 3 CA 330 9th July 2020	LB +300 BH ±0 CN +3 CA +330
Torpedo Platform	BH 300 CN 200 MU 2	BH 80 CN 360 CA 50 24th July 2019	BH 350 CN 70 CA 0 18th June	BH + 270 CN -290 CA -50
McGarry's Island	BH 600 (incl. 230 juveniles)	BH 2 GB1 23rd September 2019	BH 210 GB 0 LB 1 3rd July 2020	BH +208 GB -1 LB +1
Ram's Island	No seabirds	Did not survey	Did not survey	N/A
Tolan's Flat	LB 500	LB 400 BH 10 2nd August 2019	LB 350 CA50 BH – 3 (incl. 1 juvenile) 24th June 2020	LB -50 BH -7 CA +50
Croaghan Island	LB 20	Did not survey	Did not survey	N/A
Phil/Owen Roes Flat	LB 90 BH 86	Did not survey	Did not survey	N/A
Shallow Flat	Did not survey	Did not survey	Did not survey	N/A
Coney Island	No seabirds	No seabirds 14th October 2019	BH 17 26th June 2020	BH +17
Coney Island Flat	LB 400 HG 2	LB 150 1st August 2019	LB 130 26th June 2020	LB -20
Scaddy Island	BH 3,000 LB 300	BH 0 LB 500 1st August 2019	BH 700 LB 300 26th June 2020	BH +700 LB -200
River Rock	BH 2,500	BH 700 11th July 2019	BH 2,000 26th June 2020	BH +1,300
Taylors Island	LB 4 (incl. 3 juveniles)	LB 47 (incl. 7 juvs/6 nests) 11th July 2019	LB 90 (incl. 10 chicks) CA 150 20th June 2020	LB +43 CA +150
Ballyronan Island	BH 0	BH 80 18th September 2019	BH 20 CA 1 18th June 2020	BH -60 CA +1

Other surveys

Ciara and Peter have both agreed with Ian Enlander to assist BTO with the 2021 BTO Heronries Census (https://www.bto.org/our-science/projects/heronries-census). This survey was only partially completed during 2020 due to the coronavirus outbreak. Nonetheless we have identified most of the sites and hope to able to complete February and April visits in 2021.

The Lough Neagh Partnership also agreed to assist with Wetland Bird Survey (WeBS), https://www.bto.org/our-science/projects/wetland-bird-survey) of several sites along the North Western shoreline of the lough and this work is ongoing. Ciara and Peter undertook the first WeBS survey on 19th November this year

Liaison with Gun Clubs

Lough Neagh Partnership staff have initiated a series of meetings with the British Association for Shooting and Conservation (BASC), Countryside Alliance and the various Gun Clubs and landowners around the lough in an effort to encourage best practice and seek opportunities to work alongside some of the clubs to undertake habitat improvement work, encourage the introduction of bag returns, avoidance of lead shot and to raise awareness of the population trends in key species around the lough, in particular red and amber listed birds (Colhoun & Cummins, 2013; Eaton *et al.*, 2015).

Funding has been secured from DAERA for the implementation of the Lough Neagh Partnership Tern Project. This will include the installation of a new tern barrier around the perimeter of the Torpedo Platform to prevent tern chicks falling into the lough when disturbed. It will include the installation of live stream cameras to assist with monitoring and 'No Access' signage. Furthermore, the Partnership will be installing a man-made tern raft at Ballyronan Marina opposite the old bird hide. This will also include live stream camera to assist with monitoring and raising awareness. It is hoped to complete this work prior to the start of the 2021 breeding season.

Conclusions

- Urgent need for habitat improvement work on some islands;
- Urgent need for installation of perimeter barrier around tern platform;
- Further raising awareness work required;
- Scope to work with Gun Clubs/other volunteers;
- Local knowledge of Lough Neagh and boat handling skills essential;
- Need for consistency in terms of dates and location of survey (but weather dependent);
- Survey work must continue.

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2020 Seabird Nesting Report for Strangford Lough

Hugh Thurgate
National Trust

JOHN HARDING / BTO

As a result of the COVID-19 pandemic, restrictions were imposed on bird monitoring fieldwork by the BTO in the early Spring. By the time restrictions were lifted it was too late to commence breeding monitoring fieldwork for all wildfowl and all species of gull nesting on Strangford Lough. However, normal monitoring of Arctic and Common Tern was achieved and although all first visits to survey Sandwich Tern would normally have been undertaken in May, the latest first visit for this species was still in time to make an accurate assessment of breeding effort. A late summer assessment of the Cormorant colony on Bird Island was also made.

