the Seabird Group

NEWSLETTER 129

JUNE 2015

Edited by Hannah Watson & Holly Kirk

Contents

MESSAGE FROM THE CHAIRMAN

By Russell B. Wynn, Seabird Group Chairman/National Oceanography Centre, UK

Dear Seabird Group Members,

As mentioned in the last newsletter, the Seabird Group ExCom is keen to mark our upcoming 50th anniversary by supporting attendance at the second World Seabird Conference in Cape Town, South Africa, in late October. The WSC2 has a Travel Award scheme targeted at Early Career researchers, and I was one of the committee members overseeing the review process. All committee members agreed that the quality of submitted applications was very high, and of the 260 submitted applications about one-third made the funding cut-off. The average award was £1000, to support travel and subsistence. I'm pleased to say that a number of our Early Career members were successful, but we were also keen to support those who were not successful but whose oral presentations had been accepted in the conference programme. Two of our Early Career researchers, Annette Fayette (Oxford University) and Victoria Warwick-Evans (Liverpool University) were just below the funding cut-off and included on a 'borderline' list. As they were clearly the highest ranked of the Seabird Group applicants, the ExCom decided to offer Annette and Vicky £500 each towards their attendance (which they have gratefully accepted). Their presentations will acknowledge "Seabird Group 50th Anniversary Travel Award" funding, and they will be providing a report on the conference for the wider membership.

This one-off travel award does not impact our regular Seabird Grants, and we have recently offered two grants totalling £900 to successful applicants from the last round. We are also keeping a reserve of £3000 to underpin the next Seabird Group conference in Edinburgh in autumn 2016. This reminds me to congratulate the convenor of that conference, Dr Francis Daunt (CEH), who received the Marsh Award for Ornithology last October (presented by HRH Duke of Edinburgh), and his CEH colleague, Prof. Sarah Wanless, who received the Godman Salvin Medal from the BOU this spring. Both Francis and Sarah are making major contributions to the Seabird Group and inspiring the next generation of seabird researchers, so it is great that their work has been recognised in this way.

Our other major upcoming financial commitment is support of the next national seabird census - called 'Seabirds Count' - that will likely run from 2016-18 but with some activity starting this year. JNCC have produced a site register and are overseeing work on developing census methods and the database, which will accelerate when a full-time census co-ordinator is recruited. Two ExCom members, Martin Heubeck and Stuart Murray, are leading the Seabird Group's input to these processes. A number of sites requiring experienced teams are due to be surveyed this summer to kick off the survey, and we are supporting fieldwork at two of these. Sule Skerry Ringing Group and Murray Survey both submitted grants for fieldwork on offshore islands to our

regular grant round last year. As both applications were compatible with the aims of the census, ExCom decided to increase the grants awarded from £500 to £1250, using legacy funding earmarked for the census. This has helped to ensure that fieldwork can proceed this summer and results will be included in the census. A total of £22,500 legacy funding remains for support of census fieldwork in 2016-18, and in the coming months we will develop a grants process for our members to utilise this funding.

Finally, both myself as Chairman and Martin Heubeck as Editor of *Seabird* are due to stand down this autumn after fulfilling our term of office. Andy Webb will be continuing as Production Editor for the journal, which is great news as his experience will provide valuable continuity. There will also be at least one ExCom member providing assistant editorial support, which is currently being undertaken by Will Miles. So, if you are interested in either the Chairman or *Seabird* Editor role, or would like to provide a nomination, please drop me an email at **rbw1@noc.ac.uk**.

BUILDING A GLOBAL ONLINE SEABIRD COMMUNITY

By Sjúrður Hammer, University of Glasgow

'Social media for public engagement' has become a buzzword used throughout businesses, institutions and organisations worldwide. The main reason for this is the fact that a large portion of the world engages with each other in social media spaces. With 1.44 billion people active on Facebook and 236 million on Twitter, there is great potential to reach broad audiences. Social media has more to offer than just an enormous broadcasting platform; it can be a powerful tool to connect people with each other in ways that can result in fruitful collaborations and collegial support across the entire globe. Some of the challenges recognised by the World Seabird Union (WSU) in their legacy initiatives include improving communication and cross-hemisphere collaborations. In relation to this, members of the WSU's Early Career Scientists (ECS) committee have considered the potential role of social media for building a global community of seabird enthusiasts and have put some of these ideas into action in advance of the upcoming 2nd World Seabird Conference. Besides the WSU having a visible presence on various social networks, there are a few initiatives that deserve special mention.

