SMP*news*

Monitoring internationally important seabird populations across the UK

Seabird Monitoring Programme

Welcome...

to the fourth issue of SMP*news*. The **Seabird Monitoring Programme (SMP)** tracks the population changes of the UK's internationally important breeding seabird species at coastal and inland colonies.

Contents

1 40 years of the SMP

3 Editorial & news

4 Participant studies

6 ID feature

8 Monitoring challenges

10 Site focus

14 Species focus

16 Seabird science

20 Notes from the field

21 Meet the team

24 Developments & FAQ

26 Backchat

PARTNERS

BTO

JNCC

in association with RSPB

Seabird monitoring by Katherine Booth Jones/BTO

40 years of the Seabird Monitoring Programme

By Erin Taylor, BTO

The Seabird Monitoring Programme (SMP) began in 1986 in response to the need for more detailed data on the 25 seabird species that regularly breed in the UK. Since then, the scheme has continued to monitor some of our most nationally – and internationally – threatened bird species through increasingly unsettled times. Seabirds face threats throughout every aspect of their life cycle; from climate change altering sea temperatures, causing reduced availability of preferred fish prey during the breeding season, to increased bycatch in their wintering areas. Long-term monitoring through the SMP is key to assessing the impacts of these changes and informing policy to aid in species conservation.

Since systematic recording of seabirds at their breeding sites began 40 years ago, there have been some significant changes in fortune for many of our species. Stories of declines far outweigh those of increases. For example, Fulmars have declined by 35% across the UK, Kittiwakes by 55% and Arctic Skuas by a dramatic 93% when compared to 1986, as measured in 2024 by SMP monitoring. This is thought to be due to a multitude of factors ranging from invasive predators to changes in abundance of their prey.

However, some species have thrived during this time. The first Mediterranean Gull bred in the UK in Hampshire in 1968, and the population has since grown to 2,311 pairs recorded during Seabirds Count (2015–2021). Gannets have also fared well, despite recent HPAI (High Pathogenicity Avian Influenza) outbreaks, mainly thought to be attributed to the cessation of human exploitation, their adaptability

continued on page 2...

and resilience, and use of a large number of prey species and large foraging range. The ability to track these changes over many years allows us to analyse the true impacts of large-scale events like the outbreak of HPAI and monitor recovery in the long term.

The 40th anniversary of SMP is a good opportunity to look back and celebrate the exceptional work of all participants, both voluntary and professional. The quantity and quality of data collected since 1986 is a gargantuan feat, emblematic of the sheer amount of effort that is exerted year upon year. Historically, the SMP partnership has included close collaboration with the Republic of Ireland, and it has also played an important role in enabling vicennial breeding seabird censuses of Britain and Ireland. Although there is a large annual range in SMP participation, peak years (often during censuses) have seen data collected from over 4,000 sites around the combined coastal and inland colonies of the UK and the Republic of Ireland.

Looking forward, SMP will begin to incorporate new technologies to enable greater coverage of sites across the UK, particularly in remote locations. The additional use of fixed cameras, drones, and bioacoustic monitoring and the subsequent analysis will bring seabird monitoring up to date and reach a broader audience – bringing the wonders of these birds to those who aren't able to commit time in the breeding season or can't access colonies. This, coupled with updates to our trends analysis methods should only improve the accuracy and quantity of the work we already do, allowing us to monitor our vital seabird populations and encourage appropriate conservation strategies into the future.

Gannets at Bass Rock by Erin Taylor

Editorial & news

By Erin Taylor, BTO

There have been a lot of changes to SMP since our last newsletter: new staff, database updates, an SMP Report and some big plans in the pipeline, so let's dive in! In August, the BTO team was joined by Aaron McKay in the new position of Seabird Monitoring Support Officer as we had recognised the need for an extra pair of hands. In September, Sarah Harris left her position as the SMP Organiser, a role she had held since BTO took the lead on the programme in 2022. We'd like to thank Sarah for her amazing work. The recently published SMP Report encapsulates just how much effort she put into the SMP. In November, I joined the team, and it has been very exciting getting settled in ready for the current breeding season!

Onto our other changes, we've been busy getting the SMP online database more user-friendly and a little clearer! You can now search by postcode to find sites near to you or a place of interest, or search by the species type you're wanting to survey. You can find out more about how to use these functions on page 24. There has been some very encouraging uptake of new sites for this season, so welcome to any newcomers and thank you to anyone who has taken on extra sites; it really is appreciated. We'd be especially grateful to anyone who would consider expanding their current efforts to add Breeding Success monitoring to their site this year, as coverage for this data is sadly decreasing and is vital to providing the whole picture on what is happening to our seabirds.

March saw the release of the most recent SMP Report, covering the years 1986–2024. Sadly, the overall story is of declines across the entirety of the UK, spanning a wide range of species types, with only a few species increasing in number. Perhaps the most shocking result is the 93% decline in Arctic Skua abundance for the UK since 1986. Nina O'Hanlon (Senior Research Ecologist, BTO), ran our 2025 trends in April 2026, but if there are any outstanding data from 2025, it would still be helpful when looking forward to next year. This year will see the implementation of a new trend analysis method, allowing us to have greater confidence in the results, so keep an eye out for our next report and any possible changes it may create.

Thank you to all our participants, volunteers and professionals alike, we're incredibly grateful to you for your continued efforts in the field, especially in such a turbulent time for our seabirds. I look forward to meeting you in the coming months as we receive this year's records.

Good luck with the coming season!

Erin

Ready to get monitoring for the Seabird Monitoring Programme? Visit https://www.bto.org/smp to find out how you can get involved!

NEWSLETTER CONTRIBUTORS

We are grateful to Bob Haycock, Nick Elton, Alan Leitch, Dick Houghton, and Sarah Harris for sharing their experiences as SMP participants and to Nina O'Hanlon and Anna Dupont-Crabtree for the article on recent studies on seabird poo. Thanks also go to Sarah Money (JNCC) and Viola Ross-Smith, Dawn Balmer, Naill Burton, and Nina O'Hanlon (BTO) for reviewing the newsletter. Erin Taylor and Aaron McKay authored the remaining text and articles, and produced, designed and edited the newsletter.

SMP PARTNERSHIP

The Seabird Monitoring Programme is funded jointly by BTO and JNCC, in association with RSPB, with fieldwork conducted by both non-professional and professional surveyors.

Including the organisations above, SMP also has an Advisory Group of 24 organisations who feed into the direction and decision-making process of the Steering Committee.

Read more about the scheme governance at: www.bto.org/smp-contributing-organisations

BTO Birds Science People bto.org

JNCC jncc.gov.uk

in association with RSPB rspb.org.uk

Guillemots by Philip Croft/BTO

Industrial site roof nesting gulls

By Bob Haycock, BTO Regional Representative, Pembrokeshire

Populations of breeding seabirds have been monitored on the Castlemartin Peninsula in south Pembrokeshire for over 50 years, following the first comprehensive national survey of seabirds in Britain and Ireland in 1969–1970. Herring Gulls and Lesser Black-backed Gulls are among several species counted annually along a c.15 km stretch of limestone sea cliff coast between Stackpole Head and Linney Head. The extent of the gull counts varied in some areas in earlier years, but coverage of their coastal breeding populations has been more consistent since 1996.

Herring and Lesser-black Backed Gulls nesting on a roof

Image by Annie Haycock

Although populations are fairly small (Herring Gull being the most numerous), numbers of both species had been increasing prior to, and during, the early 2000s. However, since then, there has been a gradual but sustained decline in their breeding populations, based on the estimated totals of Apparently Occupied Nests (AON) each spring (Figures 1 and 2).

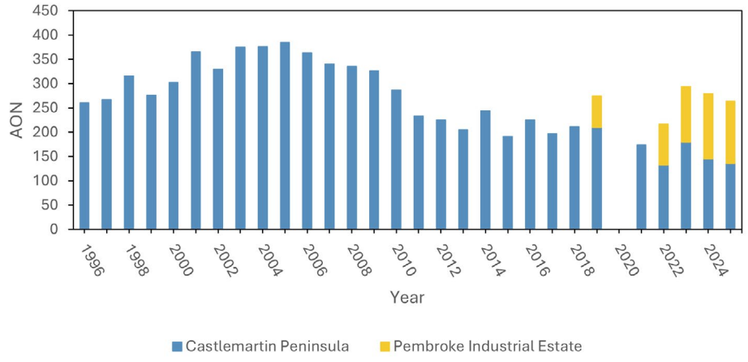


Figure 1: Herring Gull counts of AON on the Castlemartin Peninsula and at Pembroke industrial sites. No data were collected in 2020.

Movement inland from the coast?

In recent years, growing numbers of these gulls have been observed breeding on industrial building roofs near Pembroke Dock, about 10–12 km inland from their nearest coastal sites. When comparing the counts from both areas (Figures 1 and 2) it is tempting to suggest that declines in the coastal populations could be linked to a gradual dispersal to industrial zone locations.

While the coastal gull colonies have been monitored annually since 1996, unfortunately we have no data from our industrial zone study area prior to 2019, which might have indicated a shift from the coast and that the overall population is actually more stable. A ringing programme would be needed to establish a connection between these two areas. It is possible that industrial sites may be better protected from storms than coastal sites, and their locations, being closer to fast-food outlets and general food waste, probably provide access to a wider range of food options. These are some reasons to support the theory of dispersal from coastal to urban nesting areas.