Since the mid-to-late 1990's, a small number of Sandwich Tern started to overwinter on Strangford Lough and off the Ards Peninsula. As a result, it has become difficult to accurately judge the first arrival time of the migratory individuals as they return from west and south-west Africa. The first common tern was noted at the Quoile barrage on April 22nd and a number were seen over Dunsy Rock two days later. The first formal monitoring visit was undertaken on May 26th and the final visit to the Cormorant colony was made on 19th August.

Species accounts

Cormorant *Phalacrocorax carbo*
Strangford Lough: 167 AON (Apparently Occupied Nests).

The first visit on 6th August to Strangford Lough's only colony on Bird Island off Kircubbin was made a lot later in the season than is usual. Whilst it was felt that the count was accurate, early nests where young have already fledged can lose their structure as the season develops, becoming flattened off or start to merge with adjacent nests, making counting more problematic. The count of 167 AON was the lowest since 1989 (154 AON) when the colony was considered to be at the establishment phase, having bred for the first time on the lough in 1980.

In the last few years, the main cluster of nests at the southern end has started to dissipate with increasing numbers stretching linearly down the eastern side of the island. This year the traditional concentration at the southern end had gone completely and numbers were also reduced on the eastern side to just 29 AON. The lower numbers that bred this year were concentrated on the western side of the island and stretched right up the island to its northern tip (138 AON), where on the census date of 6th August there were still roughly a dozen or so nests in the early stages of development with eggs and newly hatched naked young still present. All the other nests counted were 'empty' where young had fledged or were no longer using the nest structure.

A follow-up visit on 19th August found that all the late nesters at the northern tip of the island had failed completely with no eggs or young in sight. The cause of the loss may have been due to adverse weather or predation, or a combination of both. The Cormorants on Bird Island share it with a large Herring Gull (*Larus argentatus*) colony with the odd Greater Black-backed Gull (*Larus marinus*). If the adult Cormorants are disturbed by a boat landing or through the presence of fieldworkers they leave their nests and fly some distance away from the island. They can be slow to return and show no aggression to would-be avian predators. The chicks are left to fend for themselves and obviously are very vulnerable, when young, to attack. Any gulls present rapidly move into the colony and will gorge themselves on regurgitated fish and plunder eggs in nests, and to a lesser extent, young, naked chicks.

When undertaking nest counts fieldworkers are positioned at each of the sub-colonies to act as 'scarecrows' to deter gull predation, whilst other fieldworkers undertake the survey itself. Whilst this keeps nest predation to a minimum during the nest count, there is always the initial period of vulnerability between the monitoring team leaving the island and the adult Cormorants returning to their nests. To keep predation to a minimum we have reduced the count to one visit per year and tend to do it later in the season when the majority of Herring Gulls have finished their breeding season and vacated the island. We have experimented with the use of a drone to count nests, focusing initially on the impact of disturbance to both Cormorant and Herring Gull. The results were encouraging both in terms of being able to count nest structures, although this did present challenges, but significantly, drone activity resulted in minimum disturbance of nesting seabirds i.e. incubating birds sat tight and aerial gulls showed little interest in the drone flown at different heights above the colony.

Sandwich Tern *Thalasseus sandvicensis*
Strangford Lough: 105 AON, Cockle Island 177 AON

A worryingly low number bred in Strangford Lough this year, falling shy of national significance, down 57% on last year's figure for AON and down 40% on the five-year rolling mean. There were only two colonies of any significance, with 50 AON on Dunnyneill and 27 AON on Dunsy Rock. There were just eight colonies in total with 11 AON on Swan island, 7 AON on Blackrock off Ringdufferin, 6 AON on Salt Rock in the Boretrees, 2 AON on Gull Rock (Boretrees) and 1 AON apiece on the Chanderies and North Sheelahs. Overall productivity was thought to be negligible with complete failures at the incubation stage at most colonies. Due to fieldwork limitations imposed due to the COVID-19 pandemic the planned third year of anti-predator work and productivity monitoring was not undertaken.

Although breeding numbers held up well at Cockle Island off Groomsport, productivity appeared low with losses incurred mainly at incubation and early chick stages. Larger chicks were not found at any of the three visits to the island and only one chick was found on a late visit to the island on 6th July, though quite a few re-lays (which may have comprised entirely or partially of Common Tern) were noted with several using vacated Black-headed Gull nest structures. The Black-headed Gull colony, although not counted, was thought to do very badly without a single chick being seen during monitoring visits.

Common Tern *Sterna hirundo*
Strangford Lough: 228 AON, Cockle Island: 25 AON

As with Arctic Tern, the numbers of Common Tern breeding in Strangford Lough in 2020 were cause for concern, although the drop from 2019 was slightly less jarring than for Arctic Tern, down 13% on 2019's total and down 34% on the five-year rolling average. There were 10 colonies on the lough this year with the largest being on Dunsy Rock at 56 AON followed by 46 AON on Rat Island, 34 AON on Black Rock (Ringdufferin), 30 AON on Dunnyneill, 26 AON on Swan Island, 14 AON on Gull Rock (Boretrees), 11 AON on Ogilby, 9 AON on Green Island Rock and 1 AON each on Salt Rock (Boretrees) and Shones Island.

