

SUMMARIES MADE BY THE SPEAKERS :

Professor Sarah Wanless:

(CEH Centre for Ecology & Hydrology in Scotland).

Puffins in the UK

I will start by reviewing changes in puffin numbers in the UK over the last hundred and twenty years. However, my talk will mainly focus on puffins on the Isle of May, a major colony in the northwestern North Sea. Using data from this long-term study I will demonstrate how puffins are being affected by climate change both during and outside the breeding season. We still know very little about puffins when they are away from the breeding colonies but bird-borne devices are highlighting important wintering areas and providing the first data on patterns of diving activity. Long-term studies and targeted logger work are playing key roles in identifying natural and anthropogenic threats to North Sea puffins and predicting how abundance and distribution will change in the future.

Sand eels as prey for seabirds in the North Sea

Sand eels are abundant, shoaling, small-sized, lipid-rich fish that are eaten by a wide range of marine predators in the North Atlantic including seabirds. As part of long-term population studies of seabirds on the Isle of May, extensive information on diet of puffins, guillemots, kittiwakes and shags have been collected. These data have highlighted 1) the changing importance of sand eels in seabird diet, 2) advanced our knowledge of sand eel biology, and 3) improved our understanding of links between sand eel abundance/availability and seabird population dynamics.

Dr. Euan Dunn

(Head of Marine Policy RSPB. Royal Society for the Protection of Birds).

The Puffin as an icon for conserving UK Seabirds

Euan Dunn, Principal Marine Advisor, RSPB

As a charismatic and socially interactive bird, the Puffin resonates with the human condition, touching the sense of theatre, comedy and community in us all. For the UK public, this makes the Puffin one of the most instantly recognisable, best known and best loved of any birds, not just seabirds. This, in turn, makes the Puffin the ideal marine icon for raising public awareness about the need to safeguard the wider seabird community and our seas.

The UK's seabird populations are of major importance in European and global terms, e.g. supporting 90% of the world's Manx shearwaters and perhaps 10% of its Atlantic Puffins. A minority of the UK's seabird species are stable or increasing but most are declining dramatically. In the last 25 years, Scotland has lost about half of its breeding seabird population, with the Northern Isles (Orkney and Shetland) particularly badly hit. An overview of the Puffin's status throughout

the UK shows considerable regional variation in population trends but overall an apparent decline in recent years (a national census is overdue).

The Puffin and the UK's other seabirds face a variety of threats of which the most concerning is sea warming and its impact on the food chain, especially for sandeel-feeders like the Puffin. Climate change models predict a future contraction of the Puffin's European breeding range to the north-east, resulting in loss and weakening of colonies in the south. Given that reversing climate change is a long-term challenge, it is vital to tackle the other, more tractable threats to strengthen the resilience of Puffin populations and give them a fighting chance against climate change.

This calls for measures both on land and at sea. Firstly, there is a significant programme to rid the UK's seabird islands of rats and then apply effective biosecurity – the progress of the RSPB's efforts is illustrated for a number of islands. At sea, part of the potential remedy is to identify, designate and effectively manage the critical foraging areas of Puffins and other seabirds as Marine Protected Areas. The RSPB's tracking work to pinpoint critical offshore areas is described, as well as our campaign in Scotland to gain public and government support for MPAs.

Dr. Tore Johannesen

(Senior researcher at The Institute of Marine Research in Norway).

Management of sand eel and general fish recruitment problems in the North Sea and Norwegian coastal waters

Sand eel fishing grounds are spread like a patchwork in the North Sea due to the burial behaviour of the fish in suitable sandy substrate. Evidence from the Norwegian sector of the North Sea suggests that sand eel grounds are demographically disconnected over relatively short distances (10-20 nautical miles), i.e. the exchange of sand eels between neighbouring fishing grounds is generally too low to have significant impact on the population dynamics of one other. Depletion of sand eel grounds may thus have long-term implications by causing local recruitment failure and slow recovery of the stock.

Long time series from the south coast of Norway (since 1919) have shown repeated incidents of abrupt and persistent recruitment collapses in gadoid fishes. Evidence suggests that these events were linked to abrupt changes in the plankton community that deprived young-of-the-year gadoids of adequate planktonic prey. Shifts in the plankton community have been observed in relation to both gradually increasing nutrient loads and increasing temperatures. Regime shifts and fish recruitment problems were observed in the North Sea and Norwegian coastal waters around the turn of the century. This may have affected breeding success in sea birds.

Dr. Erpur Snær Hanssen

(Researcher at the South Iceland Nature Centre)

Present and past changes in Icelandic seabird populations, emphasizing the Westman Islands Atlantic Puffin

The lesser sand eel (*Ammodytes marinus*) was the predominant seabird prey in the temperate south and west coasts during the last cold regime (1967-1996), while it was the capelin (*Mallotus villosus*) in arctic north and east coasts. The current warm regime began in 1996 with Sea temperatures peaking in 2003 when the capelin moved its main nursery grounds to SW Greenland but the sedentary sand eel population in the S&W soon collapsed. The large recent population changes of Icelandic seabirds are reviewed in this perspective. The changes differ regionally within and between species. A five year study of the Atlantic Puffin chick production and prey abundance on a national level serves as a general exploratory model. Sand eel in the S&W has not recovered or been replaced by an alternative prey and chick production has remained very poor (for 12 years). Sand eel has replaced capelin in the north where chick production has been high. Local capelin population has been growing in the cold non-stratified east waters while the sand eel has declined, simultaneously the Puffin chick production has grown from poor to high. In search for an explanation of the sand eel collapse the complete pole netting harvest record (1880-2014) of Puffins in the Westman Islands was examined together with seasonal sea surface temperatures (SST). Variation in harvest reflects past production until age of maturity & colony attendance of immature birds, both reflecting availability of the key prey, the Lesser Sand eel. The Puffin harvest time series, together with summer SST and sand eel length threshold for wintering (based on winter SST) were subjected to pre-whitening and split into regimes by a sequential *t*-test. Comparison of the regime timing and level of change between the three variables indicates three large production crashes in 1891, 1931 and 2004, following two growth regimes <1891 and >1967.