Nest site locations and some possible future issues

The gulls seem to favour older corrugated asbestos cement roofs for breeding, likely because the rough surface supports nests and may provide cooler or more stable temperatures than newer materials, which absorb and conduct more heat. Some gulls seem to prefer to nest beside raised roof features (e.g. ventilation structures) where these occur. Others nest in the more sheltered valleys of pitched roofs. However, nest sites in such places can also be more difficult to see than those on flat roofs or those that aren't obscured, so locating and counting them is more difficult.

Although these locations seem to be ideal for nesting gulls, we have noticed some potential issues that could affect them. Some of the older roofs (and buildings) are gradually being replaced by newer steel constructions. Whether the transition to different roofing materials and potential increases in temperature variability will affect the gull population has yet to be determined. Additionally, solar panel arrays are increasingly being installed on some rooftops. These installations could make it more difficult for gulls to find suitable nest sites, or nests might need to be removed to ensure that the solar panels remain clean and efficient.

Ongoing AON vantage point assessments will hopefully provide further valuable data on the gull population trends in this area.

Can you ID Britain and Ireland's breeding large gulls? Turn to page 6 for an ID top up!

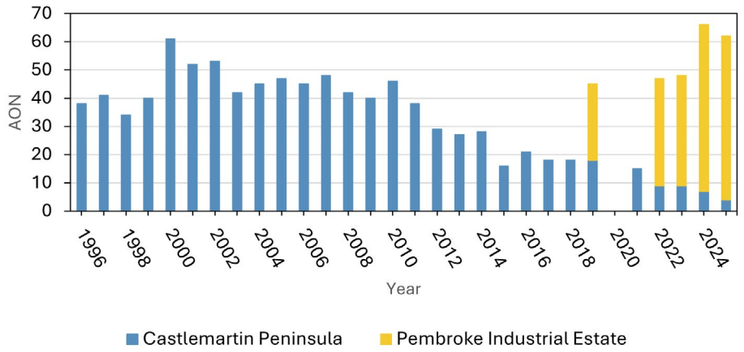


Figure 2: Lesser Black-backed Gull counts of AON on the Castlemartin Peninsula and at Pembroke industrial sites. No data were collected in 2020.

Herring Gulls nesting on a roof

Image by Bob Haycock

Large gulls

an ID Guide to adults

by Aaron McKay, BTO

Identifying large gulls is often overshadowed by the complex plumages of sub-adult individuals and a plethora of terms, including calendar year and cycle.

Fortunately, for SMP colony counts, we only want you to record whether any adults are nesting, and these individuals typically retain within-species plumage similarities.

Three large gull species are commonly recorded for the SMP: Herring Gull, Lesser Black-backed Gull, and Great Black-backed Gull. Each overlaps in one way or another, be it breeding habitat, plumage, or flesh/beak tones. Of the three, Herring Gulls are the easiest to identify, owing to their pale backs.

So, where do they all breed?

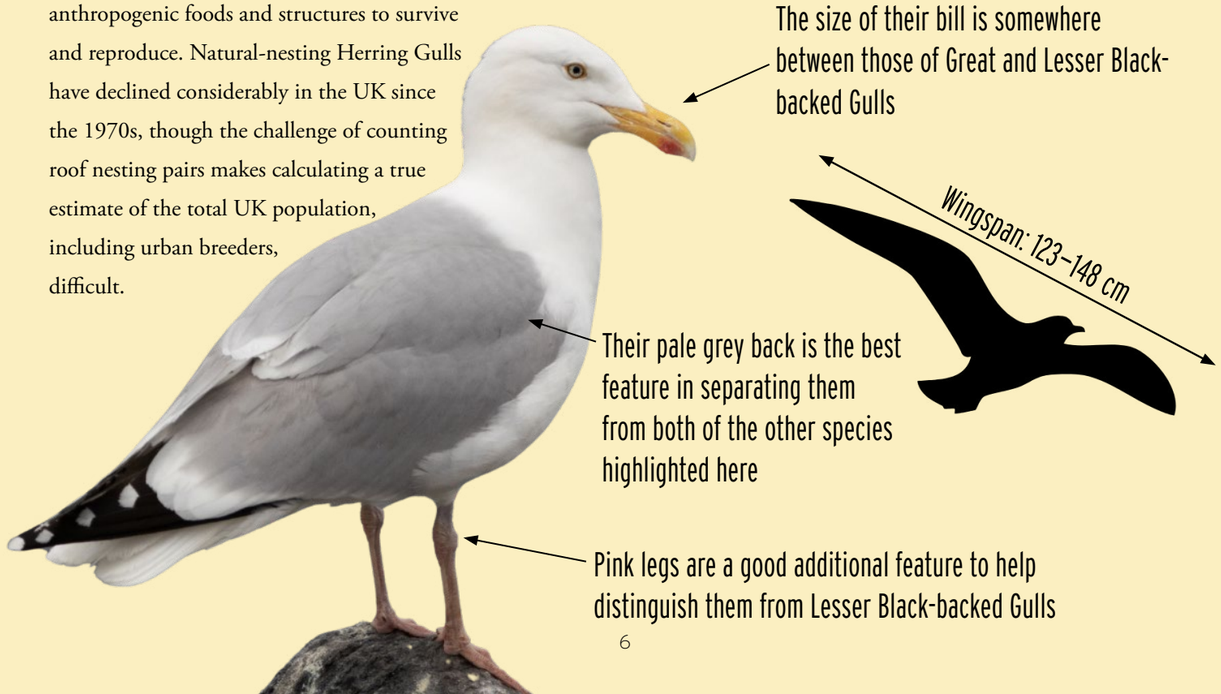
Herring Gulls make use of a range of breeding habitats, favouring **coastal cliffs** which have an abundance of rocks and turf, but they will also make use of **dunes** and **shingle** where available. Though once confined to coastal areas for breeding, many pairs now breed inland, often near freshwater or in **urban environments**, where they make use of **rooftops** and other structures for nesting. On sloping roofs, they will frequently use protruding window fixings as anchor points for nests.

Lesser Black-backed Gulls like low-lying or flat **coastal areas** and **islands** where grass is plentiful, though they are also found inland, making use of **marshes** and **moors** where they'll often conceal their nest in bracken or heather. Like Herring Gulls, they also utilise **urban environments**, such as rooftops, for nesting.

Unlike the previous two species, **Great Black-backed Gulls** are much **less likely** to nest in **urban environments**. Instead, they head to **rocky coasts**, **islands**, and **boggy moorland** to breed. Their nests are bulky structures built by both sexes, comprising local vegetation and the occasional feather.

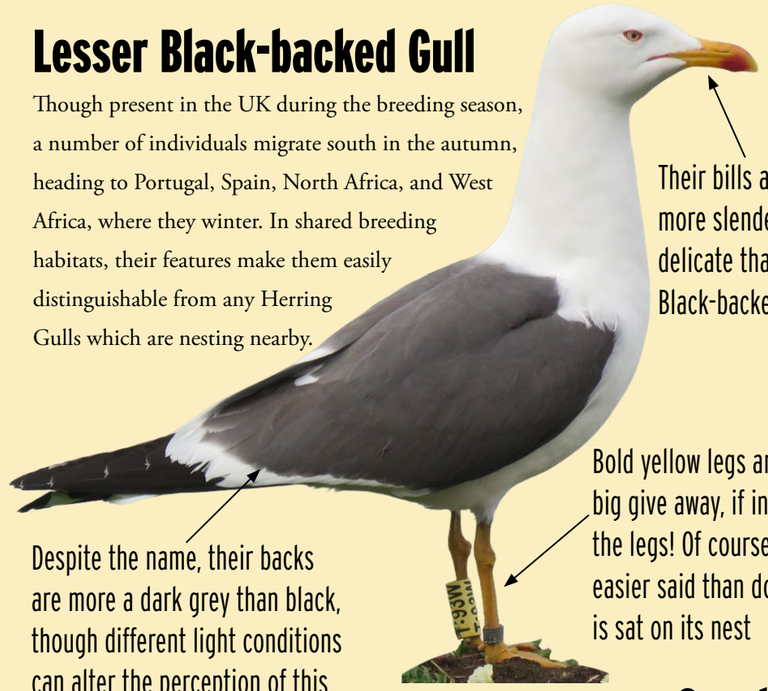
Herring Gull

Perhaps the first bird that comes to mind when we hear the word 'seagull'. A typical resident in coastal urban environments where they make use of a range of anthropogenic foods and structures to survive and reproduce. Natural-nesting Herring Gulls have declined considerably in the UK since the 1970s, though the challenge of counting roof nesting pairs makes calculating a true estimate of the total UK population, including urban breeders, difficult.