Productivity was thought again to be very poor with mass failures at incubation or early chick stage throughout the lough except at Swan Island. The presence of 14 large chicks, the majority close to fledging on 1st September, would have given a productivity 0.54 chicks per pair for the island, assuming no further losses to fledging time. A note of caution with this figure however as unfledged chicks as late as September indicates successful re-lays rather than first breeding attempts and this may or may not have included additional breeding birds to the count made on Swan Island in June and could have included pairs re-locating from failure elsewhere on the Lough or late starters. Nevertheless, once again the Swan Island colony of five species of breeding seabirds appeared to have avoided significant predation. Last year there was a small number of late season visits by Eurasian Otter (*Lutra lutra*), that resulted in a small amount of predation but there were good overall productivity figures. Late in the season Grey Herons (*Ardea cinerea*) were seen to predate at least two chicks, thought to be Common or Arctic Tern young, by staff working on the Strangford ferry

Sandwich Tern *Thalasseus sandvicensis*
Strangford Lough: 252 AON, Cockle Island: 14 AON

As has been the norm for over 20 years, a small number of Sandwich Tern overwintered on the lough. One or two birds normally hang around Killyleagh during the winter, but it is of course possible they are using the Narrows too. In the winter of 2019/20 one Sandwich Tern was seen off Dunnyneill on 24th November, two at Killyleagh Harbour on 17th December and one recorded there on 8th January and one in Holm Bay on 5th February. Half a dozen or so seem to spend their winter foraging in the Narrows and roosting on the pontoon at the Portaferry Marina. Last winter five were recorded there on 16th December and eight were recorded on

the pontoon on 10th March, but this may have possibly included the first of the Spring arrivals. Birds are also encountered on the Outer Ards in the winter, though this may include birds from Strangford Lough hopping over the peninsula.

On 16th December, a colour-ringed Sandwich Tern was seen on the Marina. This bird had been ringed as a pullus (nestling bird) at Forvie National Nature Reserve on the Ythan Estuary in Aberdeenshire in 2009. It returned to its natal site to breed in 2013 and was recorded either there or at Girdleness on the southern edge of the mouth of Aberdeen harbour every year subsequently up to 2018, apart from in 2017, when it was recorded at Coquet Island between 30th July and 18th August. As it had not been recorded on the Ythan that year and was present for over two weeks it might possibly have bred on Coquet. Interestingly it was recorded at Loch Ryan in Dumfriesshire on 21th August 2015, a month after been recorded at Girdleness, which suggested a post breeding movement south west across the Scottish mainland. Was that the year this bird ventured across the North channel and established a link with the Strangford Lough Sandwich Tern population? Was it that year that this bird first overwintered on Strangford Lough? This bird was recorded again at Portaferry on 10th and 17th November 2020. This individual has been recorded in the field on at least 12 occasions in 10 years and demonstrates very nicely the huge value of colour ringing.

After many decades of conventional ringing of Sandwich Tern on the lough, 2020 heralded the first year of a National Trust colour ringing project for this species. Unfortunately, the establishment of the project was a somewhat protracted affair. First contact with the European colour ringing project was made on 16th December, but despite this it proved extremely challenging to actually get hold of colour rings from Poland, with the first order never materialising and the second with a different supplier impacted by the COVID-19 lockdown. The rings finally arrived at the end of June only in time to ring just two pulli on Swan Island that were on the verge of fledging. The colour rings used have a three-digit alpha-numeric code on them, one number followed by a letter, followed by a number. The first number in the code is a '4' and is the identifier for this project. At least one of the two birds ringed 4A1 and 4A2, was alive and well and fully fledged on 9th July, eight days after ringing, still at the natal site on Swan Island. The ring colour is a bright leaf green, not a dark 'conifer' green and the inscription is in white lettering. Hopefully next year will see significantly more chicks ringed and re-sightings will start to come in. I would be very grateful if anyone sees a Sandwich Tern with a green colour ring with a code starting with the number '4', that they send the re-sighting information to me by e-mail to:- hugh.thurgate@nationaltrust.org.uk and hughthurgate@gmail.com. Please use both e-mails in the event one of these changes in the future!

In 2020, completely by coincidence and not part of a strategic plan, the RSPB was due to embark on a Sandwich Tern colour ringing project of its own in Larne Lough. Unfortunately, the COVID-19 pandemic resulted in the key fieldworker being furloughed for the entire breeding season, which must have been enormously frustrating for the individual concerned! The scheme which will hopefully commence in 2021 will also use a green ring but the three-digit alpha-numeric code will begin with the number '3'. So here in Northern Ireland we are at the start of an exciting period in Sandwich Tern research and the next few years promise to generate a lot of new data.