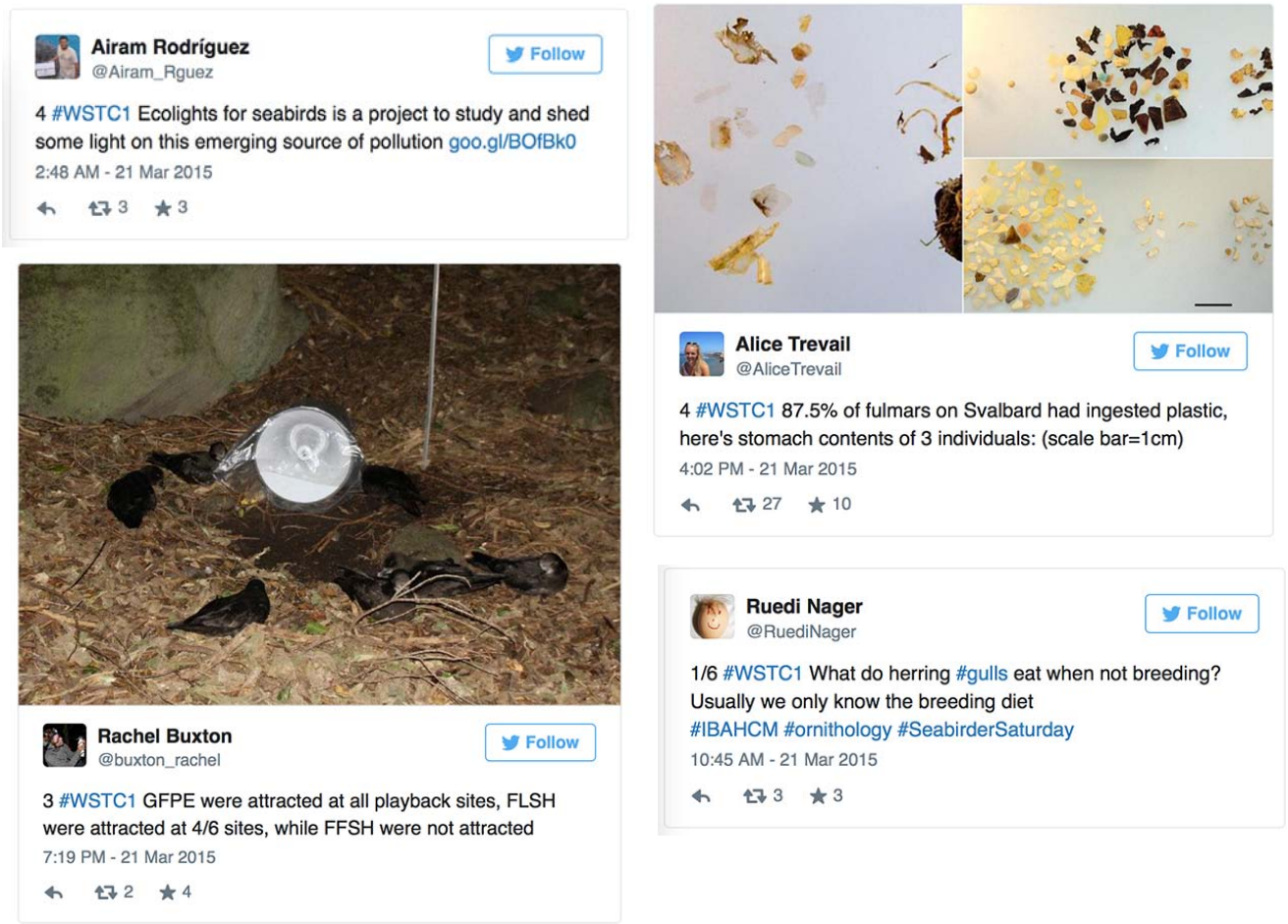
#SEABIRDERSATURDAY

One of the major hurdles that stands in the way of some people engaging in Twitter is the initial period after you've signed up, when nobody seems to pay any attention to the content or "tweets" that you post. This can be overcome with the use of hashtags #, which are a clever way of organising tweets by topics. In late 2014, we launched the hashtag #SeabirderSaturday as a way to encourage conversations between seabird enthusiasts. Since we assume the community to be relatively small by social media standards, we make it obvious when the conversation is taking place; it then becomes more rewarding for newcomers to get engaged, because there are many people joining the conversation from across the world. This initiative has, in our view, been a great success with many people joining the conversation. The hashtag has been used approximately 1000-1500 times a month; it is used to advertise research positions, promote recent research or just to share photographs and news from the field. The conversation is informal and friendly and has sparked other humorous "spin-off" conversations such as a Valentine's Day special #seabirdlove and a healthy rivalry between #teamauk, #teamgull and #teamskua. It may sound quite outlandish for some, but it is worth considering the use of social media as comparable to real life social settings, such as conference poster sessions or coffee breaks at meetings. It is entirely what you make of it, and there is room for both serious discussion and friendly banter. Our impression is that #SeabirderSaturday has been successful in making the step into social media fruitful for many people and has acted as a kickstarter for new users to get engaged on Twitter.

TWITTER CONFERENCE #WSTC1

In March 2015, WSU hosted the first World Seabird Twitter Conference (#WSTC1). This was the first online conference of its kind, bringing together seabird researchers from across the globe, but without requiring them to leave the comfort of their own living room! Each participant was scheduled a time, during which they communicated their research in six consecutive "tweets", with each tweet being a maximum of 140 characters. This could also include images and links, so figures, photos and videos could still be shared with the audience, as one would do in a "typical" presentation. The challenge of presenting their work in such a concise manner was taken up by 42 people from 12 different countries and the conference was "attended" by more than 450 people. Over the three days of the conference, 2200 tweets were posted with the hashtag #WSTC1, originating from 19 countries spanning all seven continents! The estimated reach of these conversations is over 330,000 people. Direct participation in the event was on par with regional seabird conferences, with the added bonus of outreach to the general public. We are confident that future Twitter conferences will be worthwhile events and we expect to see an increase in the number of similar

conferences going forward, considering the environmental and financial savings involved. A curated compilation of the presentations can be seen here #WSTC1.



A few selected tweets from the First World Seabird Twitter Conference.

Editor: Congratulations to the Seabird Group's Alice Trevail, who scooped the prize for best presentation for her tweets about plastic ingestion. She and her colleagues found that an astounding 87.5% of Fulmars on Svalbard had plastic in their stomach contents!

'MEET THE MASTERS' #MTMSC

For ECS just starting out, an international conference can be a daunting experience. Young scientists may be looking for an opportunity to meet their heroes, but are too nervous to approach them. 'Meet the Masters' offers ECSs the opportunity to meet "virtually" with senior researchers from the seabird world in an online webcast, where they can ask questions that may range from research specifics to general career advice. Questions can also be posed from the audience via Twitter, YouTube and Google+. There are six sessions scheduled, of which three have already been broadcast and subsequently archived on YouTube. We have been fortunate to have some well-known and friendly people, such as Sarah Wanless and Steve Votier, feature in the series. Each session has been interesting, rewarding and covered a wide selection of topics. So far, the uploaded videos have been viewed for 154 hours, so there are clearly viewers who find these sessions interesting and worthwhile. With three more "hangout" sessions scheduled for August, September and October, we hope many viewers, and ECSs in particular, will benefit from engaging with and listening to these "seabird masters". Hopefully these facilitated interactions may assist in bridging the generational gap between juniors and seniors. You can find an overview of hangout sessions here or subscribe to the YouTube channel.