Lesser Black-backed Gull

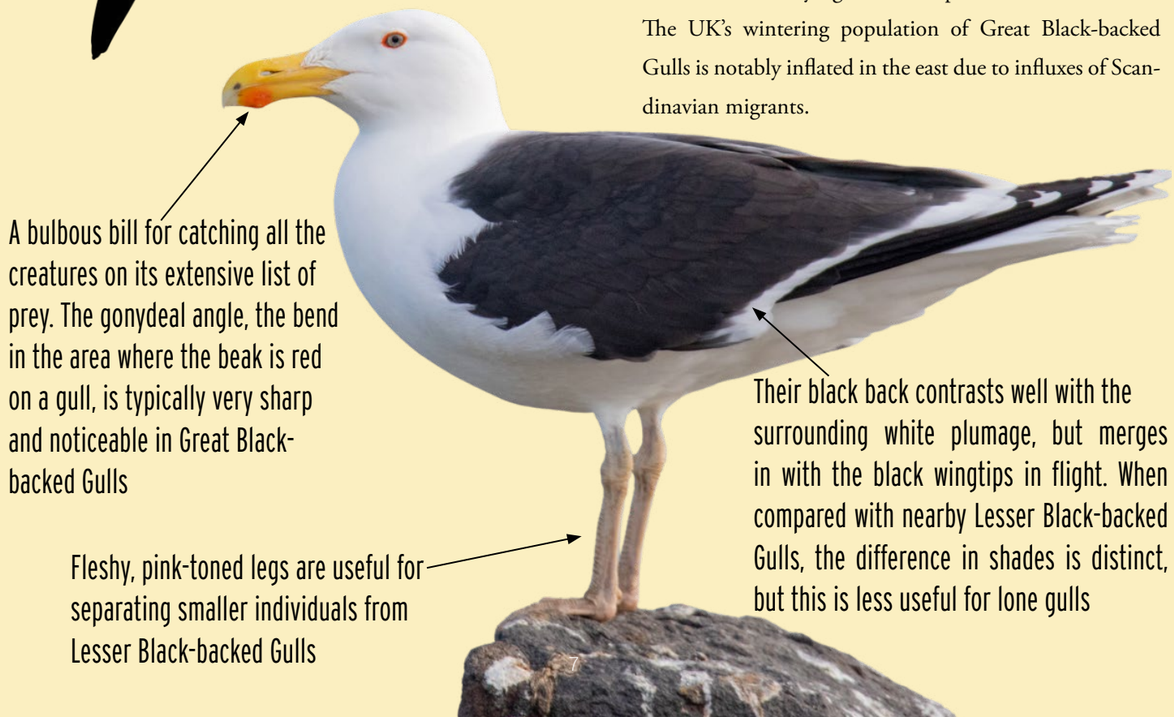
Though present in the UK during the breeding season, a number of individuals migrate south in the autumn, heading to Portugal, Spain, North Africa, and West Africa, where they winter. In shared breeding habitats, their features make them easily distinguishable from any Herring Gulls which are nesting nearby.



ID VIDEOS
The BTO Training Team has created ID videos, freely available online. These include videos covering the gulls in this article as well as a host of other seabird and non-seabird species. Access these at: **www.bto.org/id-videos**

Great Black-backed Gull

As the largest gull worldwide and an aggressive hunter of prey, its name truly is quite a fitting one. They are often cunning generalists, able to use a range of available prey, including rodents, fish, and adults, chicks, and eggs of other birds. They are particularly adept at fishing for large spider crabs as the tide falls, plucking them from the seabed before carrying them off up the beach to be eaten. The UK's wintering population of Great Black-backed Gulls is notably inflated in the east due to influxes of Scandinavian migrants.



Predator here, predator there, predator everywhere...

By Aaron McKay, BTO

In 2025, a colleague and I, with support from others, worked for the RSPB as wardens at a small site on Anglesey that has historically supported breeding Arctic, Common, Roseate, and Sandwich Terns. In recent years, though, this has been limited to Arctic and Common Terns only. Since 2020, the number of Arctic Tern AON had peaked at 392 in 2024. Common Tern AON peaked at 138 in 2023, but had fallen to just six in 2024, a staggering decline.

Early signs were positive, with numerous terns returning to the site, acrobatically displaying in the air and catching prey in the shallow water of receding high tides. Still, over the next two weeks, vantage point counts of individuals in flight suggested approximately 300–400 terns were present, a concerning figure compared with previous years. As night-time predator watches commenced, aimed at deterring Red Foxes, it became clear that an Otter (assumed to be the same individual) was using the area adjacent to the site. A pleasant surprise initially; positive feelings that did not last.

Subsequently, the Otter was observed at the site multiple times during the daytime, either by wardens or via trail cameras, often simply investigating the area or lounging, but by late May, their diurnal presence had ceased. This might have coincided with increased warden presence at the site, following the gradual increase in AON, and with the growing presence of Great Black-backed Gulls and Carrion Crows intent on eating tern eggs. With these additional predators frequenting the site and the lack of any diurnal Otter sightings or evidence of detriment, the Otter was largely forgotten.

On 28 May, the peak AON count of 187 was recorded, of which 186 belonged to Arctic Terns, and the single remaining nest to the only pair of Common Terns present.

Increased warden presence now enabled better collection of observational data. First light vantage point observations would be critical for understanding when avian predators were arriving, but they also provided other concerning insights. Despite a site laden with tern nests, there were no terns. As light levels increased, they would suddenly appear on the horizon, returning from wherever they had spent the night to continue incubating their eggs. Overnight stays at the site's hide further supported this, with most pairs leaving their nests around 10:30 p.m. and not returning until the following morning. This was not a one-off; it was the norm for them. Tern eggs can be left for extended periods, but this delays hatching and is a common indicator of prolonged predator presence.

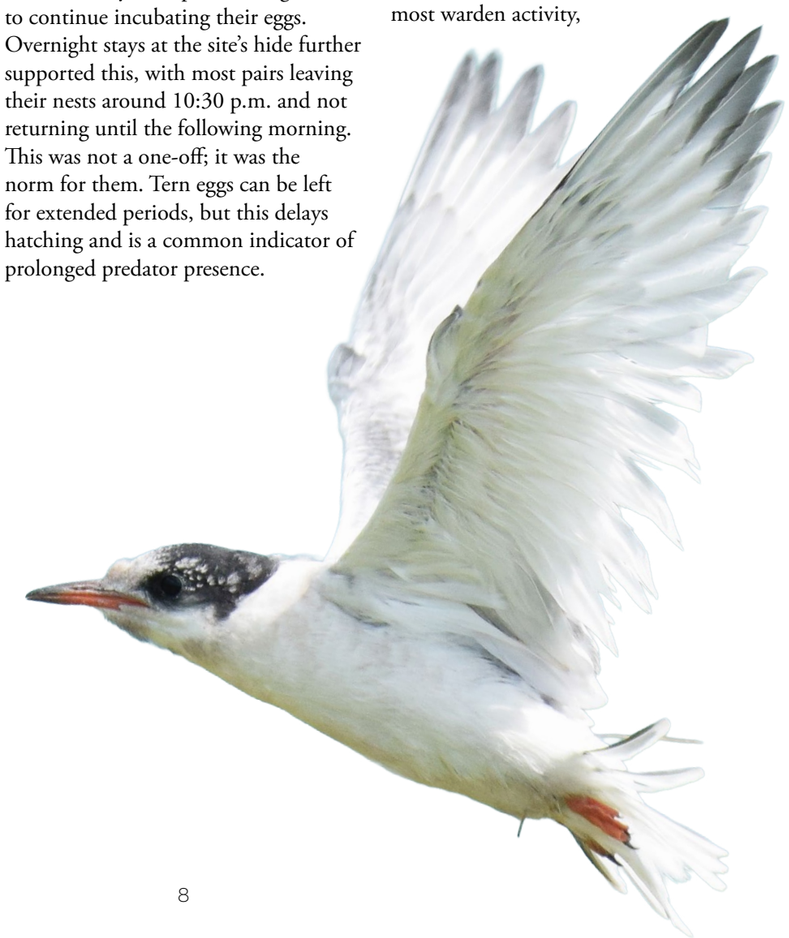
Carrion Crow by Sarah Kelman/BTO

In June, a large proportion of the whole site's AON were predated by Great Black-backed Gulls and Carrion Crows, especially in the areas least accessible to humans. A reasonable number of terns laid second clutches in areas with the most warden activity, and fortunately, eggs from surviving first clutches started hatching. By 2 July, we had ringed 58 chicks, only slightly more than a quarter of the peak number of AON. Avian predation had now largely ceased, and the pathway to fledging seemed clearer. This was short-lived, though, as 12 July marked the definite return of the Otter and a period of intense predation that lasted until 26 July.

During this period, the remains of terns of all ages, including adults, were found. Trail cameras captured the Otter at the site at least two dozen times over the 14 days, using most of the site, sniffing through vegetation profusely and investigating deployed chick shelters, often within the same 10-minute period each night. Almost every morning in that fortnight, up to three obvious tern corpses would be found, with an estimated 40 being predated during the period. This estimate was derived from corpses found and the steadily declining number of small chicks from second clutches, of which there would be little to no remains. Eventually, only one chick and its parents remained at the site. Trail cameras placed in the general area of the remaining chick captured the Otter there the following night, and the chick's remains were found the next morning. Although the Otter had been successfully deterred from the site by day, navigating a remote site at night to locate and deter a specialised nocturnal, semi-aquatic mammal, causing disturbance and potential damage to nests, was not an option.