In the 2020 breeding season just 252 AON were located on Strangford Lough, with 51% (129 AON) of these on Swan Island. This is the lowest number of breeding pairs of this species in over 50 years of data collection (from 1969) and represents a drop of 42% on 2019 and down 57% on the five-year rolling mean to 2019. There have been only five years since 1969 in which the population has been under 500 pairs; 267 AON in 1973, 337 in 2016, 346 in 1994, 389 in 1998 and 481 in 1969. Only three islands were used for nesting in 2020, Swan Island, Dunnyneill (81 AON) and Blackrock (42 AON).

The first nest count for this species took place on 26th May, timed to be late on in incubation, anticipating that only the very earliest clutches may have just hatched i.e. all laying was presumed to have been completed. Counting Sandwich Terns any later in the breeding cycle is likely to result in inaccuracies, as chicks only stay in the nest scrape for a couple of days. The following islands were visited on the 26th May: North Boretree Rock (0 AON), Gabbock Island (0 AON), North Sheelahs Island (0 AON), Sheelahs Island (0 AON), Dunsy Rock (0 AON), Blackrock (40 AON) and Dunnyneill (81 AON).

On Blackrock, 37 of the clutches had one egg (97%) and just three had two eggs, suggesting either a very low productivity or a late start with birds still to lay their second egg, as eggs are laid 2–5 days apart. On nearby Dunnyneill, of the 81 AON counted 53% had one egg and 47% had two. The first visit to Swan Island was made on 2nd June where there had been a significant hatch, putting a first laying date of around 7th or 8th May (mean incubation of 25 days). Eighty pulli were ringed with a conventional BTO metal ring. On 9th June, no Sandwich Terns were present on Ogilby Island, a former stronghold for this species in the lough. In recent years, Lesser

Black-backed Gulls have established a colony there. A second visit to Blackrock on 18th June found 42 clutches of Sandwich Tern, just two more and a whole incubation period on from the first visit on 26th May. The fact that none had hatched would support the assertion that the high number of singletons found on the first visit was due to the fact that the first egg had just been laid, as if clutches had been completed and incubation was well on the way there should have been young present. Expectation therefore was for an imminent mass egg hatch in the subsequent days. However, on a visit to the island two days later not one clutch had hatched putting incubation at that time of over 25 days, the usual incubation period of Sandwich Terns (Cabot *et al.,* 2013, Cramp et al., 1985).This raised concerns that the clutches may not have been viable as a result of a disturbance event and possible chilling at some point during incubation. This concern was heightened when a visit to Dunnyneill on the same day revealed complete and total failure of the 81 nests that had been found there on 26th May. Not a single egg or chick was to be found. A follow up visit to Blackrock a fortnight later revealed a complete failure of the Sandwich Tern colony there too, either as a result of predation post 18th June, or as a result of egg chilling prior to that date and subsequent predation. It was not thought that tidal wash outs had impacted on either of the two islands.

A check of Swan Island by boat on 2nd July revealed 53 fledged Sandwich Tern chicks which would have given a minimum productivity for the island of 0.41 and 0.21 for the lough overall. This productivity figure compares to 0.64 in 2019 and 0.02 in 2018. In comparison, productivity at Lady's Island Lake in County Wexford is quoted as been 'typically 0.60', that at Cemlyn dunes in Anglesey as 0.73 between 2009 and 2017, an overall figure in Scotland between 1986 and 2018 of between 0.1 and 0.5 at all but three sites and for the UK as a whole 0.66 between 1986 and 2008.

Breeding attempts by Sandwich Tern on Cockle Island have faltered in recent years probably as a result of repeated tidal wash outs. Cockle Island is now very vulnerable to total inundation on Spring tides that coincide with low pressure systems and strong onshore winds. No breeding took place from 2015 to 2017 but the island was colonised in 2018 (92 AON) and 2019 (61 AON). This year just 14 AON were recorded.

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Irish Marine Protected Areas Management and Monitoring work in 2020

Kendrew Colhoun, Paul Whitelaw & Paul Baker
BirdWatch Ireland

KEVIN KIRKHAM

BirdWatch Ireland's work was not immune from the effects of the COVID-19 pandemic in the 2020 breeding season. The knock-on effects on timing and scheduling equipment significantly impacted work even when regulations did not, for example, impacting on obtaining fieldwork permits, movement etc. But the birds just got on with it of course! Despite these difficulties, we managed to undertake some Kittiwake monitoring and ringing work in Donegal Bay and Co. Down (including geolocator retrieval and deployment) and spent around 10 days on Inishtrahull, Co. Donegal.