There is a lot of untapped potential in social media and online tools to connect with fellow seabird enthusiasts all over the world. While our activities may well be local, we believe there is much to gain from engaging and collaborating across regions on various topics. Let this be an eager invitation from us to you, to join us on Twitter and/or Facebook, get engaged and have fun!

SEEING STORMIES IN THE DARK

By Matt Wood, University of Gloucestershire

Much of what we know about seabirds comes from study species that are relatively easy to observe, but there are species about which we know far less. Species like the European Storm Petrel *Hydrobates pelagicus* breed in inaccessible rock or boulder scree, in nests that can be difficult to locate amongst the rocks and even more difficult to study, and the adults are prone to desertion if disturbed. These challenges leave estimates of population size and demographic rates lacking, with the exceptions of Skokholm Island (from Derek Scott's work in the late 1960s) and the UK's largest colony at Mousa in the Shetland Islands. As seabirds become increasingly important as sentinels of environmental change, overcoming the challenges of studying storm petrels could make a useful contribution, particularly since this smaller species feeds at a lower trophic level than most other seabird study species.

Storm Petrel, Skomer. Photo credit: Nicole Milligan.

Thermal imaging technology has developed rapidly in recent years and become much more widely available. Far-infrared cameras detect the light emitted by warm objects, including mammals and birds, offering the tantalising prospect of being able to see in the dark. The slight hitch is the price of these cameras: the T620 FLIR camera I use comes with a five-figure price tag!

In late May 2013 I visited Skokholm Island with a basic aim in mind – what could I see with this camera? At midnight I arrived at The Quarry, the largest breeding colony on Skokholm. Visitors to the island are drawn here by the prospect of a fleeting glimpse of a storm petrel in the beam of a torch, or the dim flash of a white rump in the afterglow of dusk. I switched on the thermal camera, and waited. Instead of a fleeting glimpse, I was looking at hundreds of storm petrels flying, dancing, and circling over the entire expanse of rock and boulder scree below me. Some birds came so close to the camera that they were just a blur; some were spiralling like bats over the rocks, while others paused and hovered like moths, presumably over nest sites. A truly amazing sight that a still image can't really convey - take a look at this short video.

I spent the rest of my week on Skokholm trying to work out what to do with the camera. Wildlife spectacles are all very well, but how could I collect some useful data? Brief trials showed that torch light had a marked effect on the behaviour of the birds, causing them to flee well before the human eye could adjust – hence only a few fleeting glimpses of the hundreds (or thousands?) of bird present. Upon watching the footage, sharp-eyed warden Rich Brown spotted a Short Eared Owl hunting Storm Petrels - a potentially unseen impact of light disturbance, which even if it led to small changes in breeding adult survival could have a long-term impact on the population. Skokholm now uses an image intensifier for visitors viewing the colony, and preliminary results from an experiment in 2014 suggests red torch light is less disruptive than white light of the same intensity.

Being able to observe the birds in natural light conditions reduced disturbance considerably and allowed me to make behavioural observations, including locating nest sites. Furthermore, I was able to observe behaviour inside the nest burrow, with pairs appearing to engage in normal behaviour, including allopreening and even a case of courtship behaviour between two birds that I would have been unable to see if I'd turned on a torch. I wonder if courtship behaviour has been observed before in this species?

Storm Petrel pair billing in a burrow at North Haven, Skokholm. Photo credit: Matt Wood/UoG.

Storm petrels are tricky to census, with methods relying on playback techniques and humans scrambling over breeding colonies. In 2014, I trialled the use of thermal imaging of birds in flight at breeding colonies in relation to playback data, to develop an alternative method that would be safer and quicker than playback, but so far this has proved elusive. Thermal imaging has certainly proved useful in locating breeding sites; in 2014, nine new sites were located on Skokholm that had not been detected by previous playback surveys, some in places that were hair-raisingly inaccessible to humans. Flight activity around potential breeding sites was also seen at two new locations on Ramsey Island, which European Storm Petrels recolonised in 2008 after a rat eradication programme.

Thermal imaging has great potential to study nocturnal species without causing light disturbance. The challenge is to look beyond the wildlife spectacles and to answer key questions in seabird ecology. And to write that grant proposal for the next camera!

Acknowledgments: Thanks to the Wildlife Trust for South and West Wales, Will Whittington and the Wardens of Skokholm (Richard Brown and Giselle Eagle), Skomer (Bee Bueche and Ed Stubbings) and Ramsey (Greg and Lisa Morgan) Islands for their support in the field, and to Rob Thomas, Steve Sutcliffe, Chris Perrins and Mark Bolton for useful discussions and ideas.

Matt Wood is a Senior Lecturer at the University of Gloucestershire. After working on nest-box passerines in Lund and Oxford, he now focuses on the population biology and disease ecology of seabirds. He currently manages the monitoring of six species of seabird on Skomer Island, a key site in JNCC Seabird Monitoring Programme, having taken over from Chris Perrins in 2014.

SHETLAND TYSTIE CENSUS 2015

Contributed by the 2015 counters (see end for full list)

Having decided that counts made in 2015 could contribute to the next national census of breeding seabirds, thoughts turned to how Black Guillemots (Tysties) in Shetland might be counted this time around. Regular monitoring on Fair Isle, Foula, Noss, Mousa and along 11 stretches of coast around Mainland covers about 15% of the Shetland population (which, in 1998-2000, amounted to 15,739 'associated' adults, 37% of the British & Irish total). The remainder is spread along coastal habitats varying from low, offshore skerries and uninhabited islands to high cliffs exposed to the full force of Atlantic swells.