The results suggest the existence of an eco-physiological tolerance limit ($L_{th} = 7.7$ cm) imposed by warm winter SST regimes off S&W Iceland, above which the sand eel population collapses. Local sand eel life history is composed of summer growth period in May-July, and dormant winter period in August-April spent buried in sand. In winter, increased SST accelerates the sand eel's metabolism & their rate of reserve depletion, but reduces energy allocation to growth & reserves during summer.

Paul Shimmings

(Senior Consultant. The Norwegian Ornithological Society)

Summary:

Conservation measures for seabirds in Norway and the role of the Important Bird and Biodiversity Area (IBA) network. Paul Shimmings – Consultant, BirdLife Norway.

Many of our bird species, not least many of our seabirds, have declined in numbers in recent years- Some of these have experienced dramatic declines. BirdLife Norway has identified 93 sites which qualify as Important Bird and Biodiversity Sites (IBAs). These sites are selected based upon criteria from

BirdLife International. Around one-third of these are sites which qualify based upon IBA-criteria alone. A report will shortly be available detailing all of the IBAs in Norway.

Marguerite Tarzia

(European Marine Conservation Officer for Birdlife International).

Seabird conservation in Europe: Threats, Progress, & Challenges in the EU: Conservation by incremental steps

In this presentation I outline work undertaken by BirdLife's marine programme in Europe, which focuses on both site based and non-site based approaches to seabird conservation as well as advocacy at National Government and regional level to protect seabirds.

BirdLife's site based work includes the identification of marine Important Bird Areas (marine IBAs) which are based on rigorous scientific and standardised techniques (tracking, at sea surveys, modelling) to identify sites according to population threshold criteria (1% of global/biogeographic population contained in a site). Marine IBAs can be identified for breeding colonies, at sea areas immediately surrounding the colony, non-breeding aggregations, migratory bottlenecks and pelagic sites. BirdLife Partners across the European region apply the approaches outlined in BirdLife's [Marine IBA Toolkit](#)¹ to identify these sites. Globally there are now over 3000 marine IBAs identified, and close to 700 sites have been identified across the European region. These sites are collated and publically displayed in the online [Marine E-Atlas](#)² providing information on the species triggering the site. Furthermore, tracking data from both BirdLife Partners and external scientists are collated on BirdLife's [Seabird Tracking Database](#)³, providing a rich GIS layer of information on seabirds which can be used for identification of offshore areas across ocean basins. Owners of seabird tracking data are urged to contribute to this database to help our ongoing conservation efforts.

Marine IBAs are used by the BirdLife Partnership in their lobbying and advocacy of National Governments for Marine Protected Area (MPA) designation. Within the European Union, marine IBAs are recognised as a 'shadow list' for the Natura 2000 network (under the EU Bird's Directive), for [Special Protection Areas for Birds](#)⁴, and I provide examples of countries where the two networks (IBAs and Natura 2000) closely align⁵, and ones where progress is still required. [Spain](#) is presented as a case study, as the marine IBA network was determined by the BirdLife Partner (SEO/BirdLife) over a number of years, and following sustained lobbying of Government resulted in the designation of 39 new marine Special Protected Areas (Natura 2000) in 2014, closely aligned to the boundaries of the

¹ (<http://maps.birdlife.org/marineIBAs/default.html>)

² (<http://maps.birdlife.org/marineIBAs/default.html>)

³ <http://www.seabirdtracking.org/>

⁴ http://ec.europa.eu/environment/nature/natura2000/sites_birds/index_en.htm

⁵ See BirdLife Europe's Natura 2000 Progress Assessment, here:

<http://www.birdlife.org/europe-and-central-asia/marine-natura-2000-network>

marine IBA areas. I also provide a summary of the progress for site designation in the UK, including the National Marine Protected Area network, which has seen designation of sites for sandeels off Scotland. I provide a summary of the lessons learnt from the EU process outlining the effectiveness of using marine IBAs as the basis for MPA designation. I also provide an outline of BirdLife's strategic plans for site identification in the European region as a whole- including the identification of transboundary sites shared between countries, and participation in the Convention of Biological Diversity's [Ecologically and Biologically Significant Areas](#)⁶.

I finish the presentation providing a description of the non-site based work that BirdLife is involved in, particularly in relation to mitigation and reduction of seabird bycatch. Our new '[Seabird Task Force](#)⁷' which was launched at the beginning of 2015 is a collaborative project between seabird bycatch experts and fishermen. Observers work with fishermen to understand bycatch in a range of different fishing gears, and then collaboratively develop mitigation measures which are appropriate and efficient for the fishermen and which reduce the numbers of birds caught. In order to successfully protect seabirds both site and non-site based work is needed and the case for dedicated work to understand seabird bycatch in Norway and across the NE Atlantic region is discussed.

⁶ <https://www.cbd.int/ebsa/>

⁷ Seabird Task Force website (www.seabirdbycatch.com)