Inishtrahull is likely to form a greater focus for our work in 2021 for a number of reasons. Firstly, we anticipate doing some seabird tracking work form there on Storm Petrels, Manx Shearwaters and Fulmars. On several of these species our hope is that the project will form part of a small network of synchronous projects in the north-west sea area off Ireland and Scotland. Secondly, members of the MarPAMM team have been instrumental in the establishment of Britain and Ireland's newest Bird Observatory. Working closely with National Parks and Wildlife Service (NPWS) and the Commissioners of Irish Lights, the MarPAMM team and Bird Observatory teams plan to implement and develop a detailed baseline survey of breeding seabirds and establish a long-term monitoring programme for all the populations which occur there. These include Shag (300+ pairs), Storm Petrels (1,000–1,500 pairs), Fulmars (150+ pairs) and large gulls (< 400 pairs). We added a further species to that monitoring list, the Manx Shearwater, which we confirmed as breeding there for the first time. Inishtrahull is the most northerly breeding colony of Manx Shearwaters in Ireland and the only confirmed colony in Co. Donegal. A very nice find!

Further work on MarPAMM will be reported on the BirdWatch Ireland MarPAMM webpages; further information on the new Inishtrahull Bird Observatory is available at www.inishtrahullbirdobs.ie. The fledgling Observatory encourages interest and support from those with an interest in seabirds, seabird biology, monitoring and conservation.

LEFT: Inishtrahull looking from the new West Light east to the demolished East Light. Petrels breed amongst the walls, Rabbits are abundant (and provide burrows for Manxies) and gulls/shags and Fulmars breed around the low cliffs on the perimeter. Mícheál Casey. RIGHT: Breeding Manx Shearwater from Inishtrahull, caught and ringed in August 2020. Kendrew Colhoun.

Appendix: Species Counts

LILIAN LIEBER

Table 8: Cumulative counts (N) of all species of seabird (excluding Black Guillemot) within Seabird Monitoring Programme (SMP) 'Master Sites' in Northern Ireland between 2015 and 2020. 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
Species (count units)	**Master Site**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**
Fulmar (AOS)	Downhill	135 (6)	78 (4)	81 (4)	88 (6)	95 (5)	-
	North Antrim Coast	16 (10)	37 (10)	38 (10)	16 (9)	21 (4)	4 (1)
	Rathlin Island	-	-	28 (3)	25 (3)	10 (NR)	-
	Giants Causeway Coast	-	-	-	55 (5)	134 (2)	66 (1)
	Causeway Coast	-	-	-	84 (1)	100 (3)	159 (3)
	East Antrim Coast	31 (21)	45 (16)	60 (11)	34 (12)	40 (14)	32 (13)
	Larne Lough to Portmuck	2 (2)	2 (1)	6 (1)	2 (1)	3 (1)	-
	Muck Island	52 (1)	68 (1)	80 (1)	72 (1)	43 (1)	56 (1)
	The Gobbins	201 (5)	290 (NR)	310 (NR)	326 (5)	215 (5)	-
	Blackhead	3 (1)	3 (1)	29 (1)	30 (1)	31 (1)	19 (1)
	Whitehead	3 (1)	3 (1)	5 (1)	7 (1)	5 (1)	8 (1)
	Copeland Islands	-	-	-	6 (1)	8 (1)	-
	Maggy's Leap to Newcastle	12 (1)	-	-	-	2 (1)	2 (1)
Cormorant (AON)	North Antrim Coast				-	-	4 (1)
	The Skerries	64 (1)	-	60 (1)	94 (1)	137 (1)	-
	Sheep Island	66 (1)	84 (1)	100 (1)	88 (1)	-	-
	The Gobbins	0 (5)	12 (NR)	13 (NR)	12 (5)	0 (5)	-
	Outer Ards	-	-	-	53 (7)	77 (7)	0 (3)
	Strangford Lough	245 (NR)	343 (NR)	360 (NR)	314 (NR)	388 (25)	
	Lough Neagh and Lough Beg SPA (Antrim)				-	-	620 ind (6)*
	Lough Neagh and Lough Beg SPA (Tyrone)				-	-	150 ind (3)*
	Lough Neagh and Lough Beg SPA (Armagh)				-	-	0 ind (3)*