For *Seabird 2000*, contract counters were hired to boost local personnel, and a Zodiac was bought to augment SNH's spare boat, meaning that on most calm mornings six people and two Zodiacs (with no range restriction) were available, and most counts were made from the sea. This year only one Zodiac was available with a range restriction of three miles from a designated launch site, and with no budget for contractors or chartering hard-hulled boats, it was decided to focus largely on counts from land of the low to medium height cliffs of Mainland. On balance, counts from land along such coasts are probably more accurate than counts from a small boat (viewing height makes it easier to keep track of displaying groups and to see birds further offshore), and three people individually walking sections can probably cover as much coast in one morning as a crew of three in a Zodiac.

Fieldwork began on 25th March 2015, and, although hampered by persistent westerly swell, by 20th April 6, 1508 'associated' adults had been counted compared with 6,518 in 1998-2000 along the same stretches of coast. To a certain extent, the remarkable similarity of these totals is a coincidence. While some sections of coast show remarkably similar numbers and distribution (e.g. 484 birds around Bressay c.f. 469 in 1999), 'real' local decreases since *Seabird 2000* were known from

monitoring sites and these may have been offset by some modest 'increases' along other sections as a result of them having been counted from land rather than the sea.

There is also the problem of the morning of 20th April. After days of waiting for the westerly swell to die down, the weather forecast had looked perfect, the swell was checked late on 19th and deemed workable, and had been forecasted to decay further. Seven counters therefore headed out in the dark to tackle some of the trickier, exposed sections of Atlantic coast (including a monitoring site), only to find at first light that the swell had built overnight! On those stretches of Eshaness and Tingon directly exposed to the swell, birds were nearly impossible to shift from cliff perches; Tysties that did flush were difficult to see among the foam and backwash and numbers that morning (207) were 24% lower than in 2000 (271). Numbers at the nearby but less exposed Hillswick Ness monitoring site (206) were similar to the 2000 count (216) but had increased since then and were 25% lower than in 2014, and the observer (who is very familiar with the site) believed many adults were simply not attending colonies that morning. If we get a chance we'll try and recount next year.

Tysties on Mousa are confiding and photogenic. Numbers since the *Seabird 2000* census have fluctuated between 130 and 200 adults (c.f. 300-350 in the 1980s), with disturbance and/or predation by Otters probably a contributory factor. Photo credit: Mick Mellor.

On the plus side, there was a pleasant surprise the previous day along another section of west Mainland cliffs that had only been counted twice before, from land, by single experienced observers in 1983 (137) and 2000 (255). On both occasions, fog had been a problem and start and finish times also suggested the coast had been covered rather quickly. This time, the Tysties behaved perfectly, and two counters, starting at each end, logged 544 birds. Immediately to the south of this is a monitoring site, where a count the same morning (287) was almost identical to 2014 (286), although slightly lower than two counts in 2000 (315 & 326). This whole, beautiful section of coast extends just 6 km from south to north, and if you are into Tysties there can be few locations in Britain or Ireland to rival a dawn walk between Wats Ness and Huxter!

One unexpected decrease that is believed genuine was along the cliffs of northeast Mainland, at the northern entrance to Yell Sound and 12-19 km from the Sullom Voe oil terminal: 189 adults in 2015 compared with 340 in 1998. There is no obvious explanation for this, and oil pollution can be ruled out; indeed there is nothing to suggest that oil pollution has affected Tysties at the population level anywhere in Shetland since the *Seabird 2000* counts. Despite this, the oil industry is very supportive of the need to maintain up-to-date figures on breeding seabirds and has funded a fully equipped sea-going RIB that will be in action in 2016, taking the census further to less accessible colonies. For now, though, we're all grateful that alarm clocks can be put back into bedside drawers!

The counters in 2015 were: Paul Harvey, Rory Tallack & Howard Towll (Shetland Amenity Trust); Andy Denton, Craig Nisbet, Afra Skene, Jonathan Swale & Glen Tyler (Scottish Natural Heritage); Martin Heubeck & Mick Mellor (SOTEAG); Martha Devine, Pete Ellis, Helen Moncrieff & Malcolm Smith (RSPB); Chris Dodd, Ciaran Hatsell & David Parnaby (Fair Isle Bird Observatory); Sheila Gear (Foula Heritage Ranger Service); Gary Bell, Phil Harris, Rebecca Nason and Roger Riddington (Shetland Bird Club).

Tysties shun the loose boulder scree of the Ayre of Deepdale, but the rocky cliffs immediately to the north and south, between Wats Ness and Huxter, hold one of the largest breeding concentrations in Britain and Ireland. Photo credit: Roger Riddington.

RUNDE SEMINAR ON NORTH ATLANTIC SEABIRD DECLINES

By Euan Dunn, RSPB

In April 2015, I attended a two-day seabird seminar organised by the Runde Miljøsenter (Environmental Centre) in partnership with Norsk Ornitologisk Forening (NOF – BirdLife in Norway) and Norsk Biologforening (BIO). The purpose of the meeting, held on the famous Norwegian seabird island of Runde near Ålesund, was to bring together researchers from Norway, Iceland and the UK to compare what's happening to seabird populations across the North-East Atlantic, explore causation of declines, and discuss remedial action.

Runde is a spectacular place – huge soaring seabird cliffs quartered by resident sea eagles. However, with the predictable exception of the bullet-proof Gannet (increased from 4 nests in 1946 to 3100 in 2013, with 0.96 chicks per pair in 2014), the scale of the decline of Runde's seabirds is eye-watering (see below). Most striking was the eerie lack of Kittiwake sound – as Alv Ottar Folkestad says, "the cliffs have gradually changed from white to grey".