It was a dismal season with only 59 terns successfully fledging. Still, it provided an invaluable, novel experience that opened our minds to the extent of the challenges these terns face, challenges that, despite dedication, we often don't even see, as they happen at night.

If you have any experiences of interaction between Otters and seabirds, please email them to: smp@bto.org



Arctic Tern by Aaron McKay/BTO

Otter by Aaron McKay

The Marble Cliff

By Nick Elton, BTO Volunteer

The Marble Cliff, near Trevone, on the north coast of Cornwall, is one of the county's best sites for breeding seabirds. The geology here is very unusual for Cornwall: bands of pale limestone alternate with dark slates in a localised exposure running for just 125 m. There is no actual marble, but the gently sloping strata make fine ledges for nesting seabirds, providing a summer home for around 300 pairs of Kittiwakes, 100 Guillemots, 70 Razorbills, and smaller numbers of Herring Gull and Fulmar. It's no more than a seabird village, but the mix of species together is uncommon in the region, and the Kittiwake colony is presently the largest in Cornwall. The site lies within the SMP sector known as North Cornwall 3 (NC3), which covers a scenic and indented stretch of coastline best surveyed from land. The Marble Cliff itself forms the southern wall of a narrow inlet, bounded to the north by a hooked rocky finger, pierced through by sea caves, known as Porthmissen Bridge. Crossing the 'Bridge' is not for the fainthearted, but it provides an excellent vantage point; just one oblique section above a sea cave must be counted from farther up the coast.

The Kittiwakes are the most obvious and vocal summer occupants. They started breeding here in 1986 at a time when their numbers were booming in Cornwall. When I began visiting in 2013, the colony seemed to be thriving, but I was startled by the high level of predation. Ravens were present early in the season, and as soon as the Kittiwakes laid eggs, the Ravens would work the ledges systematically, raiding nests in turn. Most Kittiwakes attempted to rebuild damaged nests and re-lay, but the Ravens were ever-present, waiting for second helpings. Small chicks were also vulnerable, but at this stage, the local Peregrines usually took over the assault. It was all rather dramatic, and I was left wondering about the productivity and sustainability of the colony. Unable to find answers, I started counting myself in 2016. Although I just followed the basic SMP protocols, I have always counted in subsections, and sometimes repeatedly through a season, which has revealed some interesting spatial variation in numbers, both seasonally and longer term.

The colony can be divided into four main areas: the eastern (landward) end; a broad 'middle' section; a 'sea cave' section; and the western (seaward) end. During my early visits (2016–2019), the Ravens seemed to confine their attention largely to the middle section, perhaps focused on easy or familiar targets. By early to mid July, in each of those years, most Kittiwake nests in the middle had been deserted, while elsewhere in the colony, desertion rates were much lower. In 2018, for example, 80% of nests were abandoned in the middle, compared to just 12% at the western end. Now, Kittiwakes can naturally experience large fluctuations in breeding success from year to year, driven largely by food availability, but I would expect such external factors to affect the whole colony, not just parts of it. The Ravens, therefore, seem the obvious explanation for this localised failure. Of course, desertion is only part of the predation impact, as some nests continue with a reduced number of eggs or chicks, and some adults may continue to incubate eggs which have become unviable, but these factors are difficult to record, let alone quantify. The continual disturbance must be detrimental for the whole colony, especially in a year when weather or limited resources provide further challenges.

Annual counts show that, since 2017, the number of Kittiwakes nesting on the vulnerable middle section has decreased, and some at least may have moved elsewhere on the cliff (Figure 3), notably to the edges (and initially to the sea cave section too).

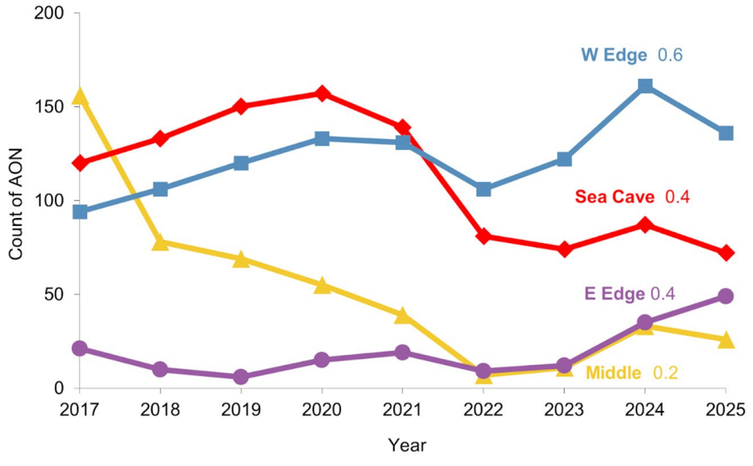


Figure 3: Counts of Kittiwake AON in different zones of the Marble Cliff. The mean productivity for each section during this period is included after the section name.

Art and image by Nick Elton/BTO

With few nests left in the middle, the Ravens subsequently shifted attention to the sea cave area, and numbers there have remained below their highest count in 2020. Productivity in individual subsections is very variable, ranging from zero to 1.6, depending on the year, but on average, productivity at the edges of the colony is higher than in the middle. I assume that the relocation of nests is a direct response to the Ravens: it is the Kittiwakes' only real defence, and it remains to be seen how effective it proves.

The impact of the Peregrines is less clear. My limited observations suggest the Peregrines are present intermittently throughout July (often with their own recently fledged young) and seem to target mostly small to medium-sized Kittiwake chicks at the western end of the colony. If present, they can easily take two or three chicks in a short space of time. If they did that on a daily basis through July, their impact would be large, although I have the impression that they readily seek other prey, and are not systematic like the Ravens.

I often count Kittiwake chicks twice towards the end of July owing to the variation of ages, and the second count, approximately a week later, is typically lower by 10 to 20 chicks. However, there are likely multiple reasons for that decrease, including Peregrine predation, other causes of late-stage mortality, and even successful fledging, factors that cannot be teased apart by casual observation.

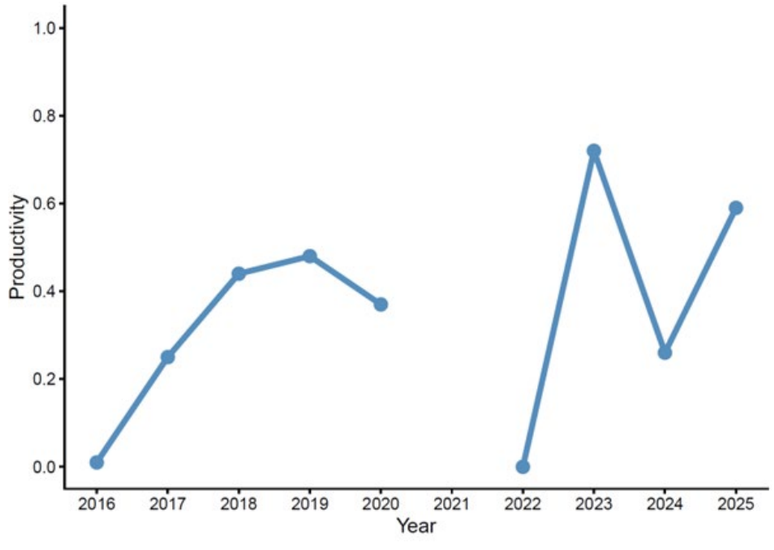


Figure 4: Kittiwake productivity at the Marble Cliff from 2016 to 2025.

Breeding failures here in 2016 and 2022 (Figure 4) also occurred at other Cornish colonies, indicating an outside cause. But, in other years, productivity remained low and has never exceeded 0.72, below the minimum of 0.8 needed for the colony to be self-sustaining. I don't have the right data to quantify properly the overall predation impact, but it is unquestionably significant, and may be enough to keep productivity below sustainable levels. However, Kittiwakes are also struggling elsewhere in Cornwall: since 1986, the number of active colonies has fallen from 23 to seven, and the number of breeding pairs has declined by around 77%. Perhaps, ultimately, it is an issue away from the cliffs, such as declining food availability in warming seas, that defines the long-term future of the colony.

The Kittiwakes have certainly provided plenty of interest and drama, but the variety of seabirds sharing the limited space makes this place particularly special for me. The other seabirds here have been little affected by predation. Razorbills and Guillemots lose occasional unattended chicks to the Peregrines, but offer good defence against the Ravens, and I've never seen Fulmars or Herring Gulls targeted. Yet fortunes are mixed. Fulmar numbers have halved over the last nine years, down from around 45 AOS in 2017. Herring Gulls are holding steady on the Marble Cliff itself at around 20 AON, but have crashed by around 80% elsewhere in NC3, perhaps due to localised instances of High Pathogenicity Avian Influenza. Happily, the Razorbills and Guillemots provide a success story to end this account on a more positive note. Small numbers were present in the late 1960s, but both have increased significantly, with Guillemot numbers doubling over the last 10 years. Intriguingly, most of the new Guillemots have moved into the middle section of cliff abandoned by the Kittiwakes.

It seems the more time I spend at the Marble Cliff, the more questions I have! It may be no more than a seabird village, but there is certainly a lot going on.