Shag (AON)	Downhill	3 (2)	0 (4)	-	0 (6)	38 (1)	-
	North Antrim coast	2 (1)	1 (10)	1 (10)	2 (9)	0 (7)	0 (1)
	The Skerries	64 (1)	-	-	-	-	-
	Sheep Island	66 (1)	-	-	-	-	-
	Rathlin Island	42 (NR)	47 (NR)	51 (NR)	55 (NR)	65 (NR)	-
	The Maidens	-	-	-	20 (NR)	-	-
	Muck Island	17 (1)	21 (1)	30 (1)	34 (1)	38 (1)	31 (1)
	The Gobbins	20 (5)	22 (NR)	20 (NR)	25 (5)	20 (5)	-
	Maggy's Leap to Newcastle	4 (1)	3 (1)	-	-	0 (1)	15 (1)
	Donard Cove	3 (1)	3 (1)	5 (1)	-	9 (1)	0 (1)
Great Skua (AOT)	Rathlin Island		1 (NR)	1 (NR)	1 (NR)	1 (NR)	-
Kittiwake (AON)	Downhill	92 (2)	-	-	0 (6)	0 (5)	-
	North Antrim coast	207 (10)	279 (10)	236 (10)	293 (9)	332 (6)	141 (1)
	Rathlin Island	-	-	340	313 (3)	56 (NR)	-
	Muck Island	225 (1)	351 (1)	369 (1)	314 (1)	519 (1)	521 (1)
	The Gobbins	835 (5)	1,072 (NR)	1,053 (NR)	683 (5)	1,145 (5)	-
	Maggy's Leap to Newcastle	483 (1)	-	-	513 (1)	671 (1)	717 (1)
	Donard Cove (formerly Maggy's Leap 1)	86 (1)	78 (1)	76 (1)	68 (1)	91 (1)	94 (1)
Black-headed Gull (AON)	Larne Lough	1,825 (2)	3,102 (2)	3,060 (2)	2,895 (2)	2,618 (2)	2,000 EST (1)
	Belfast Harbour	~450 (1)	386 (1)	717 (1)	607 (1)	560 (1)	806 (1)
	Outer Ards	135 (NR)	67 (NR)	93 (7)	189 (7)	239 (7)	-
	Strangford Lough	1,265 (NR)	1,312 (NR)	1,524 (NR)	1,267 (NR)	1,305 (25)	-
	Carlingford Lough	1 (1)	-	-	-	-	-
	Lower Lough Erne	1,026 (NR)	1,238 (NR)	1,216 (NR)	1,218 (NR)	1,718 (NR)	-
	Moorlough Lake	0 (1)	66 Ind (1)	-	93 (1)	-	-
	Lough Vearty	5 (1)	-	0 (1)	-	-	-
	Lough Neagh and Lough Beg (Londonderry)	-	250 Ind (2)	-	40 (3)	-	20 ind (1)
	Lough Neagh and Lough Beg (Antrim)	95 (1)	4,565 Ind 95 AON (9)	115 (1)	4,368 Ind 191 AON (8)	-	104 AON (1), 7,454 ind (7)*
	Lough Neagh and Lough Beg (Tyrone)	-	6,750 Ind (4)	-	4,250 Ind (3)	-	2,700 ind (2)*
	Lough Neagh and Lough Beg (Armagh)	-	30 Ind (6)	-	118 Ind (5)	-	18 ind (1)*
	Antrim Town	-	15 (1)	-	-	-	-
Mediterranean Gull (AON)	Larne Lough	5 (2)	5 (2)	2 (2)	5 (2)	0 (2)	1 (2)
	Belfast Harbour	-	2 (1)	5 (1)	7 (1)	3 (1)	-
	Strangford Lough	1 (NR)	0 (NR)	0 (NR)	2 (NR)	0 (25)	-
	Lower Lough Erne	1 (NR)	1 Ind (NR)	1 (NR)	1 Ind (NR)	1 Ind (NR)	-
	Lough Neagh and Lough Beg (Antrim)	-	1 Ind (9)	-	2 Ind (8)	-	-
Common Gull (AON)	Rathlin Island	76 (NR)	84 (NR)	70 (NR)	62 (NR)	21 (NR)	-
	East Antrim Coast	-	-	22 Ind (1)	-	-	0 (14)
	Larne Lough	24 (NR)	27 (NR)	32 (NR)	37 (NR)	9 (1)	22 (2)
	Muck Island	20 (1)	-	51 Ind (1)	-	0 (1)	34 EST (1)
	Outer Ards	-	1 (NR)	9 (7)	10 (7)	21 (7)	0 (1)
	Copeland Islands	-	-	-	15 (1)	30 Ind (1)	-
	Strangford Lough	229 (NR)	333 (NR)	322 (NR)	293 (NR)	346 (25)	-
	Carlingford Lough	1 (1)	3 (1)	6 (1)	6 (1)	9 (1)	1 EST (1)
	Lower Lough Erne	163 (NR)	189 (NR)	143 (NR)	262 (NR)	337 (NR)	-
	Lough Vearty	16 (1)	3 (1)	8 Ind (1)	-	-	-
	Lough Galboly	0	-	22 Ind (1)	-	13 Ind (1)	-
	Lough Neagh and Lough Beg (Armagh)	-	15 (6)	-	0 (8)	-	-