Kittiwake: Estimated 100,000 pairs in the 1920s but only 200 pairs attempted to breed in 2014 and only fledged 6 young between them.
Shag: 5000 nests in 1975 (the biggest known colony in the world), none bred in 2014 although a colony nearby still supports around 300 pairs.
Fulmar: 2000 pairs in 1985, but 2001 was the last year any fledged (we saw just 1 or 2 fulmars flying around but none nesting).
Guillemot: 10,000 pairs in 1984, fewer than 1000 pairs in 2014.
Puffin: Estimated 100,000 pairs in 1995, guesstimate of 50,000-70,000 pairs in 2014 (and in the best recent years around 0.4 chicks per pair raised).

Runde lies near the spawning areas for a number of forage fish but the mainstay of the diet is spring Herring. Up till the recent past, metamorphosing herring larvae have drifted in their trillions from the south up past Runde (end of May to June/July) and on northwards "like a river" to supply the Puffin metropolis of Røst. Runde seabirds have traditionally depended, not just on spring Herring, but a range of other prey – Haddock, Saithe, Sprat, and Sandeel. But that has all changed. Starting in 2011, there were hardly any Herring larvae to the south of Runde, and for several years now the northward migration has petered out before it reaches Røst (causing Puffins to abandon eggs and chicks). At Runde, Sprats have also become very scarce and Sandeels only feature in the diet from time to time.

Film-maker Are Pilskog presented his outstanding 20-minute film *The Silver of the Sea* (Blast Films) of the spring Herring migration and its impact on Puffins when it fails to materialise or the timing misfires with when small chicks are in the burrow. It is hoped to show this film at the **Seabird Group Conference** in September 2016.

The presentations were grouped in sessions as follows:

1. What happens with the seabirds in the North Atlantic?

Sarah Wanless: *Puffins in the UK*
Alv Ottar Folkestad: *What has happened to the seabirds at Runde?*
Erpur Snær Hansen: *Changes in seabird populations in Iceland over the last decade, with special emphasis on the Atlantic Puffin and Westman Islands*
Freydis Vigfusdottir: *Arctic Tern research and seabird monitoring: experiences from Iceland*
Halgeir B. Skjellstad: *A visual journey among seabird cliffs in the North Atlantic*

2. Preconditions for seabird colonies

Sarah Wanless: *Sandeels as prey for seabirds in the North Sea*
Tore Johannesen: *Management of Sandeel and general fish recruitment problems in the North Sea and Norwegian coastal waters*
Sigrid Elvenes: *Geology and seabird cliffs: how can geological knowledge be relevant in seabird ecology?*

3. Conservation and Communication

Alice Trevail: *Seabirds and plastic pollution: with special emphasis on the Fulmar*
Marguerite Tarzia: *New trends in seabird conservation in Europe*
Paul Shimmings: *Conservation measures for seabirds in Norway and the role of the IBA network*
Magnus Irgens: *Seabird management in Norway (feedback from SEAPOP Seminar: 'Seabirds in Crisis', Oslo, April 15-16 2015)*
Euan Dunn: *The Puffin as an icon for conserving UK seabirds*

4. Panel discussion of population changes, drivers and potential remedial action

Suggested responses in the face of climate-driven seabird declines were to:

- control the things we can, e.g. reduce:
  - inputs to the marine environment of nutrient loads;
  - inputs of plastics and other pollutants; and,
  - overexploitation of planktivorous fishes
- promote multidisciplinary approaches, using Runde as a case study
- consider how best to protect Sandeel aggregations on the Norwegian coast
- photograph puffin bill-loads on Runde (NB: already happening to an extent, but cliff terrain is challenging)
- establish MPAs - locally, trans-boundary and high-seas - and feed information into NE Atlantic Ecologically or Biologically Sensitive Marine Areas (EBSAs)
- BirdLife to liaise with Norwegian SEATRACK programme (noting planned deployment of 10,000 loggers over the next 3 years); and,
- increase knowledge of Puffin distribution and diet outside breeding season

For further information, contact Euan at euan.dunn@rspb.org.uk.

SEABIRD TASK FORCE

Adapted from BirdLife press release

With the support of Fondation Segré, BirdLife has recently implemented a Seabird Task Force in Europe, based on the model of the Albatross Task Force, which has had great success in reducing seabird bycatch in the southern hemisphere. An estimated 200,000 seabirds are killed every year due to fishing activities in Europe. The Seabird Task Force will initially see experts from BirdLife's partners in Spain and Lithuania quantifying seabird bycatch off the Mediterranean coast of Spain and in the coastal waters of Lithuania in the Baltic Sea, respectively. The Task Force will also test mitigation measures that could be adopted by fishermen. In the Mediterranean, the main species of concern is the critically endangered Balearic Shearwater, whose foraging grounds overlap with the activities of longline fisheries. In Lithuania, sea ducks, such as the Long-tailed Duck and Velvet Scoter, are vulnerable to being caught in nets from gillnet fisheries targeting Atlantic Cod. While mitigation measures have been developed elsewhere to effectively reduce seabird bycatch in longline fisheries, there is currently no best practice for reducing seabird bycatch in gillnets. The Task Force will work with gillnet fishermen to develop innovative solutions to the problem.

The first data collected by Spanish observers in May-June 2015 suggests that Cory's Shearwaters are the most abundant species attending demersal long-liners and three individuals have been caught as bycatch during three monitored fishing operations. More information can be found at www.seabirdbycatch.com and you can follow the project @SaveSeabirds on Twitter.

A Cory's Shearwater accidentally caught on a demersal long-line off the coast of Spain. Photo credit: Albert Cama.

SOUTH GEORGIA HABITAT RESTORATION

Adapted from SGHT's newsletter

Monday 23 March 2015 marked a momentous day on South Georgia, as the last bait-load of Phase 3 of the rodent eradication project was dropped. After 3 seasons of fieldwork, more than 800 bait loads and 1000 helicopter flying hours, the entire island has now been baited. Thousands of people have contributed to the success of the project, all of whom share the same vision of a rejuvenated South Georgia, alive with the sights, sounds and smells of millions of seabirds. Of course, it doesn't all end there; the Habitat Restoration Project must and will continue to confirm that the baiting has successfully eradicated rodents. This involves the deployment and regular checking of thousands of rodent detection devices, and in 2017 a large yacht-based survey will be carried out.