Art by Nick Elton/BTO

The Shag

By Erin Taylor, BTO

Sitting on storm driven rocks, glistening emerald green in the sunshine, dashing crest gently dancing in the breeze, one could be forgiven for thinking that Shags are graceful, elegant even. Stay a little while though and they reveal themselves to be anything but. I would invite anyone to sit and watch Shags scrabbling around on rocks and not find them inherently funny and intensely enjoyable to observe. Watching them build their large nests of sticks and kelp can often lead to skits of which Laurel and Hardy would be jealous. Their flight is even somewhat ungainly, long neck outstretched with landings that frequently appear unintentional. It is in the sea, however, that they truly excel, darting around like sleek black torpedoes in the shallows, the scourge of any wrasse, sandeel or gadid that is unlucky enough to get in their way.

To all but the birding enthusiast, Shags can prove an ID challenge, particularly in their juvenile plumage, when compared to their close relative the Cormorant. The defining feature – although only present in the early breeding season – is the eponymous crest (Shags are thought to have derived their name from the Old English for tufted). Once this is gone Shags can be identified by their striking green eyes and the green sheen to their lightly scalloped backs. Juveniles can be distinguished from their Cormorant counterparts by the lack of white on their fronts, their finer bills and their overall smaller and more delicate build. They are also (almost) exclusively found in the marine environment, unlike their often lake-dwelling cousins.

Shags nest in loose colonies on rocky cliffs around the coast of Britain and Ireland, except the south-east of England which lacks the appropriate habitat. Established individuals construct large, often opulent nests of sticks, kelp, Sea Campion, discarded fishing gear, and even dead Puffins – in fact any detritus they can find, until the structure appears more like a throne than a nest. Inexperienced birds have been known to make nests akin to a Woodpigeon's, with a few twigs and bits of grass that they are awfully proud of until their 2–3 white eggs roll gently away. Shags are unusual amongst seabirds with their large clutches occasionally reaching up to six eggs and their productivity averaging 1.3 fledglings per nest.

Shags have declined throughout the UK with the most recent SMP trends showing a 71% decrease for the whole UK between 1986 and 2024. This is largely driven by changes in the Scottish population – where most of the population live – which has seen a 70% decline in the same period. Earlier springs have presented Shags with the opportunity to breed earlier, with first eggs now as early as February. However, the same forces that have moved spring forward also generate more unpredictable weather throughout the season.

Shags by Philip Croft/BTO

Shags, particularly on the east coast, undergo seemingly periodic population crashes driven by large winter storms causing mortality events. However, as the UK climate shifts, bringing increasing instability and more frequent easterly winds, these events are becoming more common. Shags are vulnerable to these events due to multiple facets of their biology. Their feathers, unlike most other seabirds, are not fully waterproof, so periods of drying post-foraging are required. This time is already short during the Scottish winter and non-existent during extended periods of poor weather. Furthermore, they often forage close to shore amongst rocks and boulders, and this area is particularly perilous during storms, especially in wind-driven swell. Such storms are becoming more frequent during winters, and so, mass mortality can occur.

Shags exhibit partial migration, with some members of the population remaining resident around their natal grounds, while others travel longer distances after breeding. For example, birds from the Isle of May regularly visit the Netherlands and Shetland, and birds from West Wales have made it round to the Fife coast. The combination of strategies is enforced by evolution acting in multiple directions, as residents have been shown to survive better in good-weather winters, while migrants survive better in poorer winter conditions. This fascinating interaction is studied in depth by a collaboration between UKCEH, the University of Aberdeen and the Norwegian University of Science and Technology.

Shag winter dispersal has been studied through the use of GPS and Global Location Sensor (GLS) tracking tags in more recent years, but long-term studies, primarily focused on the east coast of Scotland, have used colour-ring resightings. Through countless dedicated volunteer hours, the birds' winter movements have been tracked around the coast of the UK and further afield. This dedication is also shown by SMP participants providing information on Shags throughout the breeding season.

How to Help

Shags are distributed around the rocky habitats of the UK, primarily focused on the coasts and islands of Scotland. Abundance has been recorded at 1,736 sites within the SMP but just 34 sites have been monitored for breeding success. If you can also record breeding success for Shag on your SMP site, using the methods described in the Seabird Monitoring Handbook (available **here**) that would be very helpful, as breeding success monitoring can be a sensitive and rapid indicator of potential issues in the health of our seas.

Long-term monitoring of both breeding success and abundance better enables the drivers of population change to be determined. Increasing this monitoring effort will help provide improved evidence on the conservation needs of the Shag.

During long periods of stormy weather during the winter, Shags often wash ashore and any information on dead birds is also useful and can be reported to the following:

England, Wales, and Scotland:
https://www.gov.uk/guidance/report-dead-wild-birds
Northern Ireland:
https://www.daera-ni.gov.uk/services/daera-dead-wild-bird-online-reporting-tool
Republic of Ireland:
https://aviancheck.apps.services.agriculture.gov.ie/report
Bird Track:
https://www.bto.org/birdtrack

Shag fact file

Status: Amber-listed species of conservation concern in the UK.

Size: Wing length: 255–280 mm | Weight: 1.54–2.1 kg.

Breeds: Breeding colonies are found on many northern and western coastlines with suitable cliffs.

Winters: Shags are recorded around much of the coast of Britain and Ireland in winter, with the highest densities in northern and western Scotland.

Diet: Largely reliant on Lesser Sandeels, but diet can be varied to include gadids, clupeids, gobies, squid, and molluscs.

Lifespan: Typical life expectancy: 12 years | Longevity record: 29 years, 10 months, and 25 days.

Breeding: Age at first breeding: 2–4 (younger for males) | 1 brood (exceptionally 2) per year | Typically 3 eggs per clutch (1–6 observed).

Nest sites: Fairly variable depending on location. Usually in loose colonies on rocky cliffs and coasts, occasionally in caves.

Shag by Liz Cutting/BTO

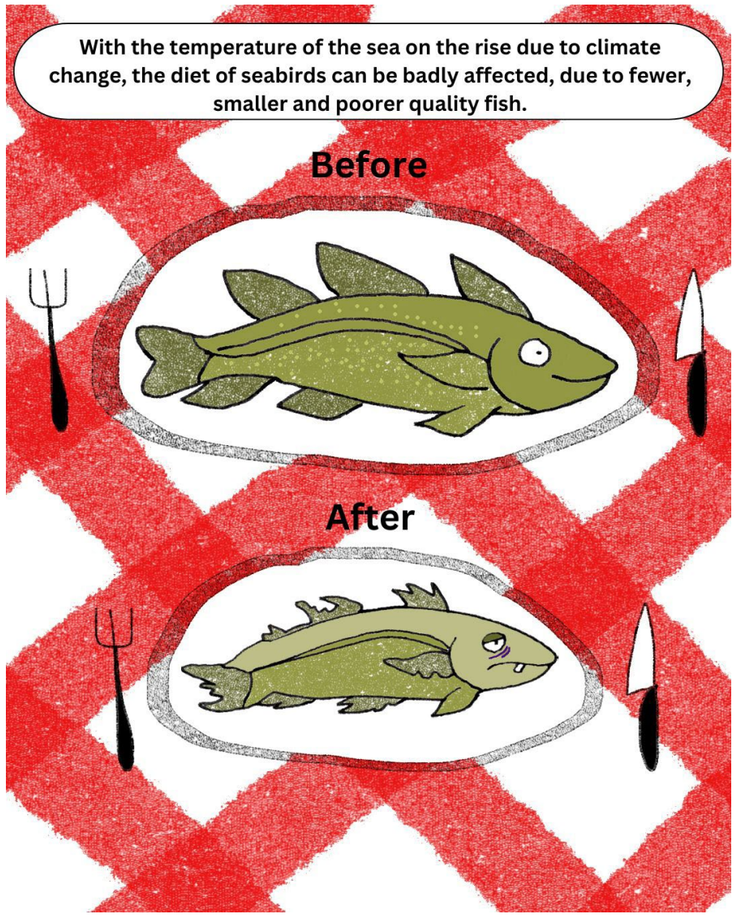
Seabird poo

By Nina O'Hanlon, BTO

Britain and Ireland are fantastic places for seabirds, but we have fewer breeding individuals than we used to, with many species in decline. Alongside the national censuses, such as *Seabirds Count* (2015–2021), we know seabirds are declining thanks to the vital colony count data that participants submit to the SMP. We can also better understand what factors may be driving these declines by considering SMP data collected on breeding success.

Understanding what seabirds eat is another part of the puzzle when trying to identify what is causing seabird declines, especially when this is combined with data on abundance and breeding success. For example, we know that the more high-quality prey available to seabirds during the breeding season, the more likely chicks will successfully fledge.

This is one reason why the SMP Key Sites, where additional seabird data are collected, are so valuable, as the combined collection of data on abundance, breeding success, survival and diet (also known as integrated monitoring) allows us to better understand how what seabirds are experiencing in the local environment is linked to changes in their abundance.