		2015	2016	2017	2018	2019	2020
Species (count units)	**Master Site**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**	**N (sites)**
Lesser Black-backed Gull (AON)	Muck Island	-	-	-	-	-	13 EST
	Belfast Harbour	-	-	1 (1)	1 (1)	-	-
	Belfast (city centre)	-	-	-	101 (1)	221 (1)	-
	Copeland Islands	-	-	-	365	547 (1)	-
	Strangford Lough	433 (NR)	298 (NR)	343 (NR)	310 (NR)	316 (25)	-
	Lower Lough Erne	1,211 (NR)	1,185 (NR)	1,316 (NR)	1,622 (NR)	1,584 (NR)	-
	Lough Neagh and Lough Beg (Londonderry)	-	0 (2)	-	230 Ind 20 AON (3)	-	0 (10*
	Lough Neagh and Lough Beg (Antrim)	-	980 Ind (9)	-	830 Ind (8)	-	1,303 Ind (6)*
	Lough Neagh and Lough Beg (Tyrone)	-	353 Ind (4)	-	360 Ind (3)	-	380 Ind (3)
	Lough Neagh and Lough Beg (Armagh)	-	390 Ind (6)	-	612 Ind 3 AON (5)	-	320 Ind (3)
	Antrim Town	-	600 (1)	-	-	-	-
Herring Gull (AON)	Muck Island	-	-	-	-	-	17 EST
	The Gobbins	2 (5)	2 (NR)	1 (NR)	-	0 (5)	-
	Belfast (city centre)	-	-	-	16 (1)	39 (1)	-
	Outer Ards	-	-	-	187 (3)	199 (7)	0 (1)
	Copeland Islands	-	-	-	483 (1)	483 (1)	-
	Strangford Lough	679 (NR)	1,177 (NR)	1,070 (NR)	1,061 (NR)	1,273 (51)	-
	Maggy's Leap to Newcastle	4 (1)	-	-	-	0 (1)	1 (1)
	Donard Cove	-	-	-	-	1 (1)	-
	Carlingford Lough	-	0 (1)	-	-	1 (1)	-
	Lower Lough Erne	4 (NR)	5 (NR)	5 (NR)	5 (NR)	3 (NR)	-
	Antrim Town	-	15 (1)	-	-	-	-
Great Black-backed Gull (AON)	The Maidens	-	-	-	8 Ind (1)	-	-
	Muck Island	1 (1)	-	2 (1)	2 (1)	0 (1)	4 (1)
	The Gobbins	2 (5)	1 (NR)	2 (NR)	2 (5)	0 (5)	-
	Outer Ards	-	-	-	40 (3)	42 (7)	0 (1)
	Strangford Lough	62 (NR)	125 (NR)	114 (NR)	129 (NR)	107 (25)	-
	Maggy's Leap to Newcastle	3 (1)	-	-	-	-	-
	Donard Cove	-	-	2 (1)	-	1 (1)	-
	Carlingford Lough	2 (1)	2 (1)	2 (1)	4 (1)	0 (1)	-
	Lower Lough Erne	2 (NR)	4 (NR)	4 (NR)	2 (NR)	3 (NR)	-
	Lough Neagh/Lough Beg (Armagh)	-	1 (6)	1 (1)	1 (5)	-	2 AOT (2)*
Sandwich Tern (AON)	Larne Lough	694 (2)	1,229 (2)	1,141 2)	732 (2)	1,010 (2)	900 EST (1)
	Outer Ards	0 (1)	0 (1)	-	92 (3)	61 (7)	14 (2)
	Strangford Lough	581 (NR)	337 (NR)	775 (NR)	776 (NR)	434 (25)	252 (25)
	Carlingford Lough	250 (1)	7 (1)	71 (1)	13 (1)	24 (1)	-
	Lower Lough Erne	138 (NR)	226 (NR)	316 (NR)	250 (NR)	230 (NR)	143 (NR)