The Habitat Restoration Project continues to need your support. UK residents can Gift Aid donations here, and US citizens can make tax-deductible donations here.

More information on the project can be found on the South Georgia Heritage Trust's website http://www.sght.org.

Loading up a helicopter's sowing bucket with bait, as part of South Georgia Heritage Trust's Habitat Restoration Project. Photo credit: Tony Martin.

SEABIRD RESEARCH AT ABERDEEN

By Marianna Chimienti, Jenny Sturgeon and James Waggitt, University of Aberdeen

The University of Aberdeen has a long history of conducting leading research in seabird biology and ecology. The diversity of current collaborative is highlighted by three of Aberdeen's PhD students:

Jenny Sturgeon is studying the causes and consequences of sub-adult European Shag winter location, funded by the Marine Alliance for Science and Technology Scotland (MASTS) and Scottish Ornithologists Club. The study focuses on a colour-ringed population of Shags that have been ringed as chicks at 12 colonies on the east coast of Scotland and England since 2009. Each ring has a unique colour and code combination and the rings are visible through a telescope or camera lens from land. As Shags are a coastal species, individuals of all ages can be resighted throughout the winter and, with the help of volunteers, thousands of Shags are resighted every year. The information linked with each bird is extensive and, with sightings of individuals from their first winter through to breeding age, the study has begun to answer a range of questions, including whether sub-adults from different colonies overlap at roost sites in winter and if they are faithful to a specific winter location over multiple years. Previous work by Hannah Grist (University of Aberdeen) showed that adult Shags are partial migrants, meaning that some individuals are migratory during winter, while others are resident year-round at the breeding colony. Jenny and her collaborators are currently working on the sub-adult data to pinpoint the age at which individuals fix their strategy of residency versus migratory and select a winter location. This is an important step in understanding the causes and consequences of partial migration as the winter location and environment that individuals experience can profoundly affect their subsequent fitness and survival, especially if individuals use the same winter location across years.

A colour-ringed Shag. Photo credit: Jenny Sturgeon.

If you see a colour-ringed Shag or would like to get involved with the project please email shags@ceh.ac.uk.

James Waggitt recently completed his PhD, in which he studied the potential for interactions between deep-diving seabirds and tidal stream turbines. To achieve these aims, it was necessary to understand how hydrodynamic and bathymetric features influence the foraging distributions of deep-diving seabirds in the high-energy environments (current speeds >2 ms^{-1}) required for economically efficient installations. Collating vessel-based and shore-based observation data and multiple physical datasets highlighted several key hydrodynamic and bathymetric features that influence the foraging distributions of seabirds at fine spatial (<1 km) and temporal (<15 min) scales within these habitats. It is hoped that this research helps to identify and mitigate potentially negative impacts on seabirds from installations. James is now starting a post-doctoral position at the University Of Bangor as part of the NERC-funded Marine Ecosystems Research Programme (MERP). This research will focus on understanding the environmental factors driving the foraging distributions of seabirds and cetaceans at a regional scale; linking physical processes to prey characteristics, and ultimately to top-predators.

Marianna Chimienti is studying the foraging movements of diving seabirds, such as Common Guillemots (*Uria aalge*) and Razorbills (*Alca torda*), and how their movements and foraging efficiency are related to environmental spatial variability and disturbances caused by human activities. Diving seabirds move and forage in complex marine environments and the combination of their movements, physiological constraints, energy budgets and the characteristics of the environment results in different

foraging strategies between species. The development of new technologies and 3-D models has allowed the study and prediction of the consequences of behaviours that have previously been difficult to observe. Hence, it is possible to start to answer key questions about seabirds' movement ecology and foraging strategies at very fine behavioural scales. Using GPS and three-axis accelerometers, Marianna and her collaborators have been able to understand when and where the two species search for prey, quantify body postures and behavioural states. The number of dives performed (higher in razorbills than Common Guillemots, respectively on average 17 per hour and 4 per hour), diving depths and durations (shallower and shorter in Razorbills than Guillemots), and use of the water column clearly differed between the two species highlighting the strategies used to search and locate prey underwater. This data will be used in a 3-D model to predict how foraging seabirds respond to environmental complexity and changing distribution of resources due to disturbances caused by human activity. This modelling tool will represent a starting point for understanding the mechanisms and consequences of animal movements and exploring predator responses to environmental change and possible future scenarios involving renewable energy devices.

SURVEYING ATLANTIC PUFFINS ON THE FLANNAN ISLES

By Sophie Marsh, Scottish Natural Heritage

The Flannan Isles archipelago, situated approximately 20 miles off the west coast of Lewis in the Outer Hebrides, is designated as a Site of Special Scientific Interest (SSSI) and Special Protection Area (SPA) for its breeding seabird populations. The islands are uninhabited and receive little human traffic except for infrequent visits by the Northern Lighthouse Board to Eilean Mor and occasional summer visitors. In June 2013, Scottish Natural Heritage (SNH) visited the Flannan Isles with the aim of surveying breeding bird populations for Site Condition Monitoring purposes (Fig. 1).

The Atlantic Puffin (*Fratercula arctica)* population on the Flannan Isles has been surveyed a number of times in the last 40 years, the first being the Jason Expedition (part of Operation Seafarer) in 1969 and the last being for Seabird 2000. The estimated numbers of apparently occupied burrows (AOBs) have increased significantly over the years though there appear to be some discrepancies in estimates, likely due to variation in survey methodologies (see Table 1). With this in mind, the 2013 survey had 2 major aims:

1. Estimate, as accurately as possible, the number of AOBs on Eilean Mor; and,
2. Establish a baseline for future surveys by: (a) accurately mapping colony extent; and, (b) establishing fixed quadrats.

Figure 1. SNH team surveying the warren of tunnels at MacPhails Bothies, Eilean Mor, 2013. Photo credit: SNH.