Comic graphics by Anna Dupont-Crabtree/BTO

Despite the importance of identifying what seabirds eat, long-term diet studies are relatively rare. Typically, conventional diet monitoring involves visual observations of prey being delivered to chicks or collecting regurgitates/pellets. However, these methods can require considerable time identifying prey items in the field or in the lab. They can also be biased towards specific prey, i.e. large prey or those with indigestible parts (such as bones or claws). An alternative method that has successfully been used to identify the diet of a range of passerine and waterbird species, and is increasingly being used in seabirds, is looking for the DNA of prey species in faeces (through a process called DNA metabarcoding). By collecting fresh faeces, the DNA of ingested prey items can be identified to a higher taxonomic resolution than conventional methods. This technique has been successful at obtaining diet data for several species at specific colonies in the UK, including Puffins and Manx Shearwaters. However, it has not yet been widely implemented.

To see if DNA metabarcoding of opportunistically collected faeces could be a useful method for obtaining long-term, multi-colony seabird diet data, faeces from Kittiwakes and Shags, during the breeding, season were collected from four locations along the west coast of Scotland. Faeces were collected during routine ringing activities from Canna (an SMP Key Site), the Treshnish Isles and Shiant Isles, whilst on Colonsay, fresh faeces were collected from Kittiwakes roosting on a beach.

In total, 45 Kittiwake and 43 Shag faeces were collected during the 2023 breeding season, which were sent to the University of Highlands and Islands' Institute for Biodiversity and Freshwater Conservation (IBFC) laboratory in Inverness.

Fish prey DNA was successfully extracted from 76 (86%) of the samples, and included sandeels, Atlantic Herring, European Sprats and cod species (such as Poor Cod and Norway Pout). Marine invertebrate prey DNA was also extracted from a small number of samples, mainly from crabs and squid.

It was reassuring that the main prey species detected in Kittiwake and Shag faeces from Canna matched those identified in dissected regurgitates and pellets collected during the same breeding season. However, the DNA metabarcoding enabled prey identification to a higher taxonomic resolution, typically to species level, than from the regurgitates and pellets. We also found significant differences in the species composition of fish in the diet of Kittiwakes from the two colonies with the largest sample sizes (Colonsay and Canna). The Kittiwake faeces from Colonsay largely contained sandeels, whilst those from Canna contained a high proportion of European Sprat and Atlantic Herring.

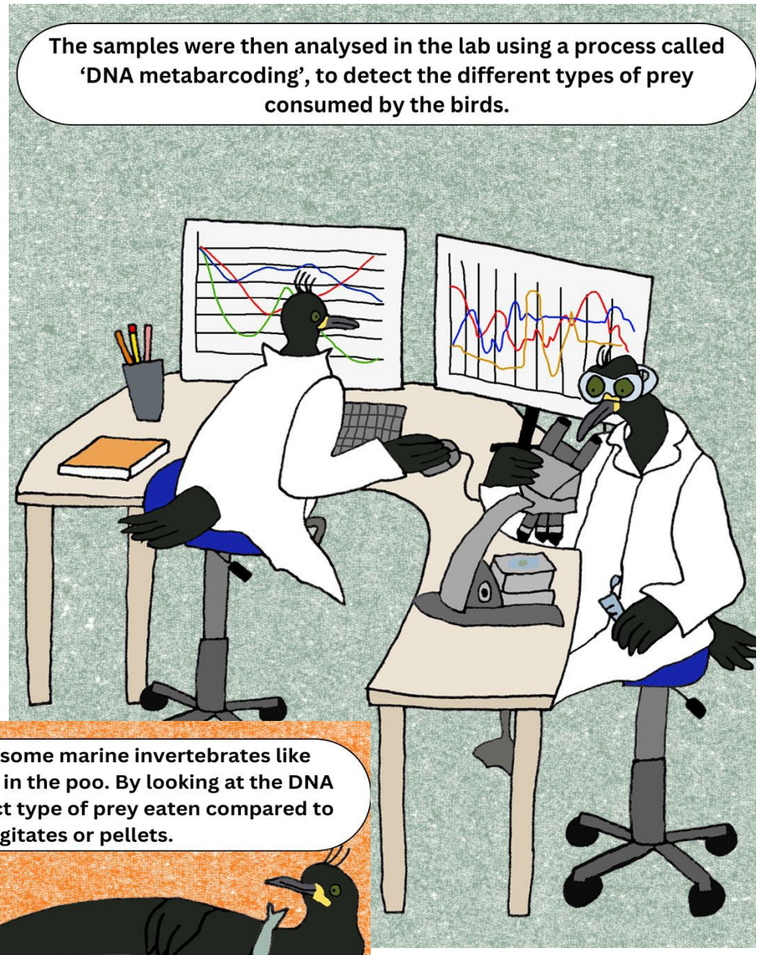
These results emphasise that DNA metabarcoding of opportunistically collected faeces can be a non-invasive, practical and complementary method to conventional diet monitoring. By collecting faeces during routine ringing or from roost sites, this approach opens up the possibility of obtaining diet data from a greater range of seabird colonies, especially those which are logistically challenging to access.

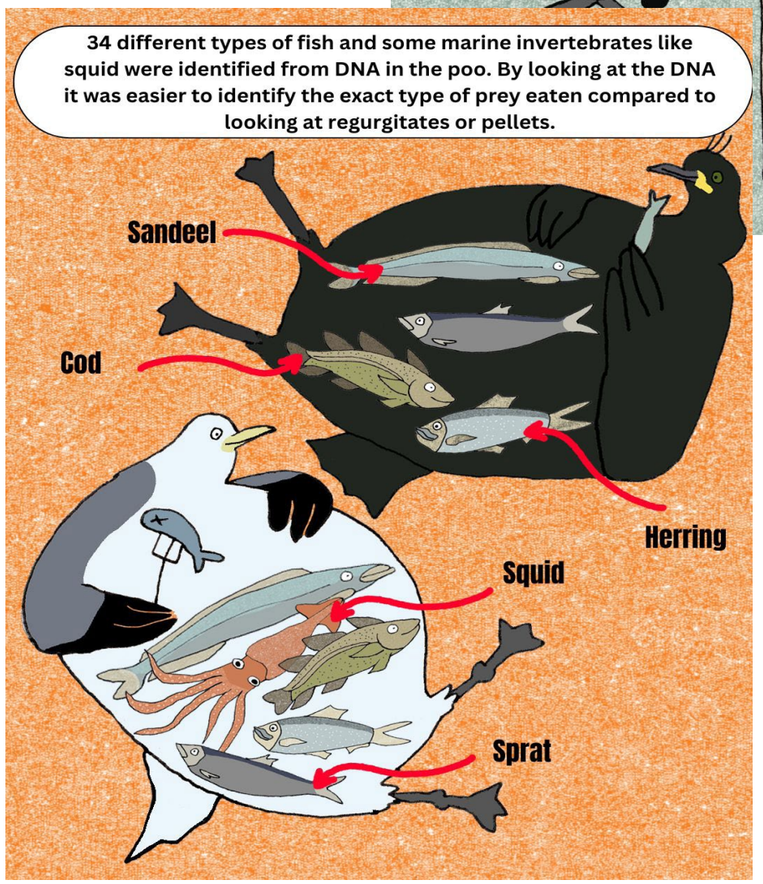
Additional Kittiwake and Shag faeces samples were collected from Colonsay and Canna during the 2025 breeding season, and other seabird folk across the UK are also collecting samples to better understand seabird diet at specific locations.

By combining this diet data with those from conventional diet monitoring and linking them to other information on seabird's lives, such as their breeding success or survival, we can better understand the impact of environmental change on seabird populations, with the ultimate aim of identifying what management and conservation actions are needed to help them.

Find out more

To read the publication and view the comic this article is based on, please visit: https://www.bto.org/our-work/news/blog/science-and-art-seabird-poo





Comic graphics by Anna Dupont-Crabtree/BTO

Credits

Thanks to Mark Constantine for funding this project. Thanks to everyone who helped collect faeces samples in the field including David Jardine on Colonsay, members of the Highland Ringing Group on Canna and members of the Treshnish Isles Auk Ringing Group and Shiants Auk Ringing Group.

Reference

O'Hanlon, N.J. *et al.* 2025. Diet analysis of Kittiwake *Rissa tridactyla* and Shag *Gulosus aristotelis* using DNA metabarcoding of faeces. *Seabird* **37**: 58–77

Read the article **here**

Kittiwake by Sam Langlois/BTO

SMP short stories

A collection of notes from the 2025 field season

Gannet numbers growing at the RSPB's Marwick Head reserve, Orkney

by Alan Leitch

Small wins for seabirds are few and far between these days, it seems. Gannet populations in recent years have struggled due to HPAI, but they are resilient birds and seem to be recovering once more. On Orkney, Gannets have established colonies on Noup Cliffs on Westray (established 2002), Sule Skerry, and Sule Stack and as of 2019, Marwick Head RSPB reserve. The colony has continued to grow annually, from a single AON in 2019 to 40 AON in 2025, with at least 26 young fledged. It is a challenging site to view from land, and to obtain a reliable estimate of the numbers of AON and nearly fledged young, a licensed drone operator is deployed.

Nesting Gannets by Alan Leitch

I found my own Seabird Monitoring Programme site in 2025, by accident

by Sarah Harris

Casually birding in the Brecks, Norfolk, I was walking along the edge of a mere with the usual low expectations you get on familiar ground, when a Black-headed Gull caught my eye. It was sitting low in the vegetation, lower than felt normal for the regular loafing birds. I watched it for a while, half expecting it to move on. Instead, it stood, ruffling its feathers and checking beneath itself, and then settled again – with a wiggle. Classic. A nest.