Common Tern (AON)	Larne Lough	353 (2)	333 (2)	355 2)	307 (2)	303 (2)	187 (1)
	Belfast Harbour	344 (1)	418 (1)	367 (1)	385 (1)	672 (1)	80 (1)
	Belfast Channels	7 (1)	12 (1)	13 (1)	-	17 (1)	29 (1)
	Outer Ards	3 (NR)	18 (NR)	23 (7)	17 (7)	21 (7)	25 (3)
	Strangford Lough	401 (NR)	457 (NR)	262 (NR)	340 (NR)	262 (25)	228 (5)
	Carlingford Lough	220 (1)	123 (1)	147 (1)	70 (1)	56 (1)	25 (1)
	Lower Lough Erne	30 (NR)	41 (NR)	51 (NR)	52 (NR)	54 (NR)	36 (NR)
	Moorlough Lake	0 (1)	4 (1)	-	2 (1)	-	-
	Lough Neagh and Lough Beg (Antrim)	84 (1)	240 Ind 75 AON (9)	271 Ind 102 AON (4)	246 Ind 135 AON (8)	-	68 AON (1) 75 Ind (6)*
	Lough Neagh and Lough Beg (Armagh)	-	3 Ind (6)	60 Ind (1)	123 Ind (5)	-	-
Roseate Tern (AON)	Larne Lough	1 (2)	1 (2)	1 (2)	1 (2)	1 (2)	1 (1)
Arctic Tern (AON)	Larne Lough	1 (2)	0 (2)	0 (2)	0 (2)	0 (2)	0 (1)
	Belfast Harbour	83 (1)	4 (1)	0 (1)	15 (1)	15 (1)	0 (1)
	Outer Ards	105 (NR)	43 (NR)	269 (7)	343 (7)	255 (7)	177 (3)
	Copeland Islands	-	-	-	46 (1)	75 AON, 150 Ind (2)	200 EST (1)
	Strangford Lough	194 (NR)	173 (NR)	73 (NR)	193 (NR)	245 (25)	105 (25)
	Carlingford Lough	85 (1)	41 (1)	20 (1)	70 (1)	50 (1)	-
Common Guillemot (Ind)	Rathlin Island	-	-	3,470 (3)	3,454 (3)	-	-
	Muck Island	2,070 (1)	2,926 (1)	2,554 (1)	2,478 (1)	2,782 (1)	3,107 (1)
	The Gobbins	2137 (5)	2,675 (5)	2,326 (5)	2,284 (5)	2,617 (5)	-
Razorbill (Ind)	Rathlin Island	716 (NR)	698 (NR)	707 (3)	683 (3)	-	-
	Muck Island	671 (1)	1,048 (1)	799 (1)	736 (1)	1,118 (1)	871 (1)
	The Gobbins	506 (5)	858 (5)	560 (5)	882 (5)	679 (5)	-
Puffin (Ind)	Rathlin Island	3 (NR)	5 (NR)	6 (3)	3 (3)	-	-
	The Gobbins	63 (5)	52 (5)	57 (5)	55 (5)	54 (5)	1 (1)*
	Copeland Islands	-	-	-	100 Ind, est 11 AOBs	106 (1)	106 (1)*

Acknowledgements

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Can you help monitor Northern Irish seabirds?

Northern Ireland is home to important populations of seabirds at the UK-level, and monitoring these is essential to their conservation. This report relies upon the efforts of volunteers in the Northern Ireland Seabird Network, who donate their time to collect data on breeding seabirds on their local patch. Due to the combined efforts of the Northern Ireland Seabird Network, the NIEA-funded NI Seabird Coordinator and the large annual surveys carried out by the RSPB and the National Trust, Northern Ireland's seabirds enjoy a good level of survey coverage compared to other parts of the UK. However, each year there are still sites that do not regularly receive any counts.

What do we need, and why?

There are two main types of data collected for the JNCC Seabird Monitoring Programme (SMP): breeding abundance data (counts of breeding pairs or individuals at a site) and productivity data (nesting success). Additional monitoring of survival is undertaken through the Retrapping Adults for Survival (RAS) scheme. Abundance data are the more frequently collected data, requiring a minimum of one visit at the recommended time of year for each species. Abundance data monitor how populations of seabirds are faring over time. For example, they help to show which species are increasing and which are decreasing in number, and how this differs between areas (see the species accounts in this report, page 12–60). Productivity data require volunteers to visit a colony several times (a minimum of twice) to record nests and their progress as eggs hatch and chicks grow. Productivity data are especially valuable, as they are less frequently collected in Northern Ireland and provide context to changes in abundance. For example, for many seabird species reduced breeding success is a factor in their decline. Therefore, information on how different colonies around the UK are performing in their breeding seasons can offer insight into what issues may be affecting overall numbers and inform conservation action.

Get involved in 2021

While the SMP is an annual scheme, 2021 is a particularly important year for seabird monitoring as it is the final year of the JNCC Seabirds Count census, a periodic stock-take of all seabirds in Britain and Ireland that is essential for assessing the health of our seabird populations. We still have sites that require survey effort, so if you have time to spare to make a one-off visit part of Northern Ireland's beautiful coastline to count seabirds, please get in touch with the NI Seabird Coordinator (katherine.boothjones@bto.org) to be added to the Northern Ireland Seabird Network. Simple introductions to the monitoring methods for common species in Northern Ireland can be found here: https://bit.ly/NI_Seabird_Guidance, and maps of vacant sites can be viewed online here: https://bit.ly/NI_Seabird_Sites (see page 11 of the report for more details).

This is the eighth edition of the Northern Ireland Seabird Report, covering 2020. The 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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