Table 1. Population estimates (number of apparently occupied burrows, AOBs) for Atlantic Puffin on Eilean Mor derived from surveys carried out between 1969 and 2013.

	Operation Seafarer (1969)	Seabird Colony Register (1988)	SNH (1996)	Seabird 2000 (2001)	SNH (2013)
Number of AOBs	4200-5800	6279	28016	15761	30502
% change since previous survey	N/A	+8.2	+346	-43.7	+93.5

Past surveys identified five key sub-colonies or zones on Eilean Mor supporting different densities of AOBs, therefore a stratified random sampling method was adopted for this survey. Between 8 and 15 points were randomly selected within each of the zones (see Fig. 2) and a 20m^2 circular quadrat was centred around each point. A total of 63 quadrats, covering a total area of 1260m^2, were identified. Total AOB estimates were extrapolated from mean AOB figures and burrow density (AOBs per m^2) was calculated for each zone (see Fig. 3).

Figure 2. Quadrat locations (blue dots) and survey zones (shaded areas) on Eilean Mor. Red = MacPhails Bothies (MP), grey = MacPhails Dense (MPD), green = North Colony (NC), blue = Lighthouse East Landing (LEL), and yellow = Southern Ridge (SR).

The Lighthouse East Landing (LEL) colony has the largest area (m^2) and shows the second highest density of burrows (0.88 per m^2). This is much higher than the density recorded in the 1996 survey, which was 0.36 per m^2. The area recorded for the colony extent is also larger, showing not only an increase in density from previous years but also in colony extent. Most of the zones show a similar relationship between area and number of AOBs except for MacPhails Dense (MPD), which has many more AOBs than the other zones in relation to size (Fig. 3B). The most striking observation in the field was the high density of burrows at MacPhails Bothies and the large area of honeycombed earth containing vast warrens of tunnels (see Fig. 1). These were in use by Puffins for the most part, but evidence of Rabbit occupation was still fresh in places. An aerial photograph from summer 2004 shows Eilean Mor covered in vegetation, whereas a comparable shot from 2013 shows large patches of brown earth (Fig. 4). There are obvious difficulties associated with this kind of terrain and great care was needed when counting AOBs. Future studies would benefit from measuring colony extent using GPS coordinates and using aerial photographs to illustrate changes.

The results suggest a genuine increase in the densities of AOBs across Eilean Mor and a large colony expansion since the previous assessment. The fluctuating numbers are most likely due to varying survey techniques, but it seems reasonable to argue that the population has undergone substantial growth since the time of its SSSI citation in 1992 (Table 1). Reasons for the increase in numbers and colony extent on the Flannan Isles are unknown. There have been no major changes to the locality; the islands remain uninhabited, reasonably undisturbed and with no mammalian predators. Logistical difficulties in monitoring Atlantic Puffin colonies mean that few data are collected annually from Scottish colonies. Currently, national census data indicate that numbers in Scotland increased by 20% between Operation Seafarer in 1969 and Seabird 2000. However, a complete national census has not been conducted since Seabird 2000 so it is not possible to compare the results here with the rest of the Scottish population. Puffins share their nesting habitat with Rabbits on Eilean Mor, which may be exacerbating burrow collapse in dense areas due to the denudation of vegetation and subsequent soil erosion. Otherwise, the news appears to be good for the Atlantic Puffin population on the Flannan Isles.

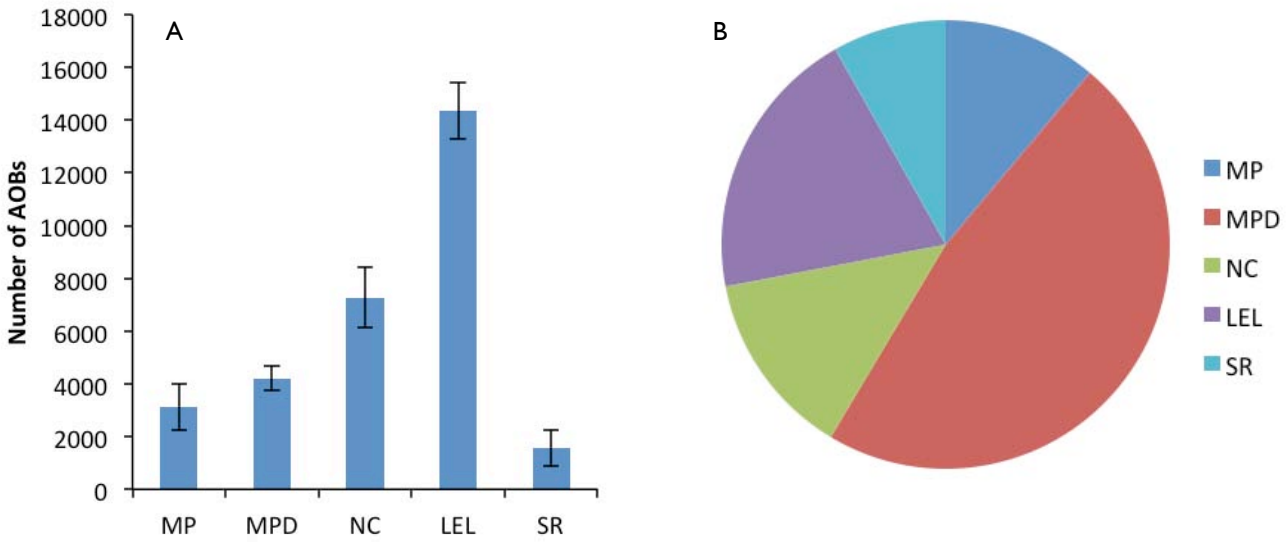


Figure 3. Atlantic Puffins on Eilean Mor: the total number of apparently occupied burrows (AOBs) in each of the surveyed zones (A) and the proportional density of burrows in each zone (B). See Figure 2 for location of the zones.

Figure 4. Aerial photographs of Eilean Mor reveal the extent of vegetation loss and soil erosion between 2004 (left) and 2013 (right). Photo credit: Stuart Murray.

PAPER REVIEWS

By Katherine Booth-Jones, Seabird Group Early Career Representative/Zoological Society of London

POTIER S., CARPENTIER A., GRÉMILLET D., LEROY B., LESCROËL A. (2015) INDIVIDUAL REPEATABILITY OF FORAGING BEHAVIOUR IN A MARINE PREDATOR, THE GREAT CORMORANT, *PHALACROCORAX CARBO*. *ANIMAL BEHAVIOUR* 103: 83-90

The ever-increasing power of remote trackers is allowing us amazing insights into the details of bird behaviour. This increase in power is now enabling us to look at behaviour, not only at a population level, but also within individuals. Here, the authors use trackers on 14 Great Cormorants (*Phalacrocorax carbo*) to calculate repeatability of foraging behaviour at both the population and individual level and relate this repeatability to foraging performance. Measuring foraging variables such as departure angle, distance of feeding site from colony, number of dives per trip and time spent underwater, Potier *et al.* found a difference in the degree of repeatability between individuals. Individuals that were consistent in their time spent underwater per trip also had a lower than average time spent underwater per trip, and therefore had a higher foraging efficiency. They conclude that individual-level repeatability may play a part in the foraging success of generalist seabirds, which may go on to regulate breeding success and hence influence population fitness.

YOUNG H.S., MAXWELL S.M., CONNERS M.G., SHAFFER S.A. (2015) PELAGIC MARINE PROTECTED AREAS PROTECT FORAGING HABITAT FOR MULTIPLE BREEDING SEABIRDS IN THE CENTRAL PACIFIC. *BIOLOGICAL CONSERVATION* 181: 226-235

While it has been shown that the designation of marine protected areas (MPAs) can be an effective conservation practice for species at a relatively small scale, the efficacy of pelagic MPAs (PMPAs) is less well studied. Here Young *et al*. demonstrate that two PMPAs in the central Pacific provide important protection for three species of sympatric tropical Sulid species (*Sula sula, S. dactylatra* and *S. leucogaster*) during their breeding season. A total of 140 individuals from Palmyra Atoll and Tern Island, both part of designated Marine National Monuments, were tracked using GPS loggers during incubation. It was found that the PMPAs covered over 85% of the foraging habitat for each species, which demonstrates how these areas may be providing important protection for Sulid species during this life-history stage. However, the authors highlight that Sulid species are not as wide-ranging as many pelagic seabirds, and therefore PMPAs may not be as effective in their coverage for more mobile species. Providing adequate protection to pelagic species, particularly those in tropical oceans, can be difficult and the authors recommend a multi-species and multi-guild approach to fully understand the efficacy of PMPAs.

RIVER TYNE KITTIWAKES – UPDATE

By Daniel M. Turner

Surveys in early June confirmed a minimum of 1,011 apparently occupied Kittiwake nests (AONs) on the various buildings and structures of the River Tyne, in northeast England. This is an increase since 2014 (975 AONs), despite the abandonment of one site due to a pair of nesting Kestrels and the location of some new netting on Newcastle quayside business premises, which was of the wrong, and illegal, mesh size, though this has now been removed. Observations indicate the earliest laying date to be around 6 May with small chicks visible from 3 June.

The tower erected on 3 April 2014 at Port of Tyne, South Shields, has yet to attract birds to its ledges. Consideration is being given to making clay decoy Kittiwakes in the future, to place on the ledges to attract birds. The Saltmeadows Kittiwake tower at Gateshead shows a slight increase since 2014 by 13 AONs to 90 nests in 2015. The tower was abandoned by Kittiwakes in summer 2013 due to Crow predation, but subsequent measures have enabled the Kittiwakes to successfully return. At the Baltic Arts Centre, Gateshead, 82 AONs were recorded on 3 June 2015. Two web cameras are positioned at their nesting ledges – and the live pictures may be viewed on the Durham Wildlife Trust website.

More information on the **Tyne Kittiwakes Partnership** can be found here or you can visit us on Facebook.

Left: Kittiwakes nesting at Newcastle quayside on Guildhall (foreground) and north abutment of the Tyne Bridge (background), June 2015.

Right: Saltmeadows Kittiwake tower, east Gateshead, June 2015.

Photo credit: Daniel Turner.

Website: www.seabirdgroup.org.uk

Facebook: www.facebook.com/pages/The-Seabird-Group/505575036157550?fref=ts

Twitter: www.twitter.com/TheSeabirdGroup (@TheSeabirdGroup)

Seabird Group Forum: https://groups.yahoo.com/neo/groups/seabirdgroupforum/info

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The Seabird Group promotes and helps co-ordinate the study and conservation of seabirds. Members also receive the journal *Seabird*. The Group organises regular conferences and provides small grants towards research.

CURRENT SEABIRD GROUP COMMITTEE

Current retiral dates (at AGM) are shown in brackets:

Chairman	Russell Wynn (2015)	rbw1@noc.ac.uk
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Current membership rates

Standing Order	£20
Concession	£15
Institution	£35
International:	£21
Life	£300

The Newsletter is published three times a year. The editor welcomes articles from members and others on issues relating to Seabird research and conservation. **Deadlines are: 15th January (February edition); 15th May (June edition); and, 15th September (October edition).**

Submissions for the newsletter must be in electronic format, preferably in word and should be no more than 1500 words. Please email photographs/figures as separate files and with full credits.

Every effort is made to check the content of the material that we publish. It is not, however, always possible to check comprehensibly every piece of information back to its original source as well as keeping news timely. Please will readers make further checks at their own discretion, if they have any concerns about any of the information or contacts provided, and contact me to allow feedback to other readers if necessary. **We also try to provide a forum for readers' views so that those provided in the Newsletter are not necessarily those of the Editor or Seabird Group.**