I spoke to the landowner and got permission to conduct a quick walk-through a week or so later (once the birds had had time to properly feel invested in the site). Typical of a new colony, just the two clearly defined nests confirmed.

Unfortunately, there was no evidence of any eggs having hatched, and the birds were not bothered by our visit. The attempt had failed. Still, it was a start. A new site, a few birds testing the place out.

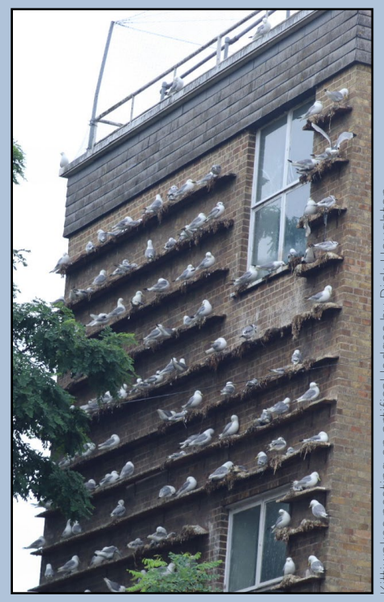
I'll be interested to see whether they try again in 2026.

A mixed season for Lowestoft's Kittiwakes

by Dick Houghton

The total number of nests in town, on the docks and on the pier increased slightly in 2025 over 2024, but the Our Lady Star of the Sea Roman Catholic Church population reduced by about 160 nests. This was due to the application of UV-gel deterrents, which appear as flames to birds and produce unfavourable odours, to the ledges around the church tower. Some new sites in the town and dock area were occupied, possibly due to displacement from the church tower. Many birds were roosting near their presumed old nests on the church roof for several weeks before rebuilding later in the season, but then failed either to lay eggs or to raise chicks. Predation by Carrion Crows was observed and possibly contributed to these late failures on the tower and perhaps at other sites around the town. Around 850 AON were occupied in the larger Lowestoft area in total, a decrease of 174 from 1,024 AON in 2024.

The two local offshore 'Kittiwake hotels' (artificial nesting structures) hosted four nests in 2025, an increase from 2024's single nest. The onshore 'hotels' had no nests again in 2025.



Kittiwakes nesting on artifical ledges by Dick Houghton

The SMP team

The SMP team at BTO includes Erin Taylor as SMP Organiser who is responsible for the running of the scheme, liaising with professional and volunteer participants, promoting the scheme, and producing the Annual Report and other outputs. She works closely with Aaron McKay, who is the SMP Support Officer. He primarily works on engagement and promotion of the project via social media, promotional emails, and the newsletter, and maintenance of the database and development of SMP Online. Nina O'Hanlon, Senior Research Ecologist in the Wetland and Marine Research Team is responsible for the data analysis and annual trend production, and works alongside James Clarke, Ecological Statistician, who together have produced the new trend analysis methods for the 2025 Annual Report. Hala Haddad and Andrew Upton are supporting the Seabird Network in Northern Ireland, and Dawn Balmer is Head of Surveys, which includes SMP among other monitoring schemes. Niall Burton (Head and Principal Ecologist) and Liz Humphreys (Head of Marine Research), also part of the Wetland and Marine Team, are responsible for strategic development of the scheme and marine research at BTO. James Pearce-Higgins is the Director of Science and therefore responsible for all survey and research work at BTO.

Representatives from the Partnership organisations include Tim Dunn (Seabird Monitoring Manager), Helen Baker (Marine Species Team Co-Leader) and Sarah Money (Marine Ornithologist) from JNCC, and Mark Bolton and Tom Evans, both Principal Conservation Scientists at RSPB. The SMP 'family' runs wider than this though with representatives from a total of 24 organisations, including from the four SMP Key Sites, included in the SMP Advisory Group.

Introducing:
Erin Taylor

Gentoo Penguins by Erin Taylor

Where are you based and what do you do?

I'm the new SMP Organiser and I have just moved to Thetford from Edinburgh to work at the BTO offices there.

What is your experience in working with seabirds?

I have been working with or around seabirds since leaving university. In 2021, I began working for the British Antarctic Survey on Bird Island as the Albatross Zoological Assistant and got to spend just short of two years living and working with albatrosses, penguins and Giant Petrels. Since returning, I have been working on the Isle of May for UKCEH on their long-term studies that directly contribute to SMP as one of its Key Sites.

What was your first environmental/conservation job?

I started my career working at Skokholm Bird Observatory as their Storm Petrel researcher, then moved to North Ronaldsay Bird Observatory and finally to Portland Bird Observatory. The highlights have included: ringing Storm Petrel chicks on Skokholm, helping tag Black Guillemots on North Ronaldsay and witnessing active spring migration in the English Channel at Portland.

Did you volunteer prior to gaining a job in this sector?

My first role on Skokholm was a voluntary role, but prior to this I volunteered as a Wildlife Watch group leader for the Gloucestershire Wildlife Trust and have been contributing to the ringing scheme for a number of years.

What is your favourite thing about your career, and your role now?

I have been really fortunate with all of my job roles so far, enabling me to travel to new places and work with amazing birds and people. My new role in BTO is my opportunity to finally see what happens to the data I have been collecting for all these years. I have spent a lot of time learning about and living with seabirds, so now is my chance to help them out a bit.

If you had a warning label, what would yours say?

Do not engage before my first cup of tea.

Do you have a favourite seabird experience?

During the winter on Bird Island, all the Gentoo Penguins come to roost in the evenings simultaneously to avoid being predated by the lurking Leopard Seals. If you hunker down on the shore line, hundreds of penguins come leaping out of the water around you calling to each other and waddling quickly up the beach. It's absolutely magical.

What are your hobbies?

Aside from being a birder and a ringer, I also love to cook. If I wasn't doing my current job, I would want to be a chef.

What is your current (non-work) passion project?
I have been attempting to finish knitting a Nordic jumper for over a year, it has two sleeves now so hopefully it will be done soon!

If money were no object, how would you spend your time?
I would probably move around all the different islands living and working with birds around the world. With the rest of my time, I would visit Michelin-starred restaurants and attend cookery school.

Why do you think the SMP is an important scheme?
SMP is vital for tracking long-term changes in populations of birds that are facing increasing challenges. Seabirds are struggling for a multitude of reasons, and this is the only way to display the real story of what is happening in as close to real-time as possible.

What is your favourite book, favourite song and what one item would you choose if you were stranded on a desert island?
Favourite book: It's very cheesy but it has to be *Pride and Prejudice*. I must've read it hundreds of times by now!

Song: Right now, it's anything by Chappell Roan, I'm obsessed.

Desert Island item: I should probably say binoculars, but it would 100% be a mattress!

What did you want to be when you were growing up?
I always wanted to work on islands looking at birds.

Lastly, and most importantly, what are your top two seabirds? (because just one isn't enough!)
In the Northern Hemisphere, it's a Shag. I spent so long on the Isle of May watching them be goofy and it is the thing I miss the most about working there. I have witnessed them arrive back to their nest, kelp in beak, looking pleased as punch with themselves only for them to accidentally step on the end, drop it and then forget they ever had it in the first place – and I could watch that all day. In the Southern Hemisphere, it's Wandering Albatrosses. I never thought I would get to see one, let alone work with them and see them displaying in real life.

South Georgia Shag by Erin Taylor

Introducing:
Aaron McKay

Where are you based and what do you do?
I'm home-based in West Wales, and my role is the SMP Support Officer. I work part-time, engaging with participants, verifying data, and producing social media and other SMP outputs.

What is your experience in working with seabirds?
I have previously spent two seasons working to conserve Little, Arctic, and Common Terns in Wales. Whilst working with the latter two species, I was also able to volunteer time to monitor Sandwich Terns, Black-headed Gulls, and Mediterranean Gulls.

What was your first environmental/conservation job?
My first conservation job was as a Little Tern Warden in the summer between my third and fourth years of university.

Little Tern and Pied Flycatcher by Aaron McKay

Did you volunteer prior to gaining a job in this sector?
Yes, I had some brilliant volunteering opportunities as a residential volunteer at both RSPB Arne and Blacktoft Sands during my university year in industry. I certainly wouldn't have ended up on this career path if it wasn't for those opportunities.

What is your favourite thing about your career, and your role now?
I enjoy working in this environment where we are collectively trying to better understand birds so that we can work to improve the outlook of their futures. It is great to be able to work alongside such a variety of different people with unique experiences in the field!

Do you have a favourite seabird experience?
Metal ring reading 25+ year old Arctic and Common Terns breeding on the island they hatched on.

What are your hobbies?
I've played guitar and drums for almost 10 years, so I try to spend a good amount of my free time practising those. In the winter, I'm often making nest boxes for different passerines, including Pied Flycatchers, Swifts, and Starlings.

What is your current (non-work) passion project?
Maintaining, and where possible, improving family-owned land to sustain the Willow Tits, Marsh Tits, and Pied Flycatchers it attracts.

Why do you think the SMP is an important scheme?
Seabird populations can be affected by a number of cumulative factors, including prey availability, predation, and disease. By collecting data on abundance and productivity each year, we are best placed to detect changes and work with others to mitigate any resultant declines. It's also a brilliant opportunity for people to collaborate to further benefit the future of seabirds.

What is your favourite song?
My favourite song is Blackwater Park by Opeth.

What did you want to be when you were growing up?
I wanted to be a designer of sorts for a while, interior or garden. I always liked wildlife, but it wasn't until university that I really decided on this career path.

Lastly, and most importantly, what are your top two seabirds? (because just one isn't enough!)
A surprisingly easy question for me. Great Black-backed Gulls are by far my favourite, owing mainly to their bulbous bill. Little Terns would be second, having wardened a colony and written my dissertation about them.

To find out about new SMP Online developments and the answers to frequently asked questions, turn to page 24!

New developments in SMP Online

By Aaron McKay, BTO

In February, we released updates to the SMP Online web app that aim to make it easier to find a suitable survey site. There are two main parts to these updates: an updated 'Home Page' map display, and a new 'Species' tab in your allocated site information boxes.

Homepage map display

You can now search for sites by species type, which gives you a better grasp of the survey requirements likely to be encountered at different sites, and whether these are of interest or suitable for you. Species types you can search by are: Burrow Nesters; Cliff Nesters; Cormorants and Shags; gulls, skuas, and terns; and Black Guillemots. Species have been grouped to protect the nesting locations of Schedule 1 species such as Mediterranean Gulls and Little Terns.

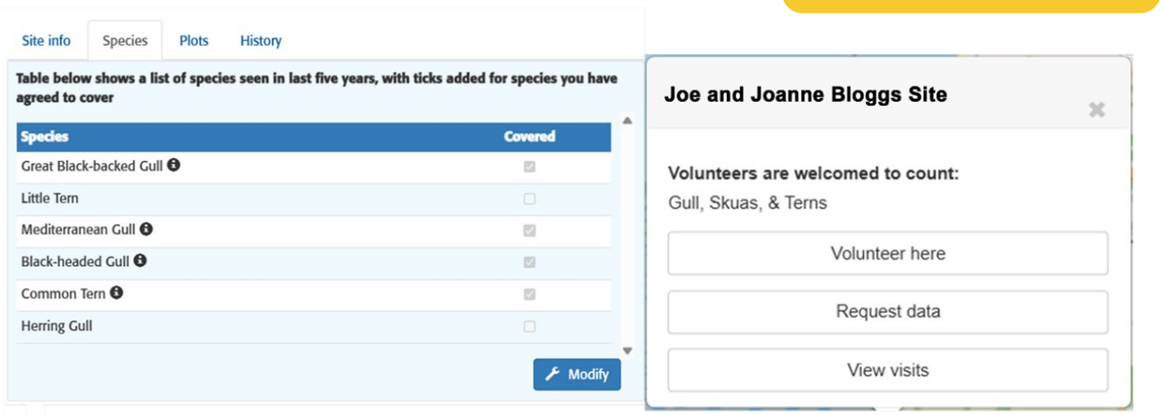
We have also introduced a postcode search feature, allowing you to find sites near you or in an area you are interested in more quickly. Search with the first half of a postcode to cover a wider area, or with a full postcode to refine to a specific location.

New species tab

The species tab lets you indicate which species you are surveying at a site. This is useful information for us at all sites, but particularly at sites with multiple breeding seabirds. Surveying different seabird species, which require varying survey timings and methods, is time-consuming. As a result, we want to make it clearer to other SMP participants when a site which already has an active participant may need support to cover all the species at that site. We are also keen to encourage collaboration and communication between participants, to help continue developing the seabird surveying community around Britain and Ireland.

The two images below display how the species tab works. This tab is accessed by going to the 'Dashboard', then clicking on the name of the site you want to view, and then clicking on the 'Species' tab. By manually ticking the species you survey in the left-hand image, we know to expect records for these species, even if they are zero counts, when we review data towards the end of the year. Species that aren't ticked feed back into the homepage map (right-hand image), and any participant who views your site will see there are still opportunities to survey those species at the site. In the example below, Little Terns and Herring Gulls are not currently being surveyed at this site; this displays to any participant viewing the site on the map that there is still an opportunity to count some/all gulls, skuas, and terns here. If you no longer intend to survey a specific species, you can untick it after clicking the 'Modify' button.

Have you ticked off the species you monitor yet?!



Frequently asked questions

Still have unanswered questions? Email them to **smp@bto.org**

By Aaron McKay, BTO

What if the birds at my site breed earlier than the recommended survey dates?

Please record your breeding seabirds when you think, or know, that they are actively breeding. For example, for species where the preferred recording unit is Apparently Occupied Nests, when birds are sitting tight, or you can see nests, please record them regardless of whether the date falls outside the recommended period. The most important thing is trying to get a record when breeding numbers are at their peak! Data submitted to SMP that fall outside the recommended period will be flagged for review, so please leave a comment when entering data to indicate whether nesting occurred earlier or later than that period.

Can I monitor part of a site?

If possible, aim to monitor the entirety of a site so we can continue to compare data from that site to data collected in the past. In some cases, a site may already have smaller established plots, which you can view by clicking on the site's name in the dashboard and then clicking on the 'Plots' tab. If plots appear here, you could monitor one or more of these, if you know where they are. If you don't, please contact smp@bto.org. If a site doesn't currently have plots and you cannot cover its entire area, please email smp@bto.org to discuss establishing and naming appropriate monitoring plots.

My site looks like it's in the wrong location. What do I do?

To suggest a change to a site you are allocated to, click on the name of the site in the Site column of the Dashboard and look for 'Suggest a change' in the bottom left corner of the Site info tab. Clicking this button opens a text box that provides details on changing site boundaries. Once you have read and closed this text box, you can then make amendments to the site's boundaries or general location, following the guidance in the Application Guide. All changes are reviewed by the SMP's Organisers, and in some scenarios, we may contact you via the SMP email address to discuss changes. If you spot a site on the main map which might be wrong, but you aren't allocated to it, please contact us at smp@bto.org.

How many dates do I need to enter for a Breeding Success record?

Please only enter one submission per species for breeding success, but in the data entry form, please make use of the 'Dates of visits' field – if you made three visits or fewer, please enter each date here. If you made more than three visits, please enter dates which correspond with your very first visit to assess AON/AOT/IND, when you saw the first fledgling, made the peak fledgling count, and saw the last fledgling.

Can I share a site to ensure complete colony count and breeding success coverage?

Yes, if you know that you will not be able to cover a site from the start of the breeding season through to the end, do let us know. If someone requests this site, we can then suggest that they take responsibility for one aspect of the monitoring, whilst you take responsibility of the other. For example, if you were only able to complete surveys in May and June but another participant was available throughout the whole spring and summer, and you wanted to split responsibilities, we would suggest that you take responsibility for monitoring colony counts and they take responsibility for monitoring breeding success. If monitoring is being done on the plot scale, it is important that the boundaries of plots are well known to both participants to ensure the same areas are being counted, especially if using the mapped nest sites method.

If you know someone who might be interested in sharing a site, ask them to request it in SMP and leave a comment to let us know they will be sharing the monitoring responsibilities. We will then email them to confirm arrangements and make sure they are adequate.

Backchat ...

Key Sites

The SMP Key Sites at Canna, Fair Isle, the Isle of May and Skomer Island conduct detailed annual monitoring of adult seabird survival, diet and phenology, in addition to abundance and productivity, enabling the mechanisms of population changes in response to pressures to be better understood. SMP funding contributions provided by JNCC support this additional monitoring by staff and volunteers.

Following the outbreak of HPAI (bird flu) that spread through seabird colonies across the UK in 2022, data collected from the Key Sites in 2023, 2024, and 2025 will be invaluable in understanding the impacts on populations and their recovery.

Reports for 2022 (and previous years) will be published and made available through JNCC's Monitoring/Survey Report Series: https://hub.jncc.gov.uk Reports from 2023 onwards will be published through the SMP website hosted by BTO.

Your newsletter, your say

We want to hear your thoughts on the Seabird Monitoring Programme newsletter – shaping the content as we go and adding new ideas where we can, ensuring engaging and informative content that is of interest to you. We want to hear from everyone, whether you are an existing SMP participant, a new participant, a volunteer, a paid professional, or someone simply interested in seabirds, the marine environment or wildlife in general.

In order to collate thoughts in one place, an online survey form has been created to gather ideas in a succinct way. Please follow this link to submit your views: bit.ly/SMPnews_feedback

Thank you for reading this issue of SMP*news*.

Contact details

Full details of the SMP Team can be found on page 17. However, below are details for the main points of contact for the scheme:

Erin Taylor, SMP Organiser, BTO
Direct email: **erin.taylor@bto.org**

Aaron McKay, SMP Support Officer, BTO.
Direct email: **aaron.mckay@bto.org**

SMP, Surveys Team,
British Trust for Ornithology
The Nunnery
Thetford
IP24 2PU
Tel: **01842 750050**
Email: **smp@bto.org**
Website: **www.bto.org/smp**
Bluesky: **@smp-seabirds.bsky